

Waverley Borough Council

**TOWN AND COUNTRY PLANNING ACT 1990
SECTION 78 APPEALS**

APPEAL A

by Mr Thomas Doherty against the Council's decision to refuse planning permission

LPA ref WA/22/02625. PINS ref APP/R3650/W/22/3313865

1 GYPSY/ TRAVELLER PITCH

APPEAL B

By Mr Simon Doherty against the Council's decision to refuse planning permission

LPA ref WA/2022/02766. PINS ref APP/R3650/W/23/3314447

3 GYPSY/ TRAVELLER PITCHES

APPEAL C

By Mr and Mrs Mark, Allana Doherty against the Council's decision to refuse planning permission.

LPA ref WA/2023/00371. PINS ref APP/R3650/W/23/3322400

1 GYPSY/ TRAVELLER PITCH

APPEAL D

By Mr Matthew Doherty against the Council's decision to refuse planning permission.

LPA ref WA/2023/00470 PINS ref APP/R3650/W/23/3323108

1 GYPSY/ TRAVELLER PITCH

**PROOF OF EVIDENCE OF NICHOLAS SIBBETT CEcol CEnv MCIEEM ON
BEHALF OF WAVERLEY BOROUGH COUNCIL**

15th October 2024

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1 QUALIFICATIONS AND EXPERIENCE

- 1.1 My name is Mr Nicholas Edwin Sibbett. I hold an Honours degree in Ecology from the University of East Anglia and a Master of Science degree in Landscape Ecology, Design and Maintenance from Wye College, University of London.
- 1.2 I am a Chartered Ecologist (CEcol), a Chartered Environmentalist (CEnv) and a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). I hold various licences from Natural England, including for bat survey (level 2, CL18), barn owl survey (CL29), great crested newt survey (CL08), and I have held mitigation licences for development projects where mitigation measures were required for badgers, bats and great crested newts.
- 1.3 I worked for English Nature, which became Natural England in 2006, in its Suffolk office for seventeen years from 1991 to 2008. I was responsible for providing evidence to support notification of new SSSIs, advising landowners on SSSI management, advising regulators such as Local Planning Authorities on applications made to them, and managing three National Nature Reserves. For part of that period I was Protected Species Officer, advising on legal and planning implications for great crested newts, badger, bats and others.
- 1.4 I have a wide range of experience in the field of ecology, and in particular in habitat survey and the conservation and management of designated sites; and my background is in protected species, designated site management and Habitats Regulations Assessment. For many years I taught Phase 1 Habitat Survey for the Chartered Institute of Ecology and Environmental Management national workshops programme.
- 1.5 I was in practice with The Landscape Partnership since March 2008, where I was promoted to Associate Director. I led the company's ecology team across the practice. In August 2024 I set up my own company, Sibbett Ecology Ltd, to deliver ecological consultancy. I have been involved in providing ecological services for a wide range

of developments, from major housing and infrastructure projects to minerals and waste schemes, across the UK; and have coordinated and undertaken vegetation surveys in a number of habitats, including woodland, parkland, heathland, and grassland, and for a number of rare and protected species including bats, great crested newts, badgers and reptiles.

- 1.6 I have given evidence to a number of Appeal Hearings and Public Inquiries, for Local Planning Authorities, developers and for Rule 6 parties, including Public Inquiries regarding enforcement appeals for gypsy/traveller sites.
- 1.7 The evidence I have prepared for this Inquiry is true and has been prepared, and is given in accordance with, the guidance of my professional institutions, and I confirm that the opinions expressed are my own professional opinions.

2 SCOPE OF EVIDENCE

- 2.1 I was appointed by Waverley Borough Council in June 2024, to advise on ecological matters in connection with the unauthorised development for this Appeal and to provide evidence at this Inquiry. My appointment was subsequent to my initial review of the evidence base, during which I was satisfied that I could support the Council's case that appeals should be dismissed due to ecological harm.
- 2.2 I visited the appeal sites and some of the surrounding land on 3rd October, facilitated and accompanied by John Bennett of Waverley Brough Council. Ian Dudley, the Council's landscape witness was also present. I gratefully acknowledge that Thomas Doherty and Simon Doherty kindly allowed us to enter their appeal sites.
- 2.3 My Proof of Evidence describes
- Planning policy, case law and guidance
 - Baseline conditions of the appeal sites prior to development, as far as can be ascertained from the limited evidence available; and shortfalls in the evidence
 - Impacts of the development, both those which are certain and those which might have occurred if baseline evidence had been available
- 2.4 Each appeal is considered individually, although there are some common themes. I conclude that each of the four unauthorised developments have caused the loss of deciduous woodland which is a Priority Habitat, the loss of part of a watercourse and have caused loss of habitat which was suitable for Wood White butterfly (a rare, declining and Priority species), reptiles, breeding birds, badger and bats. The lack of adequate survey work means that the impact on these species cannot be certain. The inadequate information to allow an informed understanding of the impacts of the unauthorised developments, the harm to habitats, and potential harm to species, means that each appeal should be dismissed.

- 2.5 I consider that the Council's refusal of each planning application on the grounds of inadequate survey and possible harm to protected species was correct. I also draw the Inspector's attention to the destruction of Priority habitat deciduous woodland and harm to a watercourse, which are also material considerations in the appeals. Previous information regarding habitat loss and species issues has been provided to the Inspector in the Council's Statement of Case Addendum, Core Documents CD4A.4 – CD4A.7.
- 2.6 There has been some confusion in documents showing the location of appeal sites in appellants' documents. My colleague Mark Smyth has provided a plan showing the location of the appeal sites (Appendix 1).

3 PLANNING POLICY, CASE LAW, APPEALS AND PLANNING PRACTICE GUIDANCE

3.1 In this chapter I will describe the relevant planning policy, case law, some examples of appeals, and Planning Practice Guidance which are relevant to determining these appeals.

Local Planning Policy

3.2 There are two relevant policies from the Waverley Borough Local Plan Part 1: Strategic Policies and Sites February 2018. These are Policies NE1 and NE2. Extracts of these policies are below. Text in bold has been emboldened by me.

Policy NE1 – Biodiversity and Geological Conservation

Development will be permitted provided that it:

- a. Retains, protects and enhances features of biodiversity and geological interest and ensures appropriate management of those features.*
- b. Ensures any adverse impacts are avoided, or if unavoidable, are appropriately mitigated.*

Particular regard will be had to the following hierarchy of important sites and habitats within the Borough -

- (i) Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar Sites (international designations)*
- (ii) Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (national designations)*
- (iii) Sites of Nature Conservation Importance (SNCIs), Local Nature Reserves (LNRs), Local Geological Sites and other Ancient Woodland, Ancient and Veteran Trees; or **any other Priority habitats not identified within (ii) above (local designations)***

Within locally designated sites, development will not be

***permitted** unless it is necessary for appropriate on site management measures or can demonstrate no adverse impact to the integrity of the nature conservation interest. Development adjacent to locally designated sites will not be permitted where it has an adverse impact on the integrity of the nature conservation interest*

Policy NE2 – Green and Blue Infrastructure

*The Council will seek to protect and enhance benefits to the existing river corridor and canal network, including landscaping, water quality or habitat creation. This will be partially achieved, on development sites, by retaining or creating undeveloped **buffer zones to all watercourses of 8 metres for main rivers and 5 metres for ordinary watercourses**. In accordance with the Water Framework Directive, development will not be permitted which will have a detrimental impact on the visual quality, water quality or ecological value of existing river corridors and canals.*

National Planning Policy Framework

- 3.3 The National Planning Policy Framework (NPPF) dated December 2023 provides Government Policy in relation to nature conservation and planning as well as other matters.
- 3.4 Chapter 15 paragraph 180(d) of the NPPF says that the planning system should contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity.
- 3.5 When determining planning applications Local Planning Authorities should apply the following principles (paragraph 186):
- If significant harm to biodiversity resulting from a

development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused,

- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate

Case Law

- 3.6 Case law indicates that Local Planning Authorities should have all relevant ecological information so that they can make an informed decision of proposed development schemes. Government circular 06/2005 also requires surveys in advance of planning permission (Appendix 2).

- 3.7 A judicial review in 2001 (*R v Cornwall CC Ex p Hardy*, Appendix 3) found that the Local Planning Authority were required to have full environmental information before giving a planning permission; it was not possible to defer surveys until after the permission.

Appeals

- 3.8 There are also a number of examples of situations where appeals have been dismissed because all relevant ecological information has not been provided. Four examples of this are provided below.
- 3.9 The appeal decision for case reference APP/D3505/W/18/3212219 is in Appendix 4. In paragraph 8, the Inspector says *'I am not satisfied that I have sufficient and up to date information on bats and great crested newts to conclude that there would be an acceptable impact on protected species. It would not be appropriate to leave this matter to a planning condition or a note informing the appellant of their responsibilities, as the information is needed to inform the planning decision.'*
- 3.10 The appeal decision for case reference APP/W3520/W/17/3174638 is in Appendix 5. In paragraph 22, the Inspector states that *'Bearing in mind advice in the Circular and notwithstanding that it might well be possible to mitigate the impact on any protected species should they be present, without the requisite surveys, it is not possible to ascertain the effect of the development on a protected species and a precautionary approach should be adopted'*.
- 3.11 The appeal decision for case reference APP/Y1945/W/20/3261681 is in Appendix 6. Buildings with potential to support bat roosts were present, no follow up surveys were carried out and the Council did not advance the lack of proper information as a reason for refusal. The Inspector dismissed the appeal on the grounds of insufficient information to conclude that there would not be a harmful effect on protected species. Given the level of protection afforded to protected species, the Inspector considered this to be a high level of harm and attributed significant weight to it.

- 3.12 An appeal on a site east of Cransley Road, Loddington (Appeal reference APP/L2820/C/19/3240989 and APP/L2820/W/20/3249281, Appendix 7) has similarities to this appeal case. There was a poor quality Preliminary Ecological Assessment which was carried out shortly before an intentional unauthorised development was implemented, but then followed by a second poor quality Preliminary Ecological Appraisal post-development. The Inspector attached limited weight to the appellant's poor-quality submissions and recognised that substantial harm was carried out.

Planning Practice Guidance

- 3.13 The Government publishes planning practice guidance on its website. On the web page <https://www.gov.uk/guidance/natural-environment#biodiversity-geodiversity-and-ecosystems> there is a clear advice that '*Planning authorities need to consider the potential impacts of development on protected and priority species, and the scope to avoid or mitigate any impacts when considering site allocations or planning applications.*' (Paragraph 016 Reference ID: 8-016-20190721). Elsewhere on that page it says that '*Information on biodiversity and geodiversity impacts and opportunities needs to inform all stages of development (including site selection and design, pre-application consultation and the application itself). An ecological survey will be necessary in advance of a planning application if the type and location of development could have a significant impact on biodiversity and existing information is lacking or inadequate*' (Paragraph: 018 Reference ID: 8-018-20240214).

4 BASELINE CONDITIONS PRIOR TO THE DEVELOPMENTS

4.1 None of the planning applications provided ecological reports to inform the Council's decision, although the Council's biodiversity Checklists were completed. The Biodiversity Checklists are superseded by ecological reports, and whilst I consider the checklists were completed inappropriately there is no need to assess them further. There were, however, ecological reports provided with each appeal, with various documents commissioned from a couple of consultancies. These are discussed below.

Appeal A – Thomas Doherty

4.2 The appellant's Preliminary Ecological Appraisal is the *Preliminary Ecological Appraisal Land at Stovolds Hill Cranleigh, Waverley, Surrey GU6 8TX* by Arbtech dated 24th April 2023 (CD2A.6). It was based on a survey in February 2023, after the development had been completed. The PEA recognised that the site previously contained deciduous woodland habitat of principle importance under Section 41 of the NERC Act 2006. The PEA (table 6, page 17 onwards and table 7 page 20 onwards) also recognised that

- The woodland may have supported protected plant species
- A pond approximately 110m to the south-west may have supported great crested newts
- The woodland formerly on site may have provided refuge for reptiles.
- Removal of trees may have resulted in the destruction of bat roosts, if present
- Removal of woodland and scrub will have resulted in a loss of foraging or commuting habitat for bats and lighting could deter bats from the areas.
- Clearance of woodland could have resulted in the destruction of

badger setts, if present.

- The clearance of woodland could have resulted in a loss of suitable habitat for hedgehogs and may have resulted in the death and/or injury of hedgehogs during site clearance and works
- The removal of woodland will have resulted in the reduction of nesting opportunities
- The removal of woodland could have resulted in the loss of significant habitat for invertebrates

4.3 There are three recommendations for further survey work, to improve the quality of the baseline

- Botanical walkover [survey] of the adjacent woodland in April / May to establish a baseline condition for the woodland which was removed [assuming it was similar]
- Habitat Suitability Index of the pond approx 110m to the south-west and subsequent eDNA testing for Great Crested Newts
- Badger surveys of adjacent woodland
- It was recognised that surveys for bat roosts of trees which had been lost was not possible. Reptiles were present in the local area and the site may have supported reptiles pre-development (page 17), but no survey was possible on the development site post-development.

4.4 A January 2024 letter from Darwin Ecology (CD2A.7 found that Arbtech's assessment of habitat was correct and that the Arbtech recommendations remained valid including a botanical survey and condition assessment. Further eDNA testing was required. There were no signs of badgers. A pond on the east of the appeal site and a ditch on the western side of the appeal site, both not reported by Arbtech, were found by eDNA testing in a letter from Darwin Ecology

dated 15th July 2024 to not contain great crested newts. The pond north of Thatched House Farm (my Figure 01) was not surveyed.

4.5 Neither Arbtech nor Darwin Ecology recognised that a watercourse ran along the southern edge of the appeal site, which had been covered over by the unauthorised development. The ditch to the west of the site was still present, and the 'pond' to the east is believed to be a remnant of that ditch. The presence of the watercourse was described in a submission by Mr Hermann (Appendix 8).

4.6 I conclude that the baseline habitats present were a deciduous woodland being a Priority habitat, and a watercourse in the form of a ditch. The habitats were suitable to support protected plant species of woodland, invertebrates, reptiles, breeding birds, hedgehogs, badgers, bat roosts, and bat foraging. There is no information to confirm the presence or absence of these species. However, great crested newts were unlikely to have been present. Although the woodland was unsuitable in itself for foodplants of Wood White butterfly, it provided shelter and woodland edge to adjacent land to the north thus contributing to the capacity of the adjacent land to support Wood White.

Appeal B (Mr Simon Doherty), Appeal C (Mr Mark Doherty and Mrs Allana Doherty), and Appeal D (Mr Matthew Doherty)

4.7 An Ecological Impact Assessment was written for each of these three appeal sites, by Darwin Ecology and each dated July 2023. The reports are core documents CD2B.11 (Appeal B), CD2C.8 (Appeal C) and no CD number for appeal D at the time of writing.

4.8 I found that all three of these reports were of very limited use in establishing the baseline conditions. The reports all assumed that the baseline was the hardstanding which was observed on the site survey post-development. In other words, the post-development hardstanding was treated as if it were the pre-development baseline. The very limited potential for protected species on the hardstanding, as described by Darwin Ecology, is therefore not representative of the

pre-development baseline. No data was requested from the Local Environmental Records Centre on the incorrect assumption of baseline, so information may have been available but not considered.

- 4.9 From my site visit on 3rd October, the information gained from the Arbtech report for Appeal A, and the distribution of deciduous woodland Priority Habitat shown on the Magic map and redrawn on my Figure 01, the habitats of Appeal sites B, C and D consisted largely of unmanaged grassland dominated by fleabane with several other ruderal species, bramble scrub, other tree and shrub saplings, and some grasses. Meadow vetchling may have been present. Along the southern edge of Appeal Site B prior to development was deciduous woodland Priority Habitat with a watercourse. The southern part of the Appeal sites C and D (the access route) was also deciduous woodland Priority Habitat and watercourse prior to the development.
- 4.10 The retained open scrubby habitat in the vicinity of Appeal sites B, C and D appeared to me to be suitable to support reptiles, breeding birds, invertebrates, hedgehogs, badgers, and bat foraging. The deciduous woodland Priority Habitat and watercourse which formed part of Appeal sites B, C and D is likely to have been similar to the woodland described by Arbtech for Appeal site A; i.e. having in addition the suitability for protected plant species and bat roosts.
- 4.11 During my site visit I saw a small amount of meadow vetchling *Lathyrus pratensis* on the western border of appeal site B. I saw more of this plant species north of the appeal sites, on land south of Dunsfold Road. On land to the west, which was unmanaged but had been used for low-density pig-keeping in 2022 (as evidenced by reports for a nearby development, planning application WA/2022/02144) I also found meadow vetchling and bird's-foot trefoil *Lotus corniculatus*. These observations were not part of a formal survey and no estimate of their distribution across the retained habitat was made.
- 4.12 Meadow vetchling and bird's-foot trefoil are food plants of the Wood

White butterfly. The female butterfly lays her eggs on the foodplants, and when the caterpillars hatch the caterpillars eat the leaves of their foodplant. Wood White butterfly is a Priority Species under section 41 of the NERC Act 2006 because of its very limited distribution and abundance in the UK. It is also protected from being sold under the Wildlife and Countryside Act 1981 (as amended). A factsheet on the species from Butterfly Conservation is included at Appendix 9. The appeal sites are on the edge of an area which is a priority area in the UK for Wood White butterfly (Figure 03). The location on the edge of the priority area, the presence of meadow vetchling and bird's-foot trefoil in the near vicinity, and the range of ruderal flowering species in a mosaic with scrub suggests that the appeal sites B, C and D each appear to have been suitable to support Wood White butterfly.

5 IMPACTS OF THE DEVELOPMENT

5.1 This chapter assesses impacts of the development. The policy implications are also assessed. There is some duplication in text for various appeal sites. This is because each appeal site has been assessed individually rather than simply as a collective assessment.

Methodology

5.2 The evaluation of the importance of ecological features and the impact assessment was undertaken in accordance with the Chartered Institute of Ecology and Environmental Management's Professional Guidance Series¹.

5.3 EcIA is a process of identifying, quantifying and evaluating potential effects of development-related or other proposed actions on habitats, species and ecosystems. Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of EcIA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' (explained in Chapter 4) or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local.

5.4 A key principle of assessment, leading to iterative design where relevant, is the mitigation hierarchy set within the National Planning Policy Framework.

Avoidance Seek options that avoid harm to ecological features (for example, by locating the proposed development on an alternative site or safeguarding on-site features within the site layout design).

¹ CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*, Second Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

Mitigation Adverse effects should be avoided or minimised through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.

Compensation Where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.

Enhancement Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation

5.5 A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project.

- International and European
- National
- Regional
- Metropolitan, County, Unitary authority
- other local authority-wide area e.g Borough or District Council
- River Basin District
- Estuarine system/Coastal cell
- Local e.g Parish
- Site only – of negligible value outside the boundaries of the site itself.

5.6 When describing ecological impacts and effects, reference should be made to the following characteristics as required:

- positive or negative

- extent
- magnitude
- duration, if not permanent
- frequency and timing
- reversibility.

5.7 The assessment only needs to describe those characteristics relevant to understanding the ecological effect of the impacts and determining its significance. For example, timing of the removal of a hedgerow is unlikely to be of particular relevance to the assessment of the effect on hedgerows, although it may be relevant in assessing the effect on a species using the hedgerow, such as nesting birds. An ecological feature valued as being important at the Parish scale would in my opinion be a material consideration, and paragraphs 180a, 180d and 186a of the NPPF would apply. Harm to a feature valued at Parish scale is one that should be avoided, mitigated, or as a last resort compensated for.

Impacts on habitats – Appeal A (Mr Thomas Doherty)

5.8 I agree with the assessment in Arbtech’s Preliminary Ecological Appraisal dated 24th April 2023 (CD2A.6) that deciduous woodland Priority Habitat has been removed to construct the unauthorised development. Lowland deciduous mixed woodland is defined as a Priority Habitat on Joint Nature Conservation Committee’s website² as woodland growing on the full range of soil conditions, from very acidic to base-rich, and takes in most semi-natural woodland in southern and eastern England, and in parts of lowland Wales and Scotland. There is no reason to believe that Arbtech had exaggerated the value of the woodland. I measure the area of woodland removal as 0.09ha, larger than Arbtech’s measurement of 0.054ha. This measurement

² <https://jncc.gov.uk/our-work/uk-bap-priority-habitats/#list-of-uk-bap-priority-habitats>
accessed on 8th October 2024

is based on the site plan at Appendix 1. The weight given to Priority Habitats in the Local Plan indicates to me that the whole woodland was of Borough-wide importance, and the loss of part of the woodland is a significant negative impact at the Borough scale. A watercourse on the southern edge of the site has also been lost. The watercourse is of importance at least at the Parish scale, and its loss is a significant negative impact at that scale.

5.9 There appeared to be no attempt to avoid the harm, nor to mitigate or compensate for the harm. Arbtech's Preliminary Ecological Appraisal recommends that a compensation and enhancement strategy should be implemented and informed by a botanical walkover of the adjacent woodland (if accessible) to establish a baseline condition for the woodland which was removed. I have not seen any evidence to indicate that this strategy has been progressed from a recommendation. There is no evidence that the appellant has control of sufficient land to be able to achieve such strategy, which would of course have to include allowance for the watercourse. The technical difficulty and the unknown land availability is such that it is not feasible that such a strategy could be achieved; it is therefore not appropriate for it to be postponed to a condition of any permission.

5.10 I refer to the appeal decision at Loddington (Appendix 7) where the appellant proposed at Inquiry a range of solutions to a drainage issue. The Inspector was clear that (paragraph 139) *It is not uncommon in retrospective or part retrospective cases for conditions to be imposed requiring the submission of schemes for approval, with the ultimate sanction of cessation of the use should one not be approved and implemented.* He went on to say that (paragraph 141) *The evidence before me is insufficient to demonstrate that a system along the broad lines proposed by the appellant could manage the likely quantity of runoff. Moreover, I am not persuaded that the imposition of a condition requiring the submission of a scheme involving the very extensive operations outlined by Mr Brown for the first time at the inquiry would be reasonable.* In the absence of any strategy for a

compensation and enhancement strategy before this Inquiry, a condition requiring the submission of a scheme involving extensive operations in an unknown location would, similarly to the Loddington appeal, be unreasonable.

- 5.11 The loss of deciduous woodland Priority Habitat is contrary to Local Plan Policy NE1 (a), (b) and (iii). The loss of a watercourse is contrary to Local Plan policy NE2. The significant harm, which has not been avoided, mitigated, or at the last report been compensated for, is contrary to NPPF paragraph 186(a). The appeal should be dismissed on these grounds.

Impacts on species – Appeal A (Mr Thomas Doherty)

- 5.12 It is unknown which species were present in the deciduous woodland Priority Habitat prior to its removal. Protected plant species, invertebrates, reptiles, hedgehogs, badgers and bats may have been present, and those present would have been lost. The woodland may have been providing shelter / woodland edge to improve habitat conditions on land to its north, benefitting its suitability for Wood White butterfly.
- 5.13 Case law, appeal examples and Planning Practice Guidance all explain that there should be sufficient information available to make an informed decision on a planning determination. See paragraphs 3.6 – 3.13 above. The absence of sufficient species surveys means that it is not possible to make an informed decision with respect to protected species on appeal site A. The appeal should be dismissed for this reason.

Impacts on habitats – Appeal B (Mr Simon Doherty)

- 5.14 Deciduous woodland Priority Habitat has been removed to construct the unauthorised development, as has a watercourse, on the southern edge of the site. Lowland deciduous mixed woodland is defined as a

Priority Habitat on Joint Nature Conservation Committee's website³ as woodland growing on the full range of soil conditions, from very acidic to base-rich, and takes in most semi-natural woodland in southern and eastern England, and in parts of lowland Wales and Scotland. There is no reason to believe that the woodland was substantially different to that recorded by Arbtech for Appeal Site A, or that Arbtech had exaggerated the value of the woodland. The weight given to Priority Habitats in the Local Plan indicates to me that the whole woodland was of Borough-wide importance, and the loss of part of the woodland is a significant negative impact at the Borough scale. Part of a watercourse on the southern edge of the site has also been lost. The watercourse is of importance at least at the Parish scale, and its loss is a significant negative impact at that scale.

- 5.15 There appears to be no attempt to avoid the harm, nor to mitigate or compensate for the harm; for example I have seen no evidence that the appellant has control of sufficient land to be able to design and implement compensation for the woodland and watercourse. The technical difficulty and the unknown land availability is such that it is not feasible that such a strategy could be achieved; it is therefore not appropriate for it to be postponed to a condition of any permission.
- 5.16 I refer to the appeal decision at Loddington (Appendix 7) where the appellant proposed at Inquiry a range of solutions to a drainage issue. The Inspector was clear that (paragraph 139) *It is not uncommon in retrospective or part retrospective cases for conditions to be imposed requiring the submission of schemes for approval, with the ultimate sanction of cessation of the use should one not be approved and implemented.* He went on to say that (paragraph 141) *The evidence before me is insufficient to demonstrate that a system along the broad lines proposed by the appellant could manage the likely quantity of runoff. Moreover, I am not persuaded that the imposition of a condition requiring the submission of a scheme involving the very*

³ <https://jncc.gov.uk/our-work/uk-bap-priority-habitats/#list-of-uk-bap-priority-habitats>
accessed on 8th October 2024

extensive operations outlined by Mr Brown for the first time at the inquiry would be reasonable. In the absence of any strategy for a compensation and enhancement strategy before this Inquiry, a condition requiring the submission of a scheme involving extensive operations in an unknown location would, similarly to the Loddington appeal, be unreasonable.

5.17 The loss of deciduous woodland Priority Habitat is contrary to Local Plan Policy NE1 (a), (b) and (iii). The loss of a watercourse is contrary to Local Plan policy NE2. The significant harm, which has not been avoided, mitigated, or at the last report been compensated for, is contrary to NPPF paragraph 186(a). The appeal should be dismissed on these grounds.

5.18 Other habitat which was lost to the unauthorised development was the scrubby open habitat which consisted largely of unmanaged grassland dominated by fleabane with several other ruderal species, bramble scrub, other tree and shrub saplings, some grasses and potentially some meadow vetchling *Lathyrus pratensis*. I value this habitat at the Parish scale, and the impact is a significant negative impact at that scale. The loss of the habitat is contrary to Local Plan Policy NE1 (a) and (b). The significant harm, which has not been avoided, mitigated, or at the last report been compensated for, is contrary to NPPF paragraph 186(a). The appeal should be dismissed on those grounds.

Impacts on species – Appeal B (Mr Simon Doherty)

5.19 It is unknown which species were present in the deciduous woodland Priority Habitat prior to its removal. Protected plant species, invertebrates, reptiles, hedgehogs, badgers and bats may have been present, and those present would have been lost. These species, with the exception of protected plant species, may also have been lost from the scrubby open habitat.

5.20 Wood White butterfly may have been present. There has been reported that this species is present on the Thatched House Farm to

the west, and that land adjacent to the appeal site has had specialised planting to encourage and sustain the species (Appendix 10).

- 5.21 The habitat seems suitable, as described in paragraphs 4.11 – 4.12. Appendix 11 is the report of a Wood White conservation project, now complete, in the area. The 'Saving the Wood White Project' was initially a three-year project, funded by the HLF and focused around the area of Chiddingfold in Surrey, one of the last strongholds of the Wood White in the UK. The decline in the species has been due to removal of its habitat through development, expansion of forestry and intensive agriculture. The project area extended to cover the appeal sites (my Figure 03, based on Figure 01 of the report, page 6). The report specifically mentions the habitat creation at Thatched House Farm (table on page 22 of the report). It also says that Wood White butterfly will occupy 'outlying areas' away from its stronghold in Chiddingfold Wood. Colonisation of the appeal site and surrounding land may have occurred in the past when the land became suitable through management or lack of management. If the appeal site contained Wood White butterflies, it would have met Surrey Wildlife Trust's criterion for selection as a Site of Importance for Nature Conservation (Appendix 12, page 57).
- 5.22 Although the 'Saving the Wood White' project was successful in the short term, insects of all types are declining rapidly. A House of Commons Select committee report, *Insect decline and UK food security* of March 2024 (Appendix 13) said that '*However, there is a concerning trend of decreasing insect abundance, changes in distribution and reduction in the diversity of insect species in the UK. While there is variation among species and groups, overall, there is a downward trend and the consensus among experts is that in the UK insects are in decline*'.
- 5.23 A technical report by Buglife published recently (Appendix 14) found a 58.5% reduction in actively flying insects between 2004 and 2021.
- 5.24 The insect decline is such that the 'Saving the Wood White' project

success is not sufficient to consider the long-term survival of this species has been secured. Loss of existing habitat, or even of potential habitat, to development is an extra pressure on this species which would be unacceptable at development site scale but may also contribute to unacceptable impacts on the metapopulation in this part of Surrey.

- 5.25 Case law, appeal examples and Planning Practice Guidance all explain that there should be sufficient information available to make an informed decision on a planning determination. See paragraphs 3.6 – 3.13 above. The absence of sufficient species surveys means that it is not possible to make an informed decision with respect to numerous protected species including Wood White butterfly on appeal site B. The appeal should be dismissed for this reason.

Impacts on habitats – Appeal C (Mr Mark Doherty and Mrs Allana Doherty), and Appeal D (Mr Matthew Doherty)

- 5.26 Appeal sites C and D are adjacent to each other and have similar ecological impacts. Whilst treating each appeal as a separate case, they have identical issues and there can be one assessment of impacts which applies to each appeal. They share the same access route which was built as part of the unauthorised development.
- 5.27 Deciduous woodland Priority Habitat and part of a watercourse along the southern edge of the site has been removed to construct the access route. Lowland deciduous mixed woodland is defined as a Priority Habitat on Joint Nature Conservation Committee’s website⁴ as woodland growing on the full range of soil conditions, from very acidic to base-rich, and takes in most semi-natural woodland in southern and eastern England, and in parts of lowland Wales and Scotland. There is no reason to believe that the woodland was substantially different to that recorded by Arbtech for Appeal Site A, or that Arbtech had exaggerated the value of the woodland. The weight given to

⁴ <https://jncc.gov.uk/our-work/uk-bap-priority-habitats/#list-of-uk-bap-priority-habitats> accessed on 8th October 2024

Priority Habitats in the Local Plan indicates to me that the whole woodland was of Borough-wide importance, and the loss of part of the woodland is a significant negative impact at the Borough scale. The watercourse is of importance at least at the Parish scale, and its loss is a significant negative impact at that scale.

5.28 There appears to be no attempt to avoid the harm, nor to mitigate or compensate for the harm; for example I have seen no evidence that the appellant has control of sufficient land to be able to design and implement compensation for the woodland and watercourse. The technical difficulty and the unknown land availability is such that it is not feasible that such a strategy could be achieved; it is therefore not appropriate for it to be postponed to a condition of any permission.

5.29 I refer to the appeal decision at Loddington (Appendix 7) where the appellant proposed at Inquiry a range of solutions to a drainage issue. The Inspector was clear that (paragraph 139) *It is not uncommon in retrospective or part retrospective cases for conditions to be imposed requiring the submission of schemes for approval, with the ultimate sanction of cessation of the use should one not be approved and implemented.* He went on to say that (paragraph 141) *The evidence before me is insufficient to demonstrate that a system along the broad lines proposed by the appellant could manage the likely quantity of runoff. Moreover, I am not persuaded that the imposition of a condition requiring the submission of a scheme involving the very extensive operations outlined by Mr Brown for the first time at the inquiry would be reasonable.* In the absence of any strategy for a compensation and enhancement strategy before this Inquiry, a condition requiring the submission of a scheme involving extensive operations in an unknown location would, similarly to the Loddington appeal, be unreasonable.

5.30 The loss of deciduous woodland Priority Habitat is contrary to Local Plan Policy NE1 (a), (b) and (iii). The loss of a watercourse is contrary to Local Plan policy NE2. The significant harm, which has not been avoided, mitigated, or at the last report been compensated for, is

contrary to NPPF paragraph 186(a). The appeal should be dismissed on these grounds.

- 5.31 Other habitat which was lost to the unauthorised developments was the scrubby open habitat which consisted largely of unmanaged grassland dominated by fleabane with several other ruderal species, bramble scrub, other tree and shrub saplings, some grasses and potentially some meadow vetchling *Lathyrus pratensis*. I value this habitat at the Parish scale, and the impact is a significant negative impact at that scale. The loss of the habitat is contrary to Local Plan Policy NE1 (a) and (b). The significant harm, which has not been avoided, mitigated, or at the last report been compensated for, is contrary to NPPF paragraph 186(a). The appeal should be dismissed on those grounds.

Impacts on species – Appeal C (Mr Mark Doherty and Mrs Allana Doherty), and Appeal D (Mr Matthew Doherty)

- 5.32 Appeals C and D are adjacent and have similar ecological impacts. Whilst treating each appeal as a separate case, they have identical issues and there can be one assessment of impacts which applies to each appeal.
- 5.33 It is unknown which species were present in the deciduous woodland Priority Habitat prior to its removal to facilitate access to the unauthorised developments. Protected plant species, invertebrates, reptiles, hedgehogs, badgers and bats may have been present, and those present would have been lost. These species, with the exception of protected plant species, may also have been lost from the scrubby open habitat of the appeal sites themselves.
- 5.34 Wood White butterfly may have been present on the appeal sites. There has been reported that this species is present on the Thatched House Farm to the west, and that land adjacent to the appeal site has had specialised planting to encourage and sustain the species (Appendix 10). The habitat seems suitable, as described in paragraphs 4.11 – 4.12. Appendix 11 is the report of a Wood White

conservation project, now complete, in the area. The 'Saving the Wood White Project' was initially a three-year project, funded by the HLF and focused around the area of Chiddingfold in Surrey, one of the last strongholds of the Wood White in the UK. The decline in the species has been due to removal of its habitat through development, expansion of forestry and intensive agriculture. The project area extended to cover the appeal sites (my Figure 03, based on Figure 01 of the report, page 6). The report specifically mentions the habitat creation at Thatched House Farm (table on page 22 of the report). It also says that Wood White butterfly will occupy 'outlying areas' away from its stronghold in Chiddingfold Wood. Colonisation of the appeal site and surrounding land may have occurred in the past when the land became suitable through management or lack of management. If the appeal site contained Wood White butterflies, it would have met Surrey Wildlife Trust's criterion for selection as a Site of Importance for Nature conservation (Appendix 12, page 57).

- 5.35 Although the 'Saving the Wood White' project was successful in the short term, insects of all types are declining rapidly. A House of Commons Select committee report, *Insect decline and UK food security* of March 2024 (Appendix 13) that '*However, there is a concerning trend of decreasing insect abundance, changes in distribution and reduction in the diversity of insect species in the UK. While there is variation among species and groups, overall, there is a downward trend and the consensus among experts is that in the UK insects are in decline*'.
- 5.36 A report by Buglife published recently (Appendix 14) found a 58.5% reduction in actively flying insects between 2004 and 2021.
- 5.37 The insect decline is such that the 'Saving the Wood White' project success is not sufficient to consider the long-term survival of this species has been secured. Loss of existing habitat, or even of potential habitat, to development is an extra pressure on this species which would be unacceptable at development site scale but may also contribute to unacceptable impacts on the metapopulation in this part

of Surrey.

- 5.38 Case law, appeal examples and Planning Practice Guidance all explain that there should be sufficient information available to make an informed decision on a planning determination. See paragraphs 3.6 – 3.13 above. The absence of sufficient species surveys means that it is not possible to make an informed decision with respect to numerous protected species including Wood White butterfly on Appeal sites C and D. The appeal should be dismissed for this reason.

6 CONCLUSION

- 6.1 It is my professional opinion that the ecological harm caused is of significance at the Borough scale with respect to loss of deciduous woodland Priority Habitat lost from Appeal sites A and B, and lost by access construction for Appeal sites C and D. Ecological harm caused is of significance at the Parish scale with respect to loss of watercourse lost from Appeal sites A and B, and lost by access construction for Appeal sites C and D. Loss of open scrubby grassland on Appeal sites B, C and D is ecological harm at the Parish scale.
- 6.2 There was potential for the deciduous woodland Priority Habitat to contain a range of species including protected plant species, invertebrates, reptiles, hedgehogs, badgers and bats may have been present, and those present would have been lost. This applies to all four appeal sites. Loss of open scrubby land may have resulted in the loss of invertebrates including Wood White butterfly, reptiles, hedgehogs, badgers and bats, relevant to Appeal sites B, C and D.
- 6.3 Case law, appeal examples and Planning Practice Guidance all explain that there should be sufficient information available to make an informed decision on a planning determination. See paragraphs 3.6 – 3.13 above. The absence of sufficient species surveys means that it is not possible to make an informed decision with respect to numerous protected species including Wood White butterfly on appeal site B.
- 6.4 The appeal should be dismissed for these reasons.

7 SUMMARY

- 7.1 I am appointed by Waverley Borough Council to advise on ecological matters in connection with these four Appeals, and to provide evidence to this Inquiry. I visited the Appeal sites and some of the surrounding land on 3rd October, facilitated and accompanied by John Bennett of Waverley Brough Council.
- 7.2 My Proof of Evidence describes
- Planning policy, case law and guidance
 - Baseline conditions of the appeal sites prior to development, as far as can be ascertained from the limited evidence available; and shortfalls in the evidence
 - Impacts of the development, both those which are certain and those which might have occurred if baseline evidence had been available
- 7.3 Each appeal is considered individually, although there are some common themes.
- 7.4 There are two relevant policies from the Waverley Borough Local Plan Part 1: Strategic Policies and Sites February 2018. Policy NE1 permits development if it retains, protects and enhances features of biodiversity and geological interest and ensures appropriate management of those features, and ensures any adverse impacts are avoided, or if unavoidable, are appropriately mitigated. Policy NE2 requires a 5m undeveloped buffer zone to be provided beside ordinary watercourses.
- 7.5 When determining planning applications Local Planning Authorities should apply the following principle (paragraph 186 of NPPF):
- If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort,

compensated for, then planning permission should be refused

- 7.6 Case law indicates that Local Planning Authorities should have all relevant ecological information so that they can make an informed decision of proposed development schemes. Government circular 06/2005 also requires surveys in advance of planning permission (Appendix 2).
- 7.7 None of the planning applications provided ecological reports to inform the Council's decision, although the Council's biodiversity Checklists were completed. There were, however, ecological reports provided with each appeal, with various documents commissioned from a couple of consultancies.
- 7.8 To reduce duplication of text below, I describe common themes here.
- 7.9 Deciduous woodland which was lost from all appeal sites may have supported protected plant species, invertebrates, reptiles, hedgehogs, badgers and bats, as advised by the appellant's ecologist Arbtech for Appeal A (but common to the woodland in all appeal sites).
- 7.10 Scrubby open habitat in appeal sites B, C and D, north of the woodland and watercourse, consisted largely of unmanaged grassland dominated by fleabane with several other ruderal species, bramble scrub, other tree and shrub saplings, some grasses and potentially some meadow vetchling *Lathyrus pratensis*. It may have supported, invertebrates including Wood White butterfly, reptiles, hedgehogs, badgers and bats. Wood White is a Priority species under the NERC Act 2026, is declining nationally, and is protected from sale only under the Wildlife and Countryside Act 1981 as amended.

Appeal site A

- 7.11 I agree with the assessment in Arbtech's Preliminary Ecological Appraisal dated 24th April 2023 (CD2A.6) that deciduous woodland Priority Habitat has been removed to construct the unauthorised

development. The whole woodland was of Borough-wide importance, and the loss of part of the woodland is a significant negative impact at the Borough scale. A watercourse on the southern edge of the site has also been lost. The watercourse is of importance at least at the Parish scale, and its loss is a significant negative impact at that scale.

- 7.12 There appeared to be no attempt to avoid the harm, nor to mitigate or compensate for the harm. Arbtech's Preliminary Ecological Appraisal recommends that a compensation and enhancement strategy should be implemented and informed by a botanical walkover of the adjacent woodland (if accessible) to establish a baseline condition for the woodland which was removed. I have not seen any evidence to indicate that this strategy has been progressed from a recommendation. The technical difficulty and the unknown land availability is such that it is not feasible that such a strategy could be achieved; it is therefore not appropriate for it to be postponed to a condition of any permission. The loss of woodland and watercourse are good reasons for dismissal of the appeal.
- 7.13 It is unknown which species were present in the deciduous woodland Priority Habitat prior to its removal. The woodland may have been providing shelter / woodland edge to improve habitat conditions on land to its north, benefitting its suitability for Wood White butterfly.
- 7.14 The absence of sufficient species surveys means that it is not possible to make an informed decision with respect to protected species on appeal site A. The appeal should be dismissed for this reason.

Appeal B

- 7.15 Deciduous woodland Priority Habitat has been removed to construct the unauthorised development, as has a watercourse, on the southern edge of the site. There is no reason to believe that the woodland was substantially different to that recorded by Arbtech for Appeal Site A, or that Arbtech had exaggerated the value of the woodland. The weight given to Priority Habitats in the Local Plan indicates to me that

the whole woodland was of Borough-wide importance, and the loss of part of the woodland is a significant negative impact at the Borough scale. The watercourse which was lost is of importance at least at the Parish scale, and its loss is a significant negative impact at that scale.

- 7.16 There appears to be no attempt to avoid the harm, nor to mitigate or compensate for the harm; for example, I have seen no evidence that the appellant has control of sufficient land to be able to design and implement compensation for the woodland and watercourse. The technical difficulty and the unknown land availability is such that it is not feasible that such a strategy could be achieved; it is therefore not appropriate for it to be postponed to a condition of any permission.
- 7.17 The loss of deciduous woodland Priority Habitat is contrary to Local Plan Policy NE1 (a), (b) and (iii). The loss of a watercourse is contrary to Local Plan policy NE2. The significant harm, which has not been avoided, mitigated, or at the last report been compensated for, is contrary to NPPF paragraph 186(a). The appeal should be dismissed on these grounds.
- 7.18 Other habitat which was lost to the unauthorised development was the scrubby open habitat described above. I value this habitat at the Parish scale, and the impact is a significant negative impact at that scale. The loss of the habitat is contrary to Local Plan Policy NE1 (a) and (b). The significant harm, which has not been avoided, mitigated, or at the last report been compensated for, is contrary to NPPF paragraph 186(a). The appeal should be dismissed on those grounds.
- 7.19 It is unknown which species were present in the deciduous woodland Priority Habitat or scrubby open grassland prior to its removal, as described earlier in this summary.
- 7.20 The absence of sufficient species surveys means that it is not possible to make an informed decision with respect to numerous protected species including Wood White butterfly on appeal site B. The appeal should be dismissed for this reason.

Appeals C and D

- 7.21 Both appeals are considered individually. They both share a common access which was part of the unauthorised development, and they are adjacent. The appeals have caused very similar harm so are discussed together, following consideration of each site alone.
- 7.22 Deciduous woodland Priority Habitat has been removed to construct the access to the unauthorised developments, as has a watercourse, on the southern edge of the site. There is no reason to believe that the woodland was substantially different to that recorded by Arbtech for Appeal A, or that Arbtech had exaggerated the value of the woodland. The weight given to Priority Habitats in the Local Plan indicates to me that the whole woodland was of Borough-wide importance, and the loss of part of the woodland is a significant negative impact at the Borough scale. The watercourse which was lost is of importance at least at the Parish scale, and its loss is a significant negative impact at that scale.
- 7.23 There appears to be no attempt to avoid the harm, nor to mitigate or compensate for the harm; for example I have seen no evidence that the appellant has control of sufficient land to be able to design and implement compensation for the woodland and watercourse. The technical difficulty and the unknown land availability is such that it is not feasible that such a strategy could be achieved; it is therefore not appropriate for it to be postponed to a condition of any permission.
- 7.24 The loss of deciduous woodland Priority Habitat is contrary to Local Plan Policy NE1 (a), (b) and (iii). The loss of a watercourse is contrary to Local Plan policy NE2. The significant harm, which has not been avoided, mitigated, or at the last report been compensated for, is contrary to NPPF paragraph 186(a). The appeals should be dismissed on these grounds.
- 7.25 Other habitat which was lost to the unauthorised developments was the scrubby open habitat. I value this habitat at the Parish scale, and the impact is a significant negative impact at that scale. The loss of









the habitat is contrary to Local Plan Policy NE1 (a) and (b). The significant harm, which has not been avoided, mitigated, or at the last report been compensated for, is contrary to NPPF paragraph 186(a). The appeals should be dismissed on those grounds.

7.26 It is unknown which species were present in the deciduous woodland Priority Habitat or from the scrubby open habitat.

7.27 The absence of sufficient species surveys means that it is not possible to make an informed decision with respect to numerous protected species including Wood White butterfly on appeals C and D. The appeals should be dismissed for this reason.

Figures

Key

-  Red-line boundaries of appeal sites
-  Associated development outside of appeal
-  Priority Habitat Inventory - Deciduous woodland (England)
-  Pond - approximately 500m²
-  (A) Mr Thomas Doherty - Site 3
-  (B) Mr Simon Doherty - Site 2
-  (C) Mr Mark & Mrs Allana Doherty - Site 1 - Plot 4
-  (D) Mr Matthew Doherty - Site 1 - Plot 3



Sibbett Ecology Ltd

009 Stovolds Hill Appeal
Figure 01 - Appeal sites and
Location of Pond & Priority
Habitat Woodland
October 2024

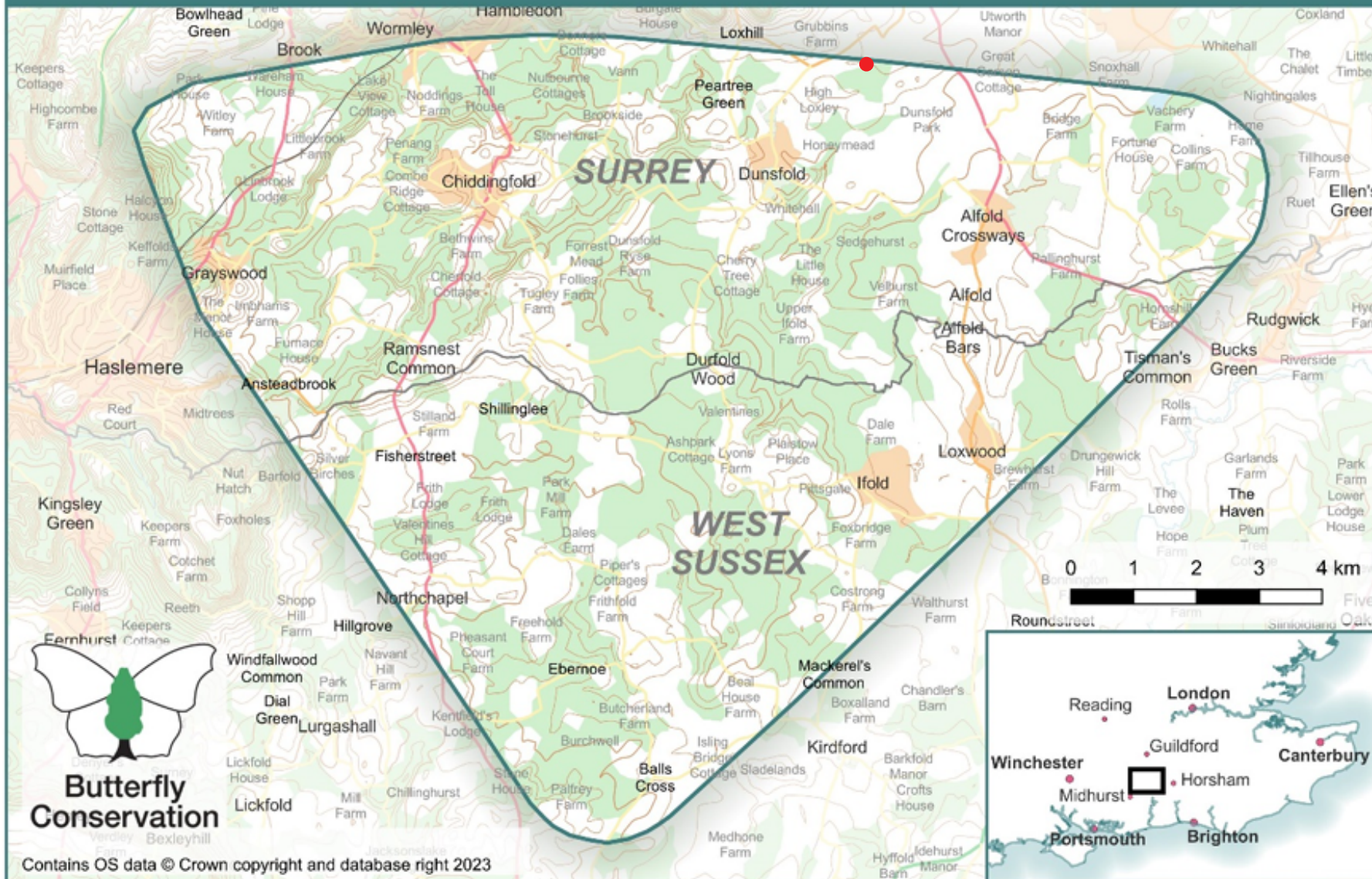


Sibbett Ecology Ltd
 009 Stovolds Hill Appeal
 Figure 02 - Location of ecological features
 October 2024

Reproduced from Combined four sites location plan produced by MAS

Key
 Location of appeal sites within wood white butterfly range

Wood White Priority Area



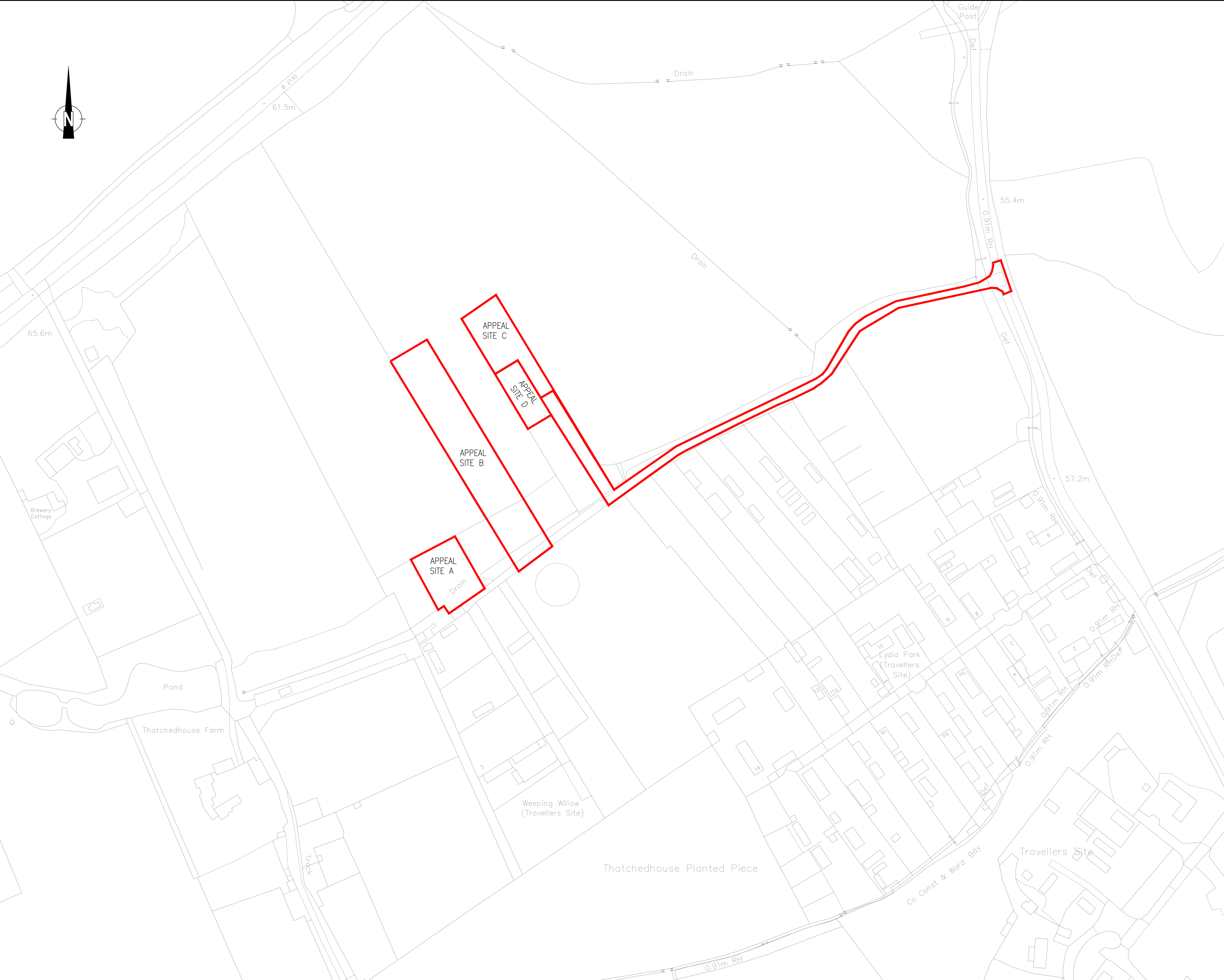
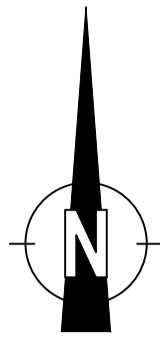
Sibbett Ecology Ltd

009 Stovolds Hill Appeal

Figure 03 - Wood white butterfly priority area

October 2024

APPENDIX 1 Location of appeal sites



WAVERLEY BOROUGH COUNCIL

PLANNING APPEAL
COMBINED FOUR SITES
LOCATION PLAN

DATE	DRAWN	CHECKED
OCT '24	TA	MAS
7266.001	REV	SCALE 1:1000 @ A1

APPENDIX 2 Government circular 06/2005

OFFICE OF THE DEPUTY PRIME MINISTER

ODPM Circular 06/2005
Office of the Deputy Prime Minister
Eland House, Bressenden Place, London SW1E 5DU

Defra Circular 01/2005
Department for Environment, Food and Rural Affairs
Nobel House, 17 Smith Square, London SW1P 3JR

16 August 2005

GOVERNMENT CIRCULAR: BIODIVERSITY AND GEOLOGICAL CONSERVATION – STATUTORY OBLIGATIONS AND THEIR IMPACT WITHIN THE PLANNING SYSTEM

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GOVERNMENT CIRCULAR

ODPM Circular 06/2005

Defra Circular 01/2005

To accompany planning policy statement 9

Biodiversity and Geological conservation – Statutory obligations and their impact within the planning system

PURPOSE OF THE CIRCULAR

1. This Circular provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It complements the expression of national planning policy in Planning Policy Statement 9, Biodiversity and Geological Conservation (PPS9) and the accompanying Good Practice Guide. Although this Circular outlines how statutory obligations impact within the planning system, in some cases the legislation will have an equal bearing on other regimes e.g. Transport and Works Act 1992.

THE STRUCTURE OF THE CIRCULAR

2. The Circular is structured on a topic basis, bringing together advice on sources of legislation relevant to various nature conservation topics which may be encountered by planning authorities, rather than a statute-based approach. Part I deals with the conservation of internationally designated sites: Special Protection Areas (SPAs) classified under the EC Birds Directive¹, Special Areas of Conservation² (SACs) designated under the EC Habitats Directive³, and Ramsar sites listed under the provisions of the Ramsar convention⁴ on wetlands of international importance; Part II deals with Sites of Special Scientific Interest (SSSI) and the consultation and notification processes; Part III covers planning for nature conservation outside the designated sites; Part IV deals with the conservation of species and Part V provides advice on other duties and use of statutory powers.

¹ The text of the EC Birds Directive is at Annex E

² Sites are submitted to the European Commission as candidate Special Areas of Conservation (cSACs). Only following approval by the European Commission are they designated by the Member State as Special Areas of Conservation.

³ The text of the EC Habitats Directive is at Annex F

⁴ The text of the Ramsar convention is at Annex D

PART I

Internationally Designated Sites

Conservation of cSACs, SACs, pSPAs, SPAs and Ramsar Sites

A INTRODUCTION AND CONTEXT

3. The UK is bound by the terms of the EC Birds and Habitats Directives⁵ and the Ramsar Convention⁶. The Conservation (Natural Habitats &c.) Regulations 1994⁷ (the 'Habitats Regulations') provide for the protection of 'European sites'⁸, which are candidate Special Areas of Conservation (cSACs) and Special Areas of Conservation (SACs) designated pursuant to the Habitats Directive, and Special Protection Areas (SPAs) classified under the Birds Directive. The Regulations apply specific provisions of the Habitats Directive to cSACs, SACs and SPAs which require special considerations to be taken in respect of such sites.
4. Planning authorities should follow the procedures described below for SPAs, cSACs⁹ and SACs, and, more generally, should have regard to the Directive in the exercise of their planning functions in order to fulfil the requirements of the Directive in respect of the land use planning system.¹⁰
5. **As a matter of policy, the Government has chosen to apply the procedures described below, unless otherwise specified, in respect of Ramsar sites and potential SPAs (pSPAs), even though these are not European sites as a matter of law¹¹. This will assist the UK Government in fully meeting its obligations under the Birds Directive and Ramsar Convention.**
6. Prior to its submission to the European Commission as a cSAC, a proposed SAC (pSAC) is subject to wide consultation. At that stage it is not a European site and the Habitats Regulations do not apply as a matter of law or as a matter of policy. Nevertheless, planning authorities should take note of this potential designation in their consideration of any planning applications that may affect the site.

⁵ Council Directive on the conservation of wild birds of 2nd April 1979 (79/409/EEC) and Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora of 21st May 1992

⁶ Convention on wetlands of international importance especially as waterfowl habitat Ramsar, Iran 2/2/71 as amended by the Paris Protocol 3/12/92 and the Regina amendments adopted at the extraordinary conference of contracting parties at Regina, Saskatchewan, Canada between 28/5 and 3/6/87

⁷ Statutory Instrument 1994/2716 which came into force on 30th October 1994

⁸ Regulation 10 The Conservation (Natural Habitats &c.) Regulations 1994 as amended by the Conservation (Natural Habitats &c) (Amendment) (England) Regulations 2000 Statutory Instrument 2000/192

⁹ There remain very few cSACs awaiting decisions regarding their designation as SACs, and the title will shortly cease to be of relevance. Therefore, for the sake of simplicity, the Circular will only refer to SACs where the procedures apply to both designations.

¹⁰ Regulation 3(4) The Habitats Regulations 1994

¹¹ See Hansard 13 November 2000: Column 489W

7. The protection and management of internationally designated sites are achieved by a combination of the provisions in the Habitats Regulations and section 28 of the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000. In respect of land above mean low water mark, European sites will already have been notified as Sites of Special Scientific Interest (SSSIs) under the provisions of section 28 of the Wildlife and Countryside Act 1981. Planning authorities are also notified of Ramsar sites under the provisions of section 37A of the Wildlife and Countryside Act 1981 as inserted by section 77 of the Countryside and Rights of Way Act 2000. A planning authority is required, under the General Development Procedure Order 1995 (the GDPO)¹², to consult English Nature¹³ and, under the provisions of section 28I of the Wildlife and Countryside Act 1981, to notify English Nature before granting planning permission for development likely to damage a SSSI, even if the development is not located in the SSSI (see further Part II below).
8. In responding, English Nature will advise if the SSSI forms part of a European site or is otherwise of significance in terms of the Birds or Habitats Directives or the Ramsar Convention. English Nature will also advise whether, in its opinion, the proposed development would be likely to significantly affect the ecological value for which the site was notified as a SSSI or classified internationally, whether in connection with the proposal there may be reasonable steps that could be taken to further the conservation and enhancement of the SSSI and, if appropriate, will suggest what measures might be taken to avoid any damaging effects.

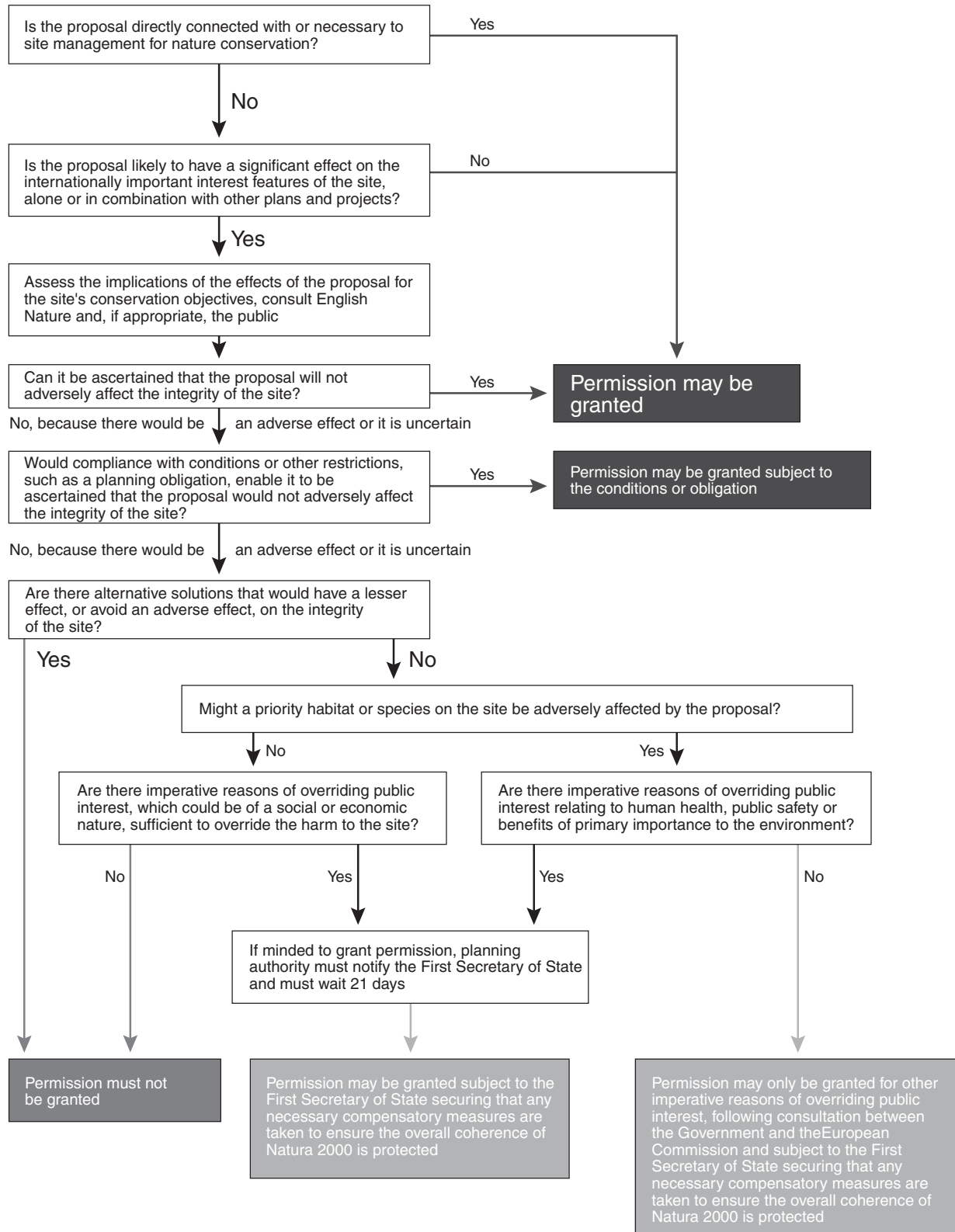
B CONSIDERATION OF NEW PLANS AND PROJECTS

9. Regulation 48 of the Habitats Regulations restricts the granting of planning permission for development which is likely to significantly affect a European site, and which is not directly connected with or necessary to the management of the site, by requiring that an appropriate assessment is first carried out of the implications of the development for the site's conservation objectives.
10. Regulation 49 requires an authority proposing to allow development that it can not be ascertained will not adversely affect a European site to notify the First Secretary of State. This will provide the opportunity for the First Secretary of State to consider whether the application falls within the criteria for call-in. Regulation 53 places a duty on the First Secretary of State to secure any necessary compensatory measures where planning permission is granted in accordance with regulation 49. The First Secretary of State will therefore expect to see, and be satisfied by, evidence that necessary compensatory measures will be secured when applications are referred to him under the provisions of regulation 49(5).
11. The approach to be taken in considering a development proposal that might affect a European site is set out below. This process is represented in the flow chart in Figure 1.

¹² See Article 10 and paragraph (u) of the Table in Town and Country Planning (General Development Procedure) Order 1995 Statutory Instrument 1995/419

¹³ It is proposed in the Natural Environment and Rural Communities Bill that English Nature, most of the Rural Development Service and parts of the Countryside Agency will form a new agency to be known as 'Natural England'

Figure 1: Consideration of development proposals affecting Internationally Designated Nature Conservation Sites



12. The decision-taker must first establish whether the proposed development is directly connected with or necessary to nature conservation management¹⁴ of a European site. Where a development is directly connected with, or the whole of the development is necessary for site management, it will not be subject to the further requirements of regulation 48.

Likely significant effect

13. If the proposed development is not directly connected with or necessary to site management, the decision-taker must determine whether the proposal is likely to have a significant effect¹⁵ on a European site. The decision on whether an appropriate assessment is necessary should be made on a precautionary basis. An appropriate assessment is required where there is a probability or a risk that the plan or project will have significant effects on a site. This is in line with the ruling of the European Court of Justice in Case C-127/02 (the Waddenzee Judgment) which said “*any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site’s conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects*”.
14. The decision-taker should consider whether the effect of the proposal on the site, either individually or in combination with other projects¹⁶, is likely to be significant in terms of the conservation objectives for which the site was classified. The European Commission has also issued guidance, which local planning authorities may wish to consider.¹⁷
15. It is important that the likelihood of a significant effect is assessed in respect of each interest feature for which the site is classified and for each designation where a site is classified under more than one international obligation. Planning authorities should ensure that the assessment takes into account the full range of Ramsar interests for which the site has been listed and their vulnerability to any effects of the proposed development¹⁸. English Nature will advise on a case-by-case basis.¹⁹
16. In considering the combined effects with other proposals it will normally be appropriate to take account of outstanding consents that are not fully implemented, ongoing activities or operations that are subject to continuing regulation (such as discharge consents or abstraction licences) and other proposals that are subject to a current application for any kind of authorisation, permission, licence or other consent. Thus, the assessment is not confined to proposals that require planning permission, but includes all relevant plans and projects.

¹⁴ Regulation 48(1)(b) The Habitats Regulations 1994.

¹⁵ *ibid.* Regulation 48(1)(a)

¹⁶ *ibid.* Regulation 48(1)(a)

¹⁷ “Managing Natura 2000” April 2000

¹⁸ In May 2005, in England, there were 70 Ramsar sites covering over 377,000 hectares. Of these, only 3 were completely outside the Natura 2000 network of sites. The remaining 67 were either coincident with or substantially overlapping SPAs or SACs. The Government does not envisage that the proportion of Ramsar sites outside the Natura 2000 network is likely to change substantially in the light of planned revisions to both site networks.

¹⁹ See also the Good Practice Guide accompanying PPS9

The appropriate assessment

17. If the decision-taker concludes that a proposed development (not directly connected with or necessary to the management of the site) is likely to significantly affect a European site, they must make an appropriate assessment of the implications of the proposal for the site in view of the site's conservation objectives²⁰. These relate to each of the interest features for which the site was classified and will be provided in more detail by English Nature, which should be consulted for the purposes of the assessment²¹. The scope and content of an appropriate assessment will depend on the nature, location, duration and scale of the proposed project and the interest features of the relevant site. It is important that an appropriate assessment is made in respect of each interest feature for which the site is classified; and for each designation where a site is classified under more than one international obligation. English Nature will advise on a case-by-case basis. The decision-taker can require the applicant to provide such information as may reasonably be required to undertake the assessment²².
18. In the Waddenzee judgement²³, the European Court of Justice ruled that an appropriate assessment implies that all the aspects of the plan or project which can, by themselves or in combination with other plans and projects, affect the site's conservation objectives must be identified in light of the best scientific knowledge in the field.
19. As part of the assessment process, the decision-taker may consult the general public²⁴. It is for the decision-taker to decide whether publicity and consultation in addition to that required under the planning or other regulatory procedures should be undertaken and could consider consulting organisations that may have relevant information or expertise, such as the Environment Agency, County Wildlife Trusts, Herpetological Conservation Trust, Plantlife, RSPB or The Butterfly Conservation Society. Where a plan or project may affect sites which are close to, or which straddle local authority boundaries, the relevant local planning authorities should liaise with each other.

Ascertaining the effect on site integrity

20. In the light of the conclusions of the assessment of the project's effects on the site's conservation objectives, the decision-taker must determine whether it can ascertain that the proposal will not adversely affect the integrity of the site(s)²⁵. The integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified. It is not for the decision-taker to show that the proposal would harm the site, in order to refuse the application or appeal. It is for the decision-taker to consider the likely and reasonably foreseeable effects and to ascertain that the proposal will not have an adverse effect on the integrity of the site before it may grant permission. If the proposal would adversely affect integrity, or the effects on

²⁰ Regulation 48(1) The Habitats Regulations 1994

²¹ *ibid.* Regulation 48(3)

²² *ibid.* Regulation 48(2)

²³ ECJ Case C-127/02

²⁴ Regulation 48(4) The Habitats Regulations 1994.

²⁵ *ibid.* Regulation 48(5)

integrity are uncertain but could be significant²⁶ the decision-taker should not grant permission, subject to the provisions of regulations 49 and 53 as described below.

21. In the Waddenzee judgment²⁷, the European Court of Justice ruled that a plan or project may be authorised only if a competent authority has made **certain** that the plan or project will not adversely affect the integrity of the site. “*That is the case where no reasonable scientific doubt remains as to the absence of such effects*”. Competent national authorities must be “**convinced**” that there will not be an adverse affect and where doubt remains as to the absence of adverse affects, the plan or project must not be authorised, subject to the procedure outlined in Article 6(4) of the EC Habitats Directive regarding imperative reasons of overriding public interest²⁸.

Considering conditions or other restrictions

22. As part of the judgement on integrity, the decision-taker must consider the way in which it is proposed to carry out the project and whether conditions or other restrictions would help to ensure that site integrity was not adversely affected²⁹. This is an important requirement of the Habitats Regulations and planning authorities should consider whether a consent could be issued in accordance with regulation 48 subject to conditions. In practice, this means that the planning authority should identify the potential risks so far as they may be reasonably foreseeable in light of such information as can reasonably be obtained, and put in place a legally enforceable framework with the aim of preventing the risks from materialising³⁰. English Nature may suggest the scope of such conditions in its response to the consultation and can comment on the effectiveness of conditions proposed by the planning authority or the applicant. Regulation 54(4) of the Habitats Regulations prohibits the grant of outline planning permission unless the planning authority is satisfied, whether by reason of the conditions or limitations imposed on the permission, or otherwise, that no development likely to adversely affect the integrity of a European site could be carried out under the permission.

Alternative solutions

23. If the decision-taker is unable to conclude that the proposed development will not adversely affect the integrity of the site, and this effect, or possible effect, will not be removed by conditions or other restrictions, they must not grant planning permission except in the following closely defined circumstances.
24. They must first be satisfied that there are no alternative solutions³¹. If there are alternative solutions that would have no (or a lesser) effect on the site’s integrity then

²⁶ See ADT Auctions Ltd v Secretary of State Environment, Transport and the Regions and Hart District Council (2000) JPL 1155 at p. 1171 where it was held that, it was implicit in the wording of regulation 48(5) that the adverse effect on the integrity of the site had to be a significant adverse effect

²⁷ ECJ Case C-127/02

²⁸ Regulation 49 and paragraphs 25-28 The Habitats Regulations 1994.

²⁹ Regulation 48(6) The Habitats Regulations 1994

³⁰ See *WWF-UK Ltd and RSPB – v – Secretary of State for Scotland et al* [1999]1 C.M.L.R. 1021 [1999] Env. L.R. 632 opinion of Lord Nimmo-Smith

³¹ Regulation 49(1) The Habitats Regulations 1994 and Dibden Bay decision (2004) (http://www.dft.gov.uk/stellent/groups/dft_shipping/documents/page/dft_shipping_028330.hcsp)

consent cannot be granted in accordance with the Habitats Regulations; permission must be refused or the appeal dismissed. If there are no alternative solutions that would have no (or a lesser) effect, on the site, then the decision-taker should proceed to consider whether there are imperative reasons of overriding public interest why the permission should be granted as described below. In assessing alternative solutions the decision-taker should consider whether there are or are likely to be suitable and available sites (or routes in the case of linear projects) which are alternatives for the proposed development, or different, practicable approaches which would have a lesser impact.

Imperative reasons of overriding public interest

25. If there is no alternative solution, the decision-taker should consider whether there are imperative reasons of overriding public interest to justify the grant of permission despite a potentially negative effect on site integrity. Different tests apply depending on whether the site hosts a priority natural habitat type or species³².
26. If the site does not host a priority natural habitat type or species, planning permission can be granted if the proposed development has to be carried out for imperative reasons of overriding public interest, including those of a social or economic nature.³³ Such reasons would need to be sufficient to override the harm to the ecological importance of the designation.
27. If the site hosts a priority habitat or species, and there is no alternative solution, the only considerations which can justify the grant of planning permission are (a) those which relate to human health, public safety, or beneficial consequences of primary importance to the environment or (b) other imperative reasons of overriding public interest agreed by the European Commission³⁴. The Government may obtain the opinion of the European Commission as to whether any particular reasons may be considered imperative and overriding in the public interest³⁵.
28. There will be few cases where it can be judged that imperative reasons of overriding public interest will allow a development to proceed which may have a potentially negative effect on the integrity of a European site. This applies equally to new proposals and to developments with extant permissions granted prior to the Habitats Regulations coming into force and/or the classification of the site. The judgement will involve an assessment of the importance of the development and whether it is sufficient to override the harm to the nature conservation importance of that site³⁶. In many cases, it may be possible to negotiate a sustainable solution that would remove or reduce an apparent conflict. However, where the local planning authority are unable to conclude no adverse effect on the integrity of the site but consider that the proposed development should nevertheless be allowed to go ahead, regulation 49(5) of the Habitats

³² Priority habitats and species are indicated by an asterisk in Annexes I and II of the Habitats Directive. The citation, which is available from English Nature, indicating why the site was designated will show whether it hosts a priority habitat or species. There are no priority species listed in the Birds Directive.

³³ Regulation 49(1) The Habitats Regulations 1994

³⁴ *ibid* Regulation 49(2)

³⁵ *ibid* Regulation 49(3) and (4)

³⁶ See “*The Birds and Habitats Directives: Outline Government Position*” (May 1998) and the EC’s guidance “*Managing Natura 2000*”

Regulations requires an authority to notify the First Secretary of State. Planning permission cannot then be granted for a period of 21 days unless the First Secretary of State notifies the authority otherwise. This notification procedure will enable the First Secretary of State to consider whether to call-in the application for his own determination and will also enable him to ascertain whether or not compensatory measures have been secured as required by regulation 53.

Compensatory measures

29. Where, in the absence of alternatives, the importance of the development is judged, in accordance with regulation 49, to outweigh the harm to a European site, compensatory measures must be taken to ensure that the overall coherence of the network of SPAs and SACs known as Natura 2000 is protected³⁷. This may be costly and often technically difficult or ecologically untried. In certain cases the habitat affected may be irreplaceable. Agreement to such a plan or project that did not provide for compensatory measures to secure the coherence of the Natura 2000 network would be contrary to the requirements of the Directive, and harmful to the Government's commitment to halt the loss of biodiversity by 2010.
30. Classification of an alternative, existing area of bird habitat, as a SPA, will not normally meet the compensatory requirements in respect of the EC Birds Directive. This is because all of the most suitable territories should be classified as SPAs in any event. However, where new habitats are created as compensatory measures, the newly created habitats should be in place in time to provide fully the ecological functions that they are intended to compensate for. The newly created habitats should normally be included in the SPA network within a reasonable timescale.
31. Article 4(2) of the Ramsar Convention requires Contracting Parties that delete sites or restrict site boundaries to provide compensatory measures for the loss of conservation interests. The Convention refers to creating additional nature reserves for waterfowl and for the protection, either in the same area or elsewhere, of an adequate portion of the original type of habitat. Compensatory measures should provide, as a minimum, no net loss to the overall value of the national Ramsar site series either by way of quality or area.
32. The European Commission (and the Ramsar Bureau if relevant) will need to be notified by the First Secretary of State of any compensatory measures adopted³⁸.

Crown Exemption

33. The Government has put in place legislation to end Crown exemption from planning control through the Planning and Compulsory Purchase Act 2004. This does not include trunk road and motorway development, which is subject to separate procedures designed to produce the same effect as planning legislation. Regulation 69 of the Habitats Regulations applies regulations 48-51 to trunk road or motorway construction or improvement projects carried out by the Secretary of State for Transport under the Highways Act 1980. Pending implementation of the legislation ending Crown

³⁷ Regulation 53 The Habitats Regulations 1994

³⁸ Article 6(4) of the Habitats Directive.

exemption, local planning authorities will continue to be consulted about proposals for Crown development under the procedures in DOE Circular 18/84. Where such proposals are likely to affect a site of international importance, authorities should apply the same tests in framing their advice as under the Habitats Regulations. The First Secretary of State will do likewise in deciding whether planning clearance should be given for proposals which are the subject of unresolved objections from a local planning authority. Once the planning acts apply to the Crown, development by Crown bodies will be subject to the planning controls under the Habitats Regulations in the usual manner.

C REVIEW OF OUTSTANDING PLANNING PERMISSIONS AND DEEMED PLANNING PERMISSIONS

34. Local planning authorities should consider all extant planning permissions that may affect a European site (i.e. those permissions which have not been implemented at all, and those which have not been fully implemented). This requirement applies to Ramsar sites as a matter of policy, but not to pSPAs.
35. Regulations 50, 51, 55 and 56 of the Habitats Regulations require the local planning authority to review extant planning permissions, including outline permissions, granted by them that are likely to have a significant effect on a European site, either individually or in combination with other plans or projects, and, following that review, to affirm, modify or revoke such permissions. This includes all permissions that are valid but not yet commenced and permissions that have been started but are not yet complete³⁹. Regulation 55 requires planning authorities to consider whether certain planning permissions deemed to be granted under section 90(1) of the Town and Country Planning Act 1990 should, in their opinion, be reviewed.
36. Local planning authorities must review permissions as soon as is reasonably practicable. They will often have identified any relevant permission during the consultation exercise in preparation for a site's classification. Since the response to the consultation, local planning authorities may also have granted further planning permissions, some of which may be likely to have a significant effect on the site. Any extant permissions affecting potential European sites, outstanding at the time they formally become European Sites, will need to be reviewed.
37. The review will need to ascertain whether implementation of any permission that is likely to have a significant effect on the site, and is not directly connected with or necessary to its management, may adversely affect its integrity. For the purposes of the review, the local planning authority must make an appropriate assessment of the implications of the implementation of the permission for the site, alone or in combination with other plans or projects. This assessment is the same as that required by Regulation 48. If it is not possible to conclude that no adverse effect will occur, the authority must take appropriate action to remove the potential for harm, unless there is no likelihood of the development being carried out or continued⁴⁰.

³⁹ Under regulation 57(5) of the Habitats Regulations 1994, an order made under section 97 of the TCPA 1990 in pursuance of regulation 55 shall not affect so much of the development authorised by the permission as was carried out prior to the order taking effect.

⁴⁰ Regulation 56(3) The Habitats Regulations 1994

38. If local planning authorities consider that planning obligations restricting or regulating the use of the land would safeguard the integrity of the site, they must invite those concerned to enter into them⁴¹. Otherwise, subject to regulation 49, they must modify or revoke the permission, or make a discontinuance order sufficient to avoid the potential threat to the integrity of the site⁴². They should also take such action if a developer proceeds with damaging development while the planning authority is endeavouring to secure a planning obligation. Regulation 57 provides that modification, revocation or discontinuance orders take effect when the appropriate notices are served. They must, however, be confirmed by the First Secretary of State. Where compensation is payable, the authority must refer the determination of the amount to the Lands Tribunal, unless the First Secretary of State indicates otherwise⁴³.
39. Where such review takes place, the relevant planning authority must consult English Nature⁴⁴. The Government encourages English Nature to engage in discussions with the local planning authority (which may be a minerals planning authority) and developers in order to assist the authority in carrying out the review. The following possibilities arise:
- i. The conclusion may be reached on the advice of English Nature that the permission is not likely to have a significant effect on the site, in which case the review will be completed without the need for an appropriate assessment or, following an assessment, that the permission will not have an adverse effect on site integrity. In such cases the permission may be affirmed and implemented as planned.
 - ii. A legal agreement or adaptation to the means of working might be adopted to remove the risk of an adverse effect on site integrity.
 - iii. An alternative location to that of the existing permission might be agreed for which planning permission could be given (subject to the normal planning processes and considerations) which would not be damaging to that or any other nature conservation site.
 - iv. Permissions might lapse through time expiry or, for minerals permissions, may cease to have effect if no scheme of conditions is submitted under the periodic review provisions of Schedule 13 to the Environment Act 1995. Minerals planning authorities are encouraged to exercise their powers under Schedule 9 to the Town and Country Planning Act 1990 to make orders prohibiting the resumption of mineral working in appropriate cases.
 - v. The developer might voluntarily relinquish all or part of the planning consent in recognition of the value of the site for nature conservation.
 - vi. If there are no alternative solutions and if the threat of damage to the site cannot be removed by any of the above means, in accordance with the Habitats

⁴¹ Regulation 56(1) The Habitats Regulations 1994

⁴² *ibid.* Regulation 56(1)

⁴³ *ibid.* Regulation 59

⁴⁴ *ibid.* Regulation 50(2)

Regulations, the permission may still be affirmed and implemented if there are imperative reasons of overriding public interest. All necessary compensatory measures must be taken to ensure that the coherence of the Natura 2000 network of SACs and SPAs is protected⁴⁵.

- vii. If there are no imperative reasons of overriding public interest (see section A Part I above), the local planning authority is obliged, under the Habitats Regulations, to revoke or modify the permission or make a discontinuance order. In such cases, the local planning authority would be liable to pay any compensation due to the developer.
40. The Government stated in a written Parliamentary answer on 6 July 1994 that in cases where such compensation is payable, it would consider reimbursing the planning authority where costs were high and where the action taken was no more than necessary to remove the risk to the site. That remains the position. However, the Government would need to be satisfied in such cases that discussion and negotiation had explored all the possibilities set out in (i) – (v) above before agreeing to such reimbursement in order to minimise the cost to the public purse. Where it becomes apparent that compensation may become payable, then it is recommended that Defra (European Wildlife Division) is informed as early as possible.
41. PPS23, *Planning and Pollution Control*, advises that controls under the planning and pollution control regimes should complement rather than duplicate each other. Regulations 83, 84, 84A and 85⁴⁶ require the review of authorisations granted by local authorities for air pollution control and by the Environment Agency for integrated pollution control authorisations, pollution prevention and control permits, waste management licences and water discharge consents. If, in reviewing a planning permission, local planning authorities consider that action falls to be taken under these other regulations (83 – 85), they should only exercise planning powers under regulation 56 if powers under the other regimes are not available or if their exercise could not achieve what is required. In carrying out reviews and in exercising their own powers, local planning authorities should ensure that where they decide to affirm a permission, because other action to secure no adverse effect on the integrity of the site will be taken by them or another competent authority, that action should be the least onerous to those affected⁴⁷. Where different competent authorities are considering separate permissions that alone or in combination may adversely affect a site, they should ensure that they liaise before determining the applications.

D RESTRICTIONS ON PERMITTED DEVELOPMENT

42. Article 3 of the Town and Country Planning (General Permitted Development) Order 1995 (the GPDO) grants a general planning permission (subject to specified conditions and limitations) for the types of development set out in Schedule 2 to the GPDO. These permitted development rights largely apply to developments which are non-contentious, and which, if they were the subject of individual consideration, would

⁴⁵ Regulation 53(b) The Habitats Regulations 1994

⁴⁶ Regulations 83 – 85 The Habitats Regulations 1994 as amended by the Pollution Prevention and Control (England and Wales) Regulations 2000 Statutory Instrument 2000/1973

⁴⁷ *ibid.* Regulation 51(3)

place an unnecessary burden on householders or other developers and on local planning authorities. Other permitted development rights relate to developments that are controlled through other approval procedures, and to developments by statutory undertakers and local authorities in the performance of their statutory duties.

43. Regulation 60 imposes controls on all permissions granted under the GPDO to ensure that any permitted development is not in breach of the terms of Article 6 of the Habitats Directive⁴⁸. This regulation prevents any development which is likely significantly to affect a European site, alone or in combination with other plans or projects, and is not directly connected with or necessary to the management of the site, from commencing unless the local planning authority has ascertained, after consulting English Nature, that such development would not adversely affect the integrity of the site⁴⁹. It should be emphasised that the condition does not automatically withdraw permitted development rights for such developments, but instead requires them to be subject to a prior approval process. This regulation does not apply to pSPAs and Ramsar sites as a matter of policy.
44. The flow chart in Figure 2 explains the process developers should follow to ensure that permitted development rights are implemented in accordance with the Habitats Regulations. It identifies the role of the local planning authority and English Nature.
45. It should be noted that even if the development can proceed as permitted development after this process has been completed, the provisions of section 28(E) (obligations of owners and occupiers of SSSI land) and section 28(H) (obligations of public bodies relating to operations on SSSI land) of the Wildlife and Countryside Act 1981 still apply and, if the proposed development is listed in the SSSI notification as one that would constitute an operation likely to damage the nature conservation interest features of the site, notice must be given to English Nature before the development is undertaken (see Part II below).
46. Regulation 61 provides that a developer may obtain the opinion of English Nature as to whether it considers any particular proposed development that may benefit from permitted development rights would be likely to have a significant effect on a European site. Where English Nature has sufficient information to provide an opinion, it will notify the developer and the planning authority within 21 days from the receipt of all necessary information⁵⁰. If the information provided is inadequate or incomplete, English Nature will advise what additional information it needs⁵¹. English Nature's opinion as to whether the development would be likely to have a significant effect will be conclusive⁵².
47. The planning authority will normally enter the process at the point where either the developer or English Nature decides that the proposal would be likely to have a significant effect on the site. The developer may apply to the planning authority for

⁴⁸ Regulation 60 The Habitats Regulations 1994 and Article 3(1) The Town and Country Planning (General Permitted Development) Order 1995 Statutory Instrument 1995/418

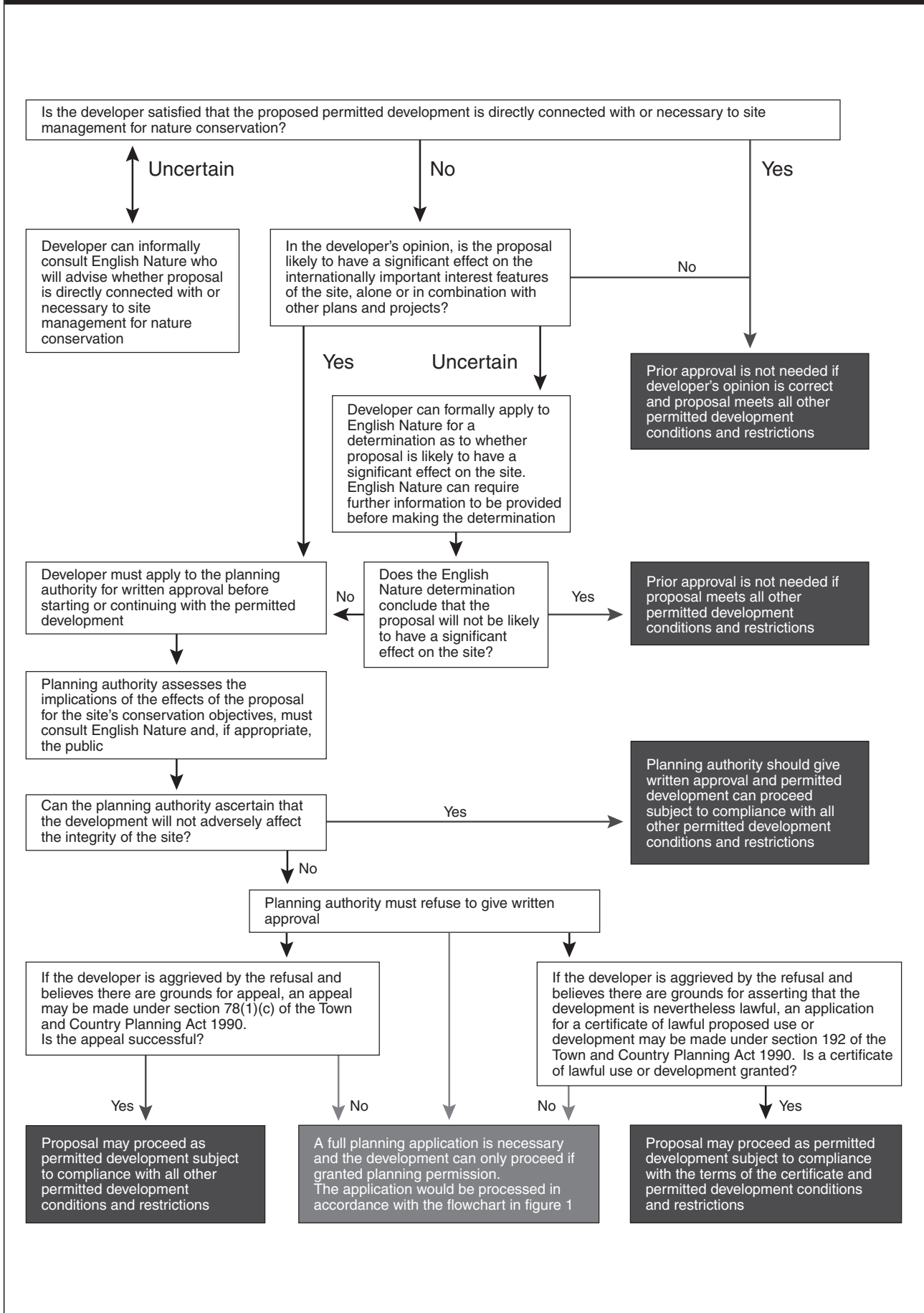
⁴⁹ Regulation 60(1) and (2) The Habitats Regulations 1994

⁵⁰ *ibid.* Regulation 61(3)

⁵¹ *ibid.* Regulation 61(4)

⁵² *ibid.* Regulation 61(5)

Figure 2: Permitted development rights potentially affecting Internationally Designated Conservation Sites



written approval⁵³. The planning authority must undertake an appropriate assessment of the implications of the proposal for the site's conservation objectives, including a formal consultation with English Nature⁵⁴. Where English Nature has sufficient information to provide an opinion, it will respond to the consultation within 21 days from the receipt of all necessary information.

48. Where a developer has not previously sought the opinion of English Nature as to the likelihood of the development having a significant effect on the site, it will be the first time that English Nature comments on the proposal. Where, in its representations, English Nature states that the development would not be likely to have a significant effect on the site, the planning authority should send a copy of the representations to the applicant and the development may proceed without the prior written approval of the planning authority⁵⁵.
49. In all other cases, the planning authority should decide whether or not the proposal may adversely affect the integrity of the site. Where the planning authority can ascertain that the development, as proposed, would not adversely affect the integrity of the site they must give written approval and the development may proceed as permitted development. If the authority conclude that it would have such an effect, or the effects are uncertain but potentially significant, the planning authority are prohibited from granting prior approval. If the developer nevertheless wishes to proceed with the development a planning application will be required. Alternatively, if the developer is aggrieved by the decision of the planning authority he may appeal against the decision not to approve the development⁵⁶ or he may apply for a certificate of lawful development.
50. Regulation 63(2) provides for a fee to be paid to the planning authority for undertaking this assessment. Advice on likely significant effect, appropriate assessment and site integrity is provided in section A of Part I above⁵⁷.

E SPECIAL DEVELOPMENT ORDERS, ENTERPRISE ZONES AND SIMPLIFIED PLANNING ZONES

51. Regulations 64, 65 and 66 provide that existing Special Development Orders, Simplified Planning Zone schemes and Enterprise Zone schemes cease to have effect to grant planning permission for development that is likely to have a significant effect on a European site and which is not directly connected with or necessary to the management of the site. Existing Special Development Orders relate to Urban Development Corporations, former New Town Development Corporations, Atomic Energy Establishments and Telecommunications Networks on Railway Operational Land. The Regulations also prevent new Special Development Orders, Simplified Planning Zone schemes and Enterprise Zone schemes from granting planning permission for development that is likely significantly to affect a European site and which is not directly connected with or necessary to the management of the site.

⁵³ Regulation 62 (1) (2) and (3) The Habitats Regulations 1994

⁵⁴ *ibid.* Regulation 62(4)

⁵⁵ *ibid.* Regulation 62(5)

⁵⁶ *ibid.* Regulation 63(3)

⁵⁷ See also the Good Practice Guide accompanying PPS9

F FURTHER CONSIDERATIONS IN RESPECT OF RAMSAR SITES

52. Section 37A of the Wildlife and Countryside Act 1981⁵⁸ requires the Secretary of State for Environment, Food and Rural Affairs to notify English Nature when she has listed, under the Ramsar Convention, a wetland for inclusion in the list of wetlands of international importance. English Nature must then notify the planning authority as well as owners and occupiers of the land, and other relevant bodies.
53. Article 3(1) of the Ramsar Convention requires Contracting Parties to ‘formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and, as far as possible, the wise use of wetlands in their territory’.

G CONSIDERATION OF INTERNATIONAL NATURE CONSERVATION SITES IN DEVELOPMENT PLANS

54. Development plans are not subject to assessment under regulations 48, 49 or 53 of the Habitats Regulations 1994 because they are not considered to be plans or projects within the meaning of regulation 48⁵⁹. European sites will be covered by the SEA Directive 2001/42/EC (on the assessment of the effects of certain plans and programmes on the environment), and this will require the assessment of proposals in development plans affecting such sites. In any event, planning authorities have a general duty under regulation 3(4) of the Habitats Regulations to have regard to the requirements of the Habitats Directive in exercising their functions, including their plan-making functions under the Town and Country Planning Act 1990.
55. Whilst it may not be possible to carry out an assessment at the development plan stage that would be as detailed as that required under regulation 48 for a specific project, for which consent is sought, local planning authorities should nevertheless adopt the precautionary principle and should undertake sufficient assessment of any proposal in a development plan likely significantly to affect a European site. If a proposal for a particular type of development on a particular location would be likely to adversely affect the integrity of a such a site, or the effects of the proposal on such a site are uncertain, planning authorities should not allocate the site for that type of development unless:
 - a) they are satisfied that any subsequent or current planning application for that proposal would be likely to pass the tests for derogations in regulation 49; and
 - b) there is a reasonable prospect that compensatory measures that may be required by regulation 53 can be secured such as to protect the coherence of the Natura 2000 network and meet the requirements of the Ramsar Convention where relevant.

⁵⁸ As inserted by section 77 of the Countryside and Rights of Way Act 2000

⁵⁹ The European Court of Justice is currently considering this matter and a ruling is expected later in 2005

PART II

Nationally Designated Sites

Conservation of Sites of Special Scientific Interest

A SUMMARY OF THE LEGISLATIVE REGIME GOVERNING SITES OF SPECIAL SCIENTIFIC INTEREST

56. Section 28 of the Wildlife and Countryside Act 1981 as inserted by section 75 and schedule 9 of the Countryside and Rights of Way Act 2000 sets out significantly improved provisions regarding the notification, protection and management of Sites of Special Scientific Interest (SSSIs). Existing SSSI notifications made to local authorities remain valid, with the exception of the very few remaining notifications under section 23 of the National Parks and Access to the Countryside Act 1949, which cease to have effect. English Nature will write to individual authorities about these sites.
57. The Wildlife and Countryside Act 1981, as amended, (hereafter referred to in this Part as “the Act”) imposes an important general duty on a range of authorities exercising functions which are likely to affect SSSIs. This general and overarching duty requires an authority to take reasonable steps, consistent with the proper exercise of the authority’s functions, to further the conservation and enhancement of the features for which sites are of special interest⁶⁰. It applies whenever an authority is exercising its functions, including when it has the power to take action, and applies at every stage from the formulation of plans, to the carrying out of operations and the making of decisions.
58. Those authorities subject to this duty are called section 28G authorities and include Ministers, Government Departments, local authorities, statutory undertakers and any other public body⁶¹. The Act also sets out specific procedures that must be followed by these authorities when carrying out or authorising operations which are likely to damage the special interest features of SSSIs⁶².
59. Planning authorities are section 28G authorities and as such have specific duties and responsibilities in respect of SSSIs. These are described below. Advice on the full regime, including the responsibilities of and controls on owners and occupiers and third parties which are not described in this document, can be found in the Code of Guidance ‘*Sites of Special Scientific Interest: Encouraging Positive Partnerships*’⁶³.

General duty to conserve and enhance SSSIs

60. A planning authority exercises many functions and in doing so will need to take into full account its duty to take reasonable steps to further the conservation and enhancement

⁶⁰ section 28G(2) Wildlife and Countryside Act 1981, as amended

⁶¹ *ibid*, section 28G(3)

⁶² *ibid*, sections 28H and 28I

⁶³ Published April 2003 and available at <http://www.defra.gov.uk/wildlife-countryside/ewd/ssi/ssi-code.pdf>

of the special interest features of SSSIs. It will need to decide what it considers are 'reasonable steps' to be taken and in doing so may wish to consult English Nature. At the strategic level, regional spatial strategies and local development documents must be prepared in accordance with this duty. At the local level, the duty applies to individual decisions on planning applications, including the consideration of whether to impose conditions on a planning decision, on the monitoring of compliance with planning obligations and any subsequent enforcement action a planning authority may consider necessary.

61. The Government expects all section 28G authorities, including planning authorities, to:
 - a) apply strict tests when carrying out any functions within or affecting SSSIs, to ensure that they avoid or at least minimise adverse effects;
 - b) adopt the highest standards of management in relation to SSSIs in their ownership, and to take appropriate action to prevent damage by third parties; and
 - c) as owners or otherwise to take positive steps, wherever possible, to conserve and enhance the special interest features of a SSSI where their activities may be affecting it, or as opportunities arise in the exercise of their functions. English Nature will advise on a case by case basis as to opportunities for enhancement.

Further guidance on how planning authorities, in particular, can comply with their duty is provided in the Good Practice Guide.

B OBLIGATIONS OF PLANNING AUTHORITIES CARRYING OUT OR AUTHORISING OPERATIONS LIKELY TO DAMAGE THE SPECIAL INTEREST OF SSSIs

62. In addition to the general duty under section 28G of the Act, specific obligations under section 28H and 28I apply to planning authorities (as they do to all section 28G authorities), when, having considered their general duty, they nevertheless propose to carry out or authorise operations likely to damage the special interest features of SSSIs (whether or not these will take place on land included in the SSSI)⁶⁴. These provisions ensure that English Nature is able to provide full advice and information about the effects of an operation or authorisation on a SSSI and any steps that might mitigate them. This will enable the decision taker to make an informed decision about whether, and how, to go ahead with an operation or whether to grant an authorisation and, if so, on what terms. They also ensure that where English Nature's advice is not complied with, the decision taker must inform English Nature so that it has sufficient time to consider any further steps it may wish to take.
63. Planning authorities will usually need to be most concerned with these obligations when authorising or granting permission to carry out operations, e.g. determining planning applications. However there may be circumstances where a planning authority wishes to carry out an operation itself. Therefore the obligations for both situations are explained below. The Government expects all planning authorities to give very careful

⁶⁴ Section 28H(2) and 28I(3), Wildlife and Countryside Act 1981, as amended

consideration to whether an operation or authorisation is likely to damage the special interest features of a SSSI, and, where it is unsure, to consult English Nature. A planning authority should be able to demonstrate that it has clearly considered the likely effects of an operation, and therefore whether it is duty bound to formally notify English Nature as required by the Act.

64. The planning authority should bear in mind the possibility that certain developments may affect a site some distance away. For example, a wetland site might have its water table lowered as a result of water abstraction some considerable distance away; and a river SSSI might be affected by an upstream development.
65. A planning authority proposing to carry out operations likely to damage the special features of a SSSI must notify English Nature under section 28H of the Act. English Nature has 28 days within which to indicate whether or not it assents to the operation (with or without conditions)⁶⁵. If English Nature does not assent, or does not respond within 28 days, but the planning authority decides to proceed with the operations, it must give English Nature further notice of not less than 28 days notice of the date when the operations will commence and must explain how, if at all, it has taken account of any advice received from English Nature⁶⁶. These requirements also apply if a planning authority does not intend to comply with any conditions attached to English Nature's assent⁶⁷. In addition, in carrying out the works it shall give rise to as little damage to the special interest features of the SSSI as is reasonably practicable, and if damage does occur, shall restore the site to its former condition, again in so far as is reasonably practicable⁶⁸. It is an offence, liable to a penalty on summary conviction of a fine of up to £20,000, or on conviction on indictment an unlimited fine, if a public body fails to comply with the requirements of section 28H⁶⁹. Figure 3 is a flow chart setting out the procedure.
66. Under section 28I of the Act, a planning authority authorising or granting permission for other parties to carry out operations likely to damage the special interest features of a SSSI, such as through the determination of a planning application, must notify English Nature before reaching its decision⁷⁰. It must then allow 28 days before deciding whether to grant its consent unless English Nature has responded sooner⁷¹. The authority must take account of any advice from English Nature, including advice on attaching conditions to the consent⁷². If the authority decides that it will issue a permission against English Nature's advice, it must notify English Nature of the permission, the terms on which it is proposed to grant it and how, if at all, it has taken English Nature's advice into account. It must then allow a further period of 21 days before the operation can commence⁷³. This allows English Nature to consider any

⁶⁵ section 28H(3) Wildlife and Countryside Act 1981, as amended

⁶⁶ *ibid*, section 28H(5)

⁶⁷ *ibid* section 28H (4)

⁶⁸ *ibid* section 28H(6)

⁶⁹ *ibid* section 28P(2) and (3).

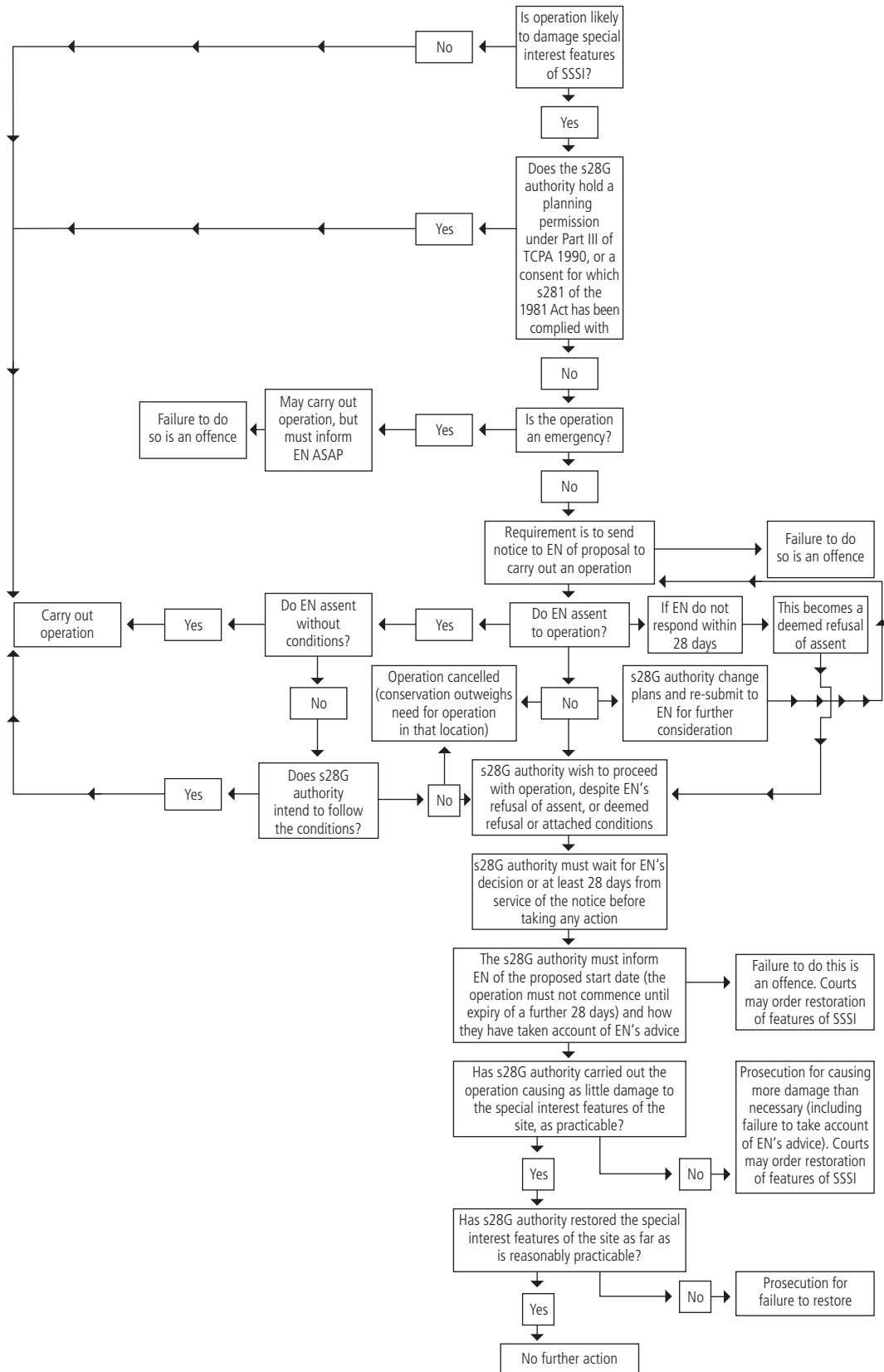
⁷⁰ *ibid* section 28I(2)

⁷¹ *ibid* section 28I(4)

⁷² *ibid* section 28I(5)

⁷³ *ibid* section 28I(6)

Figure 3: Authority carrying out operations



further action, such as, in exceptional circumstances, legal action challenging the validity of the permission. Figure 4 is a flow chart setting out the procedure.

67. Planning authorities should be aware that planning permission may be granted on an application under Part III of the Town and Country Planning Act 1990 to an owner or occupier of a SSSI for an operation which has been notified to them by English Nature as a potentially damaging operation to the special interest features of the site. The grant of planning permission constitutes a ‘reasonable excuse’ for carrying out the operation which would otherwise be unlawful without the consent of English Nature⁷⁴. The Government expects proper observance by planning authorities of their obligations. Where both a planning permission and the consent from another section 28G authority is required for an operation, the reasonable excuse of having planning permission cannot be relied on unless both have been obtained⁷⁵.

C INTERACTION WITH OTHER CONSULTATION REQUIREMENTS IN RESPECT OF SSSIs

68. In addition to the notification requirements under the Act, other legislation, such as the General Development Procedure Order⁷⁶, imposes consultation requirements in respect of SSSIs. In these circumstances, the requirement for a planning authority to give English Nature notice under section 28I (see above) where granting permission for operations likely to damage the special interest features of the SSSI still stands. The other main consultation requirements in respect of SSSIs are set out in sections D and E below. In these circumstances, though the consultation periods may differ (for example 14 or 21 days, or any other period), the period of 28 days provided for in the Act takes precedence. However, the Government expects English Nature to respond to all consultations promptly and within the 28 days timescale wherever there is adequate information available to make the necessary assessments.
69. A planning authority should inform English Nature of decisions on all applications for the development of land about which it was consulted or notified.

D OTHER CONSULTATION REQUIREMENTS

General Development Procedure Order 1995

70. Under the provisions of Article 10 of the Town and Country Planning (General Development Procedure) Order 1995 (the GDPO), planning authorities have a duty to consult English Nature before granting planning permission for any development that:
 - is in or likely to affect a SSSI⁷⁷; or
 - is within a consultation area around a SSSI notified to the planning authority by English Nature⁷⁸; or

⁷⁴ section 28P(4), Wildlife and Countryside Act 1981, as amended

⁷⁵ *ibid* section 28P(5)

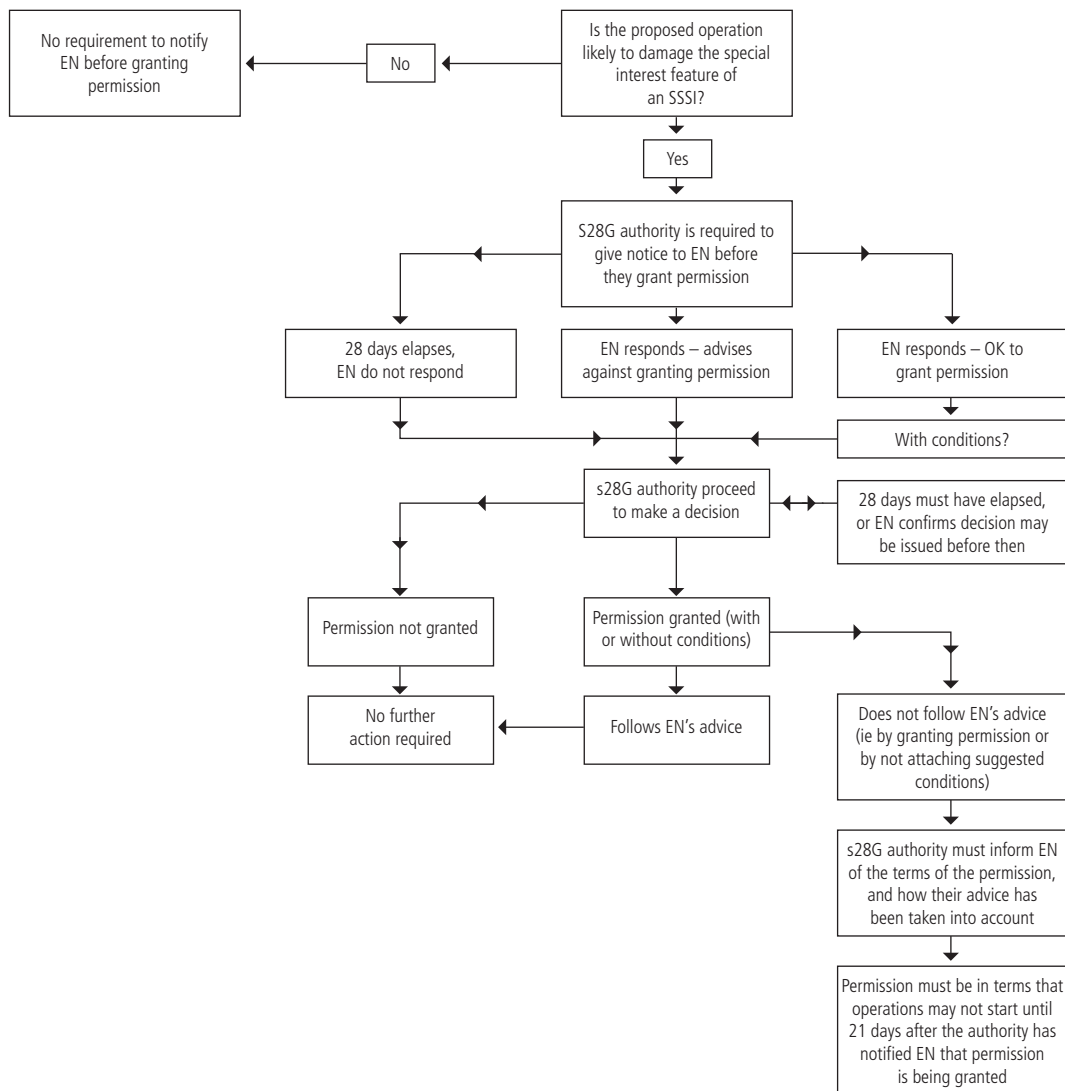
⁷⁶ The Town and Country Planning (General Development Procedure) Order 1995

⁷⁷ Article 10(1)(u)(i) of the Town and Country Planning (General Development Procedure) Order 1995 Statutory Instrument 1995/419

⁷⁸ *ibid.* Article 10(1)(u)(ii)

Figure 4: Authority granting permission to carry out operations

Note: permission includes any authorisation, consent or any other type of permission



- is in an area of particular natural sensitivity or interest which appears to a local planning authority may be affected by:
 - i) development involving the siting of new establishments or the modification of existing ones which could have significant implications for major accident hazards⁷⁹;

or

 - ii) development in the vicinity of existing establishments such as to increase the risk or consequences of a major accident⁸⁰.

⁷⁹ Article 10(1)(zb)(i) and (ii) of the Town and Country Planning (General Development Procedure) Order 1995 Statutory Instruments 1995/419

⁸⁰ *ibid.* Article 10(1)(zb)(iii)

71. The GDPO also requires a planning authority to consult about planning applications in any consultation area around a SSSI defined by English Nature. English Nature will notify the boundaries of such consultation areas to local planning authorities. When notifying a consultation area English Nature may advise that it wishes to be consulted only about certain types of development (see further below in respect of ‘standing advice’). It may also advise a planning authority that it would want to be consulted about other types of development (for example, a major industrial facility) beyond the 2 kilometres maximum for a consultation area. An authority is also required to consult where an application is for development that is likely to affect a SSSI, and the application site falls outside the SSSI and any consultation area. This is the case under both the terms of the GDPO and section 28I of the Act.
72. GDPO consultations relating to SSSIs should take place as soon as possible and local planning authorities may not determine any application that could affect such a site within 14 days of initiating consultation. However, as described in sections B and C above, the period in which English Nature now has to respond under section 28I of the Act is 28 days, and the longer timescale in this Act takes precedence⁸¹. The Government expects English Nature to respond as quickly as possible. Section 28I also requires the planning authority to notify English Nature if it intends to grant permission against its advice (see paragraph 65 above).

Exceptions to consultations under the GDPO

73. In respect of SSSI consultations, the GDPO provides that a planning authority need not consult English Nature, where:
 - i) English Nature has advised the authority that it does not wish to be consulted. This exception does not apply to consultations relating to major hazards⁸².
 - ii) English Nature has provided ‘standing advice’ to a planning authority⁸³. This exception does not apply to any application that is for EIA development, that is, an application for which an environmental impact statement must be submitted. More information on the provision of standing advice is in section G.

These provisions do not override the requirement under section 28I of the Act for a planning authority to give notice to English Nature before granting a planning permission for operations likely to damage the nature conservation interest features of a SSSI (see section C above). Nor do they override the requirement for a planning authority to consult English Nature in respect of plans and projects under the Habitats Regulations.

⁸¹ See also the *Code of Guidance, Sites of Special Scientific Interest: Encouraging Positive Partnerships*, Defra 2003

⁸² Article 10(1)(iii) of the Town and Country Planning (General Development Procedure) Order 1995

⁸³ Article 4 Town and Country Planning (General Development Procedure) (England) (Amendment) Order 2003 Statutory Instrument 2003/2047

Habitats Regulations 1994

74. The requirements described at sections A, B and C of Part I above will often overlap with a duty to consult in respect of SSSI interests because all terrestrial European sites will also be SSSI. However, the procedures relating to the Habitats Regulations relate to the integrity and conservation objectives of a European site (applying as a matter of policy to pSPAs and Ramsar sites) and may be narrower than the interest features of the SSSI. It will therefore be important for the planning authority and English Nature to clearly distinguish how the proposed development may affect the international interests and the interests of the SSSI in order to ensure that all the relevant legislative requirements are complied with.

E PERMITTED DEVELOPMENT AND SSSIs

75. Where an owner or occupier wishes to exercise permitted development rights on a SSSI, and the works involved are listed on the SSSI notification as operations likely to damage the special interest features, then they must apply to English Nature for consent under section 28E of the Act. If English Nature refuses consent for such works it will not be possible to exercise the permitted development rights, without committing an offence under section 28P of the Act. In such cases, or where English Nature attach conditions to a consent, the applicant may appeal to the Secretary of State for Environment, Food and Rural Affairs⁸⁴. Alternatively, the owner or occupier may instead apply to the planning authority for planning permission under Part III of the Town and Country Planning Act 1990. If granted, such planning permission is a reasonable excuse for an owner or occupier carrying out the operation without English Nature's consent⁸⁵. Indeed, where an owner or occupier is intending to carry out on a SSSI an operation which benefits from permitted development rights but which is likely to damage the special interest, there is nothing to stop him from submitting a full planning application to the local planning authority in the first instance. Such planning applications will be considered by local planning authorities in the normal way. Likewise, the normal arrangements would apply to any appeal against a planning authority's refusal of an application for planning permission, or against conditions attached to an approval.
76. Where a section 28G authority in the exercise of its function, wishes to exercise a permitted development right, as well as considering its section 28G duties, it must consider whether the exercise of the permitted development right is likely to damage the special interest features of a SSSI. Where the exercise of the permitted development right is likely to damage the special interest features of a SSSI that section 28G authority must ensure that it complies with the requirements in section 28H of the Act (see paragraph 64).

⁸⁴ Section 28(F) Wildlife and Countryside Act 1981 as amended

⁸⁵ *ibid.* Section 28P(4)

F LAWFUL DEVELOPMENT CERTIFICATES AND SSSIs

77. Section 28P of the Act provides that it is a ‘reasonable excuse’ for not having given notice to English Nature of operations likely to damage the special interest features of a SSSI if the operations were carried out in accordance with a valid planning permission granted on application⁸⁶. Unauthorised development affecting a SSSI is not therefore, a reasonable excuse, and in addition to being a breach of planning control, may also be an offence under section 28P of the Act, in the absence of notice given to English Nature or if notice was given where consent has not been granted⁸⁷. However, the planning legislation enables a developer to apply for a certificate of lawful development after the expiry of specified time limits. The planning authority must consider an application for a lawful development certificate on the facts of the case and, although it does not grant planning permission, the issue of a certificate would render the development immune from enforcement under planning legislation. Such a certificate would not provide a ‘reasonable excuse’ for an offence under section 28P of the 1981 Act.

G STANDING ADVICE

78. The requirement for local planning authorities to consult English Nature about a particular type of planning application under the GDPO is removed if English Nature has provided up-to-date standing advice. Where standing advice has been sent to local planning authorities, they must consult that standing advice instead, and take it into account in determining an application for planning permission. The introduction of standing advice will allow some planning applications to be processed more quickly.
79. English Nature must update its standing advice, or verify that the information is still up-to-date, at least every two years, or the advice cannot act as a substitute for consultation. If advice has not been updated or verified in time, the planning authority must consult English Nature. English Nature may withdraw standing advice at any time by writing to local planning authorities to inform them of the withdrawal.
80. On receipt of a planning application which requires consultation with English Nature, a planning authority should check whether any up-to-date standing advice has been provided which is relevant to the whole of the development described in the application. If it has, and provided the application is not for development requiring an Environmental Impact Assessment, is not likely to damage the features of a SSSI and will not be likely to have a significant effect on a European site (including pSPAs and Ramsar sites), the authority should not consult English Nature. Instead, it should refer to that standing advice.
81. Where standing advice covers only part of the proposed development, a planning authority is still required to consult English Nature. In such circumstances, English Nature could, as part of its response, refer the authority to the standing advice so far as it is relevant to the proposed development. Applications that are not covered by any standing advice should continue to be sent to English Nature.

⁸⁶ Section 28P(4) Wildlife and Countryside Act 1981 as amended

⁸⁷ *ibid* Section 28P(1)

82. In determining the application for development that is covered by up-to-date standing advice, a planning authority must take into account that standing advice. The standing advice will be a material consideration in the determination of the planning application in the same way as any advice received from a statutory consultee under the GDPO. It is up to the planning authority to decide the weight to be attached to the standing advice, in the same way as it would decide the weight to be attached to a response from a statutory consultee.

83. Where English Nature revises its standing advice, the new advice should be applied to any application that the planning authority is currently considering. Where English Nature withdraws standing advice, the planning authority should consult English Nature in the normal way on any application received after the date on which the planning authority received notification that the standing advice was withdrawn. The planning authority need not consult English Nature where it has already begun to consider an application on the basis of standing advice valid at the time the application was received.

PART III

Conservation of Habitats and Species outside Designated Sites

A HABITATS AND SPECIES IN UK AND LOCAL BIODIVERSITY ACTION PLANS

Habitats and species of principal importance in England

84. The potential effects of a development, on habitats or species listed as priorities in the UK Biodiversity Action Plan (BAP)⁸⁸, and by Local Biodiversity Partnerships, together with policies in the England Biodiversity Strategy⁸⁹, are capable of being a material consideration in the preparation of regional spatial strategies and local development documents and the making of planning decisions.
85. Section 74 of the Countryside and Rights of Way Act 2000 places new duties on Government Ministers and Departments in respect of the conservation of biodiversity. In exercising his duty, the First Secretary of State may include local authorities to promote the taking of steps by others to further the conservation of the habitat types and species of principal importance for biodiversity. In PPS9, the Government has indicated that local authorities should take steps to further the conservation of habitats and species of principal importance through their planning function (see PPS9 paragraphs 11 and 14). The lists of the habitat types and species subject to this duty were published by Defra in 2002⁹⁰ and comprise the list of species and habitats identified as priorities under the UK Biodiversity Action Plan. The lists are reproduced in Annex C.
86. The DETR circular on the Countryside and Rights of Way Act 2000⁹¹ states that local authorities' responsibilities for preparing their own Local Biodiversity Action Plans do not rely on the provisions of this Act; outside London, these plans are amongst the elements local authorities should build upon when preparing the overarching Strategy required by section 4 of the Local Government Act 2000. Subsequent to Circular 04/2001, the Government identified Local Biodiversity Action Plans as one of the plans that can be 'subsumed' into Community Strategies, as part of the rationalisation of local authority plans. Authorities will need to demonstrate that the subsumed plans have been considered within their Community Strategy and that Community Strategies as a whole are informed by the purposes of biodiversity planning⁹².

⁸⁸ *Biodiversity The UK Action Plan, 1994*, Command 2428, and subsequent Habitat and Species Action Plans. See www.ukbap.org.uk for more information.

⁸⁹ Defra, 2002, *Working with the grain of nature: a biodiversity strategy for England*

⁹⁰ Defra, 2002, *Countryside and Rights of Way Act 2000 Section 74: List of habitats and species of principal importance in England*

⁹¹ Department of Environment Transport and the Regions Circular 04/01, February 2001 *Countryside and Rights of Way Act 2000*

⁹² Office of the Deputy Prime Minister circular letter to local authorities, 22 July 2003 – http://www.odpm.gov.uk/stellent/groups/odpm_localgov/documents/page/odpm_locgov_023229-01.hcsp

B BIODIVERSITY ACTION PLANS IN LONDON

87. In London, the Mayor's duties include the preparation of a state of the environment report⁹³ (which must include information on biodiversity) and a London Biodiversity Action Plan (the London BAP)⁹⁴. The London BAP must contain information on the ecology, wildlife and habitats of Greater London, together with proposals for conserving and promoting biodiversity and the commitments of other bodies intended to achieve the London BAP objectives. The London BAP must have regard to any plans relating to biodiversity prepared by a London Borough Council or the Common Council of the City of London.

C LANDSCAPE FEATURES OF MAJOR IMPORTANCE FOR WILD FLORA AND FAUNA

88. Article 10 of the Habitats Directive requires Member States (where they consider it necessary) to endeavour to encourage the management of features of the landscape that are of major importance for wild flora and fauna. These features are those that, because of their linear and continuous structure or their function as stepping-stones, are essential for migration, dispersal and genetic exchange. Examples given in the Directive are rivers with their banks, traditional field boundary systems (such as hedgerows), ponds and small woods. Suitable planning conditions and obligations may serve to promote such management.

D LIMESTONE PAVEMENT

89. County or unitary planning authorities have powers under section 34 of the Wildlife and Countryside Act 1981 to make limestone pavement orders prohibiting the removal or disturbance of limestone on land covered by the order. Under section 78 of the Countryside and Rights of Way Act 2000, the penalty for an offence under such an order has been increased to £20,000, in line with the penalty for damaging SSSIs and emphasising the importance which the Secretary of State for Environment, Food and Rural Affairs attaches to this nationally important habitat.

E TREES AND WOODLANDS

90. When granting planning permission for any development, local planning authorities are under a duty, where appropriate, to impose planning conditions to ensure adequate provision is made for the protection or planting of trees, and to make Tree Preservation Orders (TPOs) as appear necessary in the circumstances.
91. Veteran and other substantial trees and many types of woodland, especially ancient semi-natural woodland, can be of importance for biodiversity conservation. When considering whether particular trees or woodlands merit a TPO in the interests of amenity, local planning authorities should, where appropriate, include consideration of their nature conservation value.

⁹³ Section 351 Greater London Authority Act 1999

⁹⁴ *ibid* Section 352

F HEDGEROWS

92. The Hedgerows Regulations 1997 (SI 1997/1160)⁹⁵ were made under section 97 of the Environment Act 1995. They aim to protect important hedgerows in the countryside by controlling their removal through a system of notification to local planning authorities (which administer the Regulations). The system applies to most countryside hedgerows in England and Wales, and covers hedgerows on, or adjoining land used for agriculture or forestry, the breeding or keeping of horses, ponies or donkeys, common land or village greens, SSSIs, or local nature reserves. They do not apply to garden hedges.
93. The Regulations set out the criteria to be used by local planning authorities, in determining whether a hedgerow is important. The criteria relates to the value of hedgerows from an archaeological, historical, landscape or wildlife perspective. Hedgerows should be at least 30 years old and meet any of the criteria in order to be deemed important.
94. Permission for removal of a hedgerow is not required if it is less than 20 metres long (unless both ends join with other hedgerows or it is part of a longer hedgerow), or is in, or borders a garden. Similarly permission to remove a hedgerow is not required in certain circumstances for emergency/access purposes.

G LOCAL SITES

95. Defra will be issuing separate guidance on sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Sites⁹⁶. The guidance will provide advice on the development and management of systems to identify these sites. It will propose frameworks and standards for their operation as well as for the selection, protection and management of the sites themselves.

⁹⁵ Further information available from 'The Hedgerows Regulations Your Questions Answered (WACD010) and 'The Hedgerows Regulations 1997: A Guide to the Law and Good Practice' available from Defra email : farmland.conservaion@defra.gsi.gov.uk

⁹⁶ The guidance will be available from Defra's website – www.defra.gov.uk. Publication is anticipated to be in Autumn 2005.

PART IV

Conservation of Species Protected by Law

A INTRODUCTION

96. Particular species of flora and fauna within England are subject to special protection, normally because of their vulnerable conservation status. For example, a species may be endangered or suffering decline in numbers or range, either within the UK or the European Union, or may be the victim of persecution or cruelty (such as that inflicted on badgers or the collection of the eggs of birds).
97. The two principal pieces of legislation protecting wild species are Part I of the Wildlife and Countryside Act 1981 and the Habitats Regulations. Furthermore, some animals are protected under their own legislation (for example, the Protection of Badgers Act 1992).
98. The presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. Local authorities should consult English Nature before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species' protection provisions affecting the site concerned. For European protected species (i.e. those species protected under the Habitats Regulations) further strict provisions apply, as explained below, to which planning authorities must have regard.
99. It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted. However, bearing in mind the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development. Where this is the case, the survey should be completed and any necessary measures to protect the species should be in place, through conditions and/or planning obligations, before the permission is granted. In appropriate circumstances the permission may also impose a condition preventing the development from proceeding without the prior acquisition of a licence under the procedure set out in section C below.
100. All species of wild birds are protected within Great Britain under the provisions of the Wildlife and Countryside Act 1981. A list of all protected species of animals and plants can be found at Table 2 of Annex A of this Circular.

101. The breach of protected species legislation can often give rise to a criminal offence. The Countryside and Rights of Way Act 2000 increased the penalties for offences under the Wildlife and Countryside Act 1981, relating to protected species, to a maximum fine of £5,000 and/or a custodial sentence of up to six months⁹⁷.
102. The sections below set out the strict controls which apply to European protected species and provide further explanation of the controls applying to other species of animals, plants and birds.

B PROTECTION AFFORDED TO SPECIES UNDER THE HABITATS REGULATIONS

103. The Habitats Regulations implement the requirements of the Habitats Directive for species listed in Annexe IV of the Directive (European protected species). Stricter provisions than those contained in the Wildlife and Countryside Act 1981 apply for these species and regulation 3(4) of the Habitats Regulations places a duty on local planning authorities, in the exercise of their functions, to have regard to the requirements of the Directive so far as they might be affected by those functions. All European protected species are also separately protected under the Wildlife and Countryside Act 1981.

a) European protected species of animals

104. European protected species of animals are identified with a 'Yes' in the 3rd column of Table 2 in Annex A of this Circular.
105. Under regulation 39 of the Habitats Regulations, subject to certain defences or in the absence of a licence (regulations 40 and 44), it is unlawful to:
 - a. deliberately kill⁹⁸; or
 - b. deliberately capture⁹⁹; or
 - c. deliberately disturb¹⁰⁰; or
 - d. deliberately take or destroy the eggs of¹⁰¹;
a wild animal of a European protected species or, to:
 - e. damage or destroy¹⁰² a breeding site or resting place of;
a wild animal of a European protected species.

⁹⁷ Section 81 Countryside and Rights of Way Act 2000

⁹⁸ Regulation 39(1)(a) the Habitats Regulations 1994

⁹⁹ *ibid* Regulation 39(1)(a)

¹⁰⁰ *ibid* Regulation 39(1)(b)

¹⁰¹ *ibid* Regulation 39(1)(c)

¹⁰² *ibid* Regulation 39(1)(d)

These offences apply to all stages of the life of the animal¹⁰³.

106. It is not an offence to deliberately disturb a wild animal of a European protected species, or to damage or destroy a breeding site or resting place of such an animal, where this takes place within a dwelling-house¹⁰⁴. However, in relation to actions that may affect bats outside a living area in a dwelling-house (such as a loft), this exception only applies where English Nature has been pre-notified allowing them a reasonable time within which to advise on the proposed course of action.
107. It is also an offence to keep, transport, sell or exchange¹⁰⁵, or offer for sale or exchange¹⁰⁶, any live or dead wild animal of a European protected species, or any part of, or anything derived from, such an animal. These offences apply to all stages of the life of the animal¹⁰⁷.
108. Where European protected species are found at any stage during the development process, the protection provisions may be contravened either by the development work itself or by associated mitigation work designed to protect the species concerned, for example, capture and rescue or translocation of the protected species from the development site in advance of works commencing. In order to avoid an offence being committed here, a licence may be available under regulation 44 of the Habitats Regulations (see section C below).

b) European protected species of plants

109. European protected species of plants are those listed in the first part of Table 3 in Annex A of this Circular.
110. Article 13 of the Habitats Directive requires Member States to prohibit the deliberate picking, collecting, cutting, uprooting or destruction of any plant in the wild of a species listed in Annex IV(b), in their natural range throughout the biological cycle of the plants. Regulations 42 – 43 of the Habitats Regulations implement this.
111. It is also an offence to keep, transport, sell, exchange, or offer for sale or exchange, any live or dead wild plant of a European protected species, or any part of, or anything derived from, such a wild plant¹⁰⁸. These offences also apply to all stages of the biological cycle of European protected species of plants¹⁰⁹.

c) Licences in respect of European protected species

112. Under the Habitats Directive, developments that would result in a breach of the protection afforded to European protected species of plants and animals require to be

¹⁰³ Regulation 39(3) The Habitats Regulations 1994

¹⁰⁴ *ibid* Regulation 40(4)

¹⁰⁵ *ibid* Regulation 39(2)

¹⁰⁶ *ibid* Regulation 39(2)

¹⁰⁷ *ibid* Regulation 39(3)

¹⁰⁸ *ibid* Regulation 43(2)

¹⁰⁹ *ibid* Regulation 43(3)

covered by a derogation under Article 16. Article 16 of the Directive is transposed by regulation 44 of the Habitats Regulations under which licences may be issued for certain prescribed purposes – which are listed in regulation 44(2)(a)-(g). As a regulation 44 licence is a specific form of derogation under Article 16 of the Directive, licences may only be granted where the licensing authority is satisfied that two tests are met, which are set out in regulation 44(3)(a) and (b). First, a licence must not be issued unless there is no satisfactory alternative. Secondly, it must not be issued unless the action authorised by the licence would not be detrimental to maintaining the population of the species concerned at a favourable conservation status in its natural range. Planning permission per se does not authorise development to proceed in contravention of any of the provisions of regulations 39 or 43. Instead, a licence obtained under regulation 44 may authorise this.

113. English Nature is the licensing authority for granting licences for the purposes in regulation 44(2)(a)-(d), which include “scientific or education purposes”. This purpose would cover undertaking surveys for, or likely to affect, European protected species. In the case of survey work connected with the development, which is likely to result in an offence in regulation 39 or 43 of the Habitats Regulations being committed, it is recommended that a licence is first applied for and obtained from English Nature. Any person wishing to carry out survey work that could affect animals or plants that are a European protected species should contact the relevant local area team of English Nature listed in Annex B to this Circular.
114. Defra is the licensing authority for the purposes within regulation 44(2)(e)-(g). Regulation 44(2)(e) contains the purpose : “ preserving public health or public safety, or for reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment”. “Overriding public interest” is the purpose most likely to cover the implementation of planning permissions likely to affect an animal or plant that is a European protected species.
115. In practice, licence applications are determined by Defra following, and separately from, the granting of planning permission. Information is normally requested from the planning authority and the developer, in order to assist Defra in making a determination of whether there is ‘no satisfactory alternative’ to the issue of a derogation licence. The information required by Defra from planning authorities to determine these licence applications was outlined in Defra Circular 2/2002¹¹⁰. English Nature is asked to provide advice on whether the issue of a licence would be ‘detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range’. The above tests are then applied by Defra with the benefit of the information provided.
116. When dealing with cases where a European protected species may be affected, a planning authority is a competent authority within the meaning of regulation 6 of the Habitats Regulations, and therefore has a statutory duty under regulation 3(4) to have regard to the requirements of the Habitats Directive in the exercise of its functions. So the Directive’s provisions are clearly relevant in reaching planning decisions, and these

¹¹⁰ Defra Circular 2/2002, *New Guidance for Local Planning Authorities on European Protected Species and Changes in Licensing Procedures*, 16 October 2002.

should be made in a manner which takes them fully into account. The Directive's requirements include a strict system of protection for European protected species, prohibiting deliberate killing, catching or disturbing of species, the taking of eggs etc and damage to or destruction of their breeding sites or resting places. Derogations from this strict protection are allowed only in certain limited circumstances and subject to certain tests being met (see para 112 above). Planning authorities should give due weight to the presence of a European protected species on a development site to reflect these requirements, in reaching planning decisions, and this may potentially justify a refusal of planning permission.

117. Guidance is also given in PPS9 on the consideration that should be given to protected species where they would be affected by proposed developments.

C PROTECTION AFFORDED TO SPECIES BY THE WILDLIFE AND COUNTRYSIDE ACT 1981

118. Part I of the Wildlife and Countryside Act 1981 sets out the protection that is afforded to all wild birds, and certain wild animals and plants. Section 25 places a duty on all local authorities to do what they consider expedient to bring the provisions of the Act relating to protected species to the attention of the public and particularly school children. Local authorities are also empowered to institute proceedings against any person committing an offence under Part I of the Act within their area.
119. Under section 16 of the Wildlife and Countryside Act 1981, licences may be issued, providing certain conditions are met, derogating from the protection afforded to species for listed reasons, such as public health and safety. However, there is no provision for licences to be granted for the purposes of development.

a) Protection of Birds

120. Part I of the Wildlife and Countryside Act 1981 (as amended) makes it an offence (with certain limited exceptions and in the absence of a licence) intentionally to kill, injure or take any wild bird, or intentionally to damage, take or destroy its nest whilst it is being built or is in use, or to take or destroy its eggs¹¹¹. It is also an offence to possess any live or dead wild bird or egg, or anything derived from a wild bird or egg. Restrictions on trade and on advertising also apply. Consequently, even common birds such as blackbirds or robins, and their nests and eggs, are protected in this way. Further, the Act affords additional protection to specific species of birds listed in Schedule 1 of the Act. In respect of these species it is unlawful intentionally or recklessly to disturb such a bird whilst it is nest-building or is at or near a nest with eggs or young; or to disturb their dependent young¹¹². Table 1 of Annex A of this Circular sets out the list of bird species in Schedule 1. Licences to enable surveys to be carried out may be granted by English Nature.

¹¹¹ section 1(1) Wildlife and Countryside Act 1981, as amended

¹¹² *ibid* section 1(5)

b) Protection of Animals

121. Part I of the Wildlife and Countryside Act 1981 (as amended) affords protection to specific species of animals listed in Schedule 5 (see Table 2, Annex A of this Circular). This provides overlapping but separate protection for European protected species covered by the Habitats Regulations. All local authorities are informed about changes to the Schedule. With certain exceptions detailed in Table 2, at Annex A in this Circular, and in the absence of a licence or a relevant defence, it is an offence in respect of any animal of a species listed in Schedule 5 to:
- i. intentionally kill, injure or take any wild animal of such a listed species¹¹³;
 - ii. intentionally or recklessly damage or destroy or obstruct access to any structure or place which any animal of a listed species uses for shelter or protection¹¹⁴;
 - iii. intentionally or recklessly disturb an animal of a listed species whilst it is occupying such a structure or place which it uses for that purpose¹¹⁵;
 - iv. trade¹¹⁶ in an animal of a listed species whether alive or dead, or any part of it or anything derived from it¹¹⁷;
 - v. intentionally or recklessly disturb a dolphin, whale or basking shark wherever it may be¹¹⁸;
 - vi. possess or have in one's control a live or dead animal of a listed species, or any part of it or anything derived from it¹¹⁹.

Some species are covered by one or more (but not all), of these provisions (as listed in Annex A, Table 2 below).

c) Protection of Plants

122. Part I of the Wildlife and Countryside Act 1981 (as amended) also affords protection to specific species of plants listed in Schedule 8. This also provides overlapping but separate protection for European protected species from the Habitats Regulations. Section 13 of the Wildlife and Countryside Act 1981 (as amended) gives legal protection to certain wild plants listed in Schedule 8. All local authorities are informed about changes to the Schedule. In the absence of a licence or a relevant defence, it is an offence to

¹¹³ section 9(1) Wildlife and Countryside Act 1981, as amended

¹¹⁴ *ibid* section 9(4)(a) Schedule 12 para 5

¹¹⁵ *ibid.* section 9(4)(b)

¹¹⁶ Specifically to sell, offer or expose for sale, possess or transport for the purpose of sale, or publish or cause to be published any advertisement likely to be understood as conveying that the person buys or sells or intends to buy or sell, Section 9(5) Wildlife and Countryside Act 1981, as amended

¹¹⁷ section 9(5) Wildlife and Countryside Act 1981, as amended

¹¹⁸ *ibid.* section 9(4A)

¹¹⁹ *ibid.* section 9(2)

- i. intentionally pick, uproot or destroy a wild plant listed in Schedule 8;
- ii. not being an authorised person, intentionally uproot any wild plant not included in Schedule 8; or
- iii. sell, offer or expose for sale, or have possession of or to transport for the purpose of sale, any live or dead wild plant, or any part of or anything derived from a wild plant listed in Schedule 8.
- iv. publish or cause to be published any advertisement likely to be understood as conveying that that person buys or sells, or intends to buy or sell, any live or dead wild plant, or any part of or anything derived from a wild plant listed in Schedule 8.

With the exception of the Bluebell, all plants listed are fully protected. The Bluebell is protected against sale only¹²⁰.

D PROTECTION OF BADGERS ACT 1992

123. Although the badger is not a rare animal over most of England, there is specific legislation for the protection of badgers under the Protection of Badgers Act 1992. It is widely known that badgers have been the victim of persecution and cruelty over many years. With certain exceptions it is unlawful to kill, injure, take or possess a badger, or attempt to do so¹²¹. It is also an offence to cruelly ill-treat a badger¹²², and, with certain exceptions, to interfere with a badger sett¹²³. English Nature is responsible for issuing licences under section 10(1)(d) of the Protection of Badgers Act 1992 where it is necessary to interfere with a badger sett in the course of development, which can include demolition, building, construction, mining and engineering operations and material changes of use.
124. The likelihood of disturbing a badger sett, or adversely affecting badgers' foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations, are capable of being material considerations in planning decisions. Although consideration of the case for granting a licence is separate from the process of applying for planning permission, a planning authority should advise anyone submitting an application for development in an area where there are known to be badger setts that they must comply with the provisions of the Act. Local authorities and other public bodies (except central government) are generally likely to need a licence in respect of any development which they themselves carry out in any areas if it will involve them interfering with a badger sett.

¹²⁰ section 13(2) Wildlife and Countryside Act 1981, as amended and Schedule 8

¹²¹ section 1 of the Protection of Badgers Act 1992

¹²² *ibid* section 2

¹²³ *ibid* section 3

PART V

Other duties and use of statutory powers by planning authorities

A ENVIRONMENTAL IMPACT ASSESSMENT

125. Environmental impact assessment (EIA) is mandatory for projects that are 'EIA development' within the meaning of the Town and Country Planning (Environmental Impact Assessment) (England) Regulations 1999 (the EIA Regulations)¹²⁴. Some schedule 2 projects will be screened as EIA development because of their likely significant effects on nature conservation interests. The potential effects on flora and fauna and on natural features and processes should always be carefully considered in the scoping of environmental impact statements to ensure compliance with the EIA Directive. Circular 2/99 provides further advice on the application of the Regulations to the planning system.

B STRATEGIC ENVIRONMENTAL ASSESSMENT

126. Directive 2001/42/EC "on assessment of the environmental effects of certain plans and programmes on the environment" (the Strategic Environmental Assessment or SEA Directive) applies to development plans. Its requirements are incorporated in mandatory sustainability appraisal of Local Development Documents under the Planning and Compulsory Purchase Act 2004. The effects of a plan on European sites would be considered in the Environmental Report which is produced as part of the SEA process (incorporated in the Sustainability Appraisal Report under the 2004 Act).

C WATER FRAMEWORK DIRECTIVE

127. Regulation 17 of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 requires each public body, in the exercise of its functions, to have regard to the river basin management plan for that river basin district and any supplementary plans.
128. The Water Framework Directive introduces a new high level water planning process – based on river basin districts (which are roughly the size of regions). Key aims of the Water Framework Directive in relation to nature conservation and the planning system are the promotion of sustainable water use and to establish a framework for the protection of surface and groundwaters which protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly dependent on the aquatic ecosystems.
129. Strategic planning decisions such as on the nature, size and location of development should take account of their impact on the aquatic environment and have regard to Environment Agency advice and standing guidance.

¹²⁴ SI No.1999/293 amended by the Town and Country Planning (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2000 SI No. 2000/2867

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MRS H J THOMPSON

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Addressed to:

The Chief Executives of:

County Councils in England

District Councils in England

Unitary Authorities in England

London Borough Councils

Greater London Authority

Regional Planning Bodies

Regional Development Agencies

Council of the Isles of Scilly

The Town Clerk, City of London

The National Park Officer, National Park Authorities in England

The Chief Planning Officer, The Broads Authority

Annex A

Lists of species of animals and plants especially protected by law

Table 1

Birds Protected by Schedule 1 Wildlife and Countryside Act 1981 as amended

Avocet	Grebe, Slavonian	Sandpiper, Wood
Bee-eater	Greenshank	Scaup
Bittern	Gull, Little	Scoter, Common
Bittern, Little	Gull, Mediterranean	Scoter, Velvet
Bluethroat	Harriers (all species)	Serin
Brambling	Heron, Purple	Shorelark
Bunting, Cirl	Hobby	Shrike, Red-backed
Bunting, Lapland	Hoopoe	Spoonbill
Bunting, Snow	Kingfisher	Stilt, Black-winged
Buzzard, Honey	Kite, Red	Stint, Temminck's
Chough	Merlin	Swan, Bewick's
Corncrake	Oriole, Golden	Swan, Whooper
Crake, Spotted	Osprey	Tern, Black
Crossbills (all species)	Owl, Barn	Tern, Little
Curlew, Stone	Owl, Snowy	Tern, Roseate
Divers (all species)	Peregrine	Tit, Bearded
Dotterel	Petrel, Leach's	Tit, Crested
Duck, Long-tailed	Phalarope, Red-necked	Treecreeper, Short-toed
Eagle, Golden	Plover, Kentish	Warbler, Cetti's
Eagle, White-tailed	Plover, Little Ringed	Warbler, Dartford
Falcon, Gyr	Quail, Common	Warbler, Marsh
Fieldfare	Redstart, Black	Warbler, Savi's
Firecrest	Redwing	Whimbrel
Garganey	Rosefinch, Scarlet	Woodlark
Godwit, Black-tailed	Ruff	Wryneck
Goshawk	Sandpiper, Green	
Grebe, Black-necked	Sandpiper, Purple	

Table 2

Animals Protected by Schedule 5 Wildlife and Countryside Act 1981 as amended and Regulation 39 Habitats Regulations 1994 (European protected animal species)

Key to Table 2

EPS = European Protected Species

9(1) = S.9(1) intentionally kill, injure or take any wild animal of such a listed species;

9(4)(a) = S.9(4)(a) intentionally or recklessly damage or destroy or obstruct access to any structure or place which any animal of a listed species uses for shelter or protection (at any time even when the animal is not there);

9(4)(b) = S.9(4)(b) intentionally or recklessly disturb an animal of a listed species whilst it is occupying such a structure or place which it uses for that purpose;

9(5) = S.9(5) sell, transport or trade in an animal of a listed species whether alive or dead, or any part of it or anything derived from it;

9(4A) = S.9(4A) intentionally or recklessly disturb a dolphin, whale or basking shark wherever it may be;

9(2) = S.9(2) possess or control a live or dead animal of a listed species, or any part of it or anything derived from it.

- = Denotes that only partial protection is afforded under section 9(1) for this species. The Adder, Viviparous Lizard, Slow-worm and Grass Snake, are only protected under section 9(1) from being killed or injured and the Atlantic Stream Crayfish is only protected under section 9(1) from being taken.

Common Name	Scientific Name	EPS	9(1)	9(4)(a)	9(4)(b)	9(5)	9(4A)	9(2)
Adder	<i>Vipera berus</i>		•*			•		
Allis Shad	<i>Alosa alosa</i>		•	•				
Anemone, Ivell's Sea	<i>Edwardsia ivelli</i>		•	•	•	•		•
Anemone, Starlet Sea	<i>Nematosella vectensis</i>		•	•	•	•		•
Apus	<i>Triops cancriformis</i>		•	•	•	•		•
Atlantic Stream Crayfish	<i>Austropotamobius pallipes</i>		•*			•		
Bats, Horseshoe	<i>Rhinolophidae</i> (all species)	Yes	•	•	•	•		•
Bats, Typical	<i>Vespertilionidae</i> (all species)	Yes	•	•	•	•		•
Beetle	<i>Graphoderus zonatus</i>		•	•	•	•		•
Beetle	<i>Hypebaeus flavipes</i>		•	•	•	•		•
Beetle	<i>Paracymus aeneus</i>		•	•	•	•		•
Beetle, Lesser Silver Water	<i>Hydrochara caraboides</i>		•	•	•	•		•
Beetle, Mire Pill	<i>Curimopsis nigrita</i>			•				
Beetle, Rainbow Leaf	<i>Chrysolina cerealis</i>		•	•	•	•		•
Beetle, Stag	<i>Lucanus cervus</i>					•		
Beetle, Violet Click	<i>Limoniscus violaceus</i>		•	•	•	•		•
Burbot	<i>Lota lota</i>		•	•	•	•		•
Butterflies								
Heath Fritillary	<i>Mellicta athalia</i> (<i>Melitaea athalia</i>)		•	•	•	•		•
Large Blue	<i>Maculinea arion</i>	Yes	•	•	•	•		•
Swallowtail	<i>Papilio machaon</i>		•	•	•	•		•
Northern Brown Argus	<i>Aricia artaxerxes</i>					•		
Adonis Blue	<i>Lysandra bellargus</i>					•		
Chalkhill Blue	<i>Lysandra coridon</i>					•		
Silver-studded Blue	<i>Plebejus argus</i>					•		
Small Blue	<i>Cupido minimus</i>					•		
Large Copper	<i>Lycaena dispar</i>		•	•	•	•		•
Purple Emperor	<i>Apatura iris</i>					•		
Duke of Burgundy Fritillary	<i>Hamearis lucina</i>					•		
Glanville Fritillary	<i>Melitaea cinxia</i>					•		

continued

Table 2 – continued

Common Name	Scientific Name	EPS	9(1)	9(4)(a)	9(4)(b)	9(5)	9(4A)	9(2)
High Brown Fritillary	<i>Argynnis adippe</i>					•		
Marsh Fritillary	<i>Eurodryas aurinia</i>		•	•	•	•		•
Pearl-bordered Fritillary	<i>Boloria euphrosyne</i>					•		
Black Hairstreak	<i>Strymonidia pruni</i>					•		
Brown Hairstreak	<i>Thecla betulae</i>					•		
White Letter Hairstreak	<i>Stymonida w-album</i>					•		
Large Heath	<i>Coenonympha tullia</i>					•		
Mountain Ringlet	<i>Erebia epiphron</i>					•		
Chequered Skipper	<i>Carterocephalus palaemon</i>					•		
Lulworth Skipper	<i>Thymelicus acteon</i>					•		
Silver Spotted Skipper	<i>Hesperia comma</i>					•		
Large Tortoiseshell	<i>Nymphalis polychloros</i>					•		
Wood White	<i>Leptidea sinapis</i>					•		
Cat, Wild	<i>Felis silvestris</i>	Yes	•	•	•	•		•
Cicada, New Forest	<i>Cicadetta montana</i>		•	•	•	•		•
Cricket, Field	<i>Gryllus campestris</i>		•	•	•	•		•
Cricket, Mole	<i>Gryllotalpa gryllotalpa</i>		•	•	•	•		•
Damselfly, Southern	<i>Coenagrion mercuriale</i>		•	•	•	•		•
Dolphins	Cetacea (all species)	Yes	•	•	•	•	•	•
Dormouse	<i>Muscardinus avellanarius</i>	Yes	•	•	•	•		•
Dragonfly, Norfolk Aeshna	<i>Aeshna isosceles</i>		•	•	•	•		•
Frog, Common	<i>Rana temporaria</i>					•		
Goby, Couch's	<i>Gobius couchii</i>		•	•	•	•		•
Goby, Giant	<i>Gobius cobitis</i>		•	•	•	•		•
Grasshopper, Wart-biter	<i>Decticus verrucivorus</i>		•	•	•	•		•
Hatchet Shell, Northern	<i>Thyasira gouldi</i>		•	•	•	•		•
Hydroid, Marine	<i>Clavopsella navis</i>		•	•	•	•		•
Lagoon Snail	<i>Paludinella littorina</i>		•	•	•	•		•
Lagoon Snail, De Folin's	<i>Caecum armoricum</i>		•	•	•	•		•
Lagoon Worm, Tentacled	<i>Alkmaria romijni</i>		•	•	•	•		•
Leech, Medicinal	<i>Hirudo medicinalis</i>		•	•	•	•		•
Lizard, Sand	<i>Lacerta agilis</i>	Yes	•	•	•	•		•
Lizard, Viviparous	<i>Lacerta vivipara</i>		•*			•		
Marten, Pine	<i>Martes martes</i>		•	•	•	•		•
Mat, Trembling Sea	<i>Victorella pavida</i>		•	•	•	•		•
Moth, Barberry Carpet	<i>Pareulype berberata</i>		•	•	•	•		•
Moth, Black-veined	<i>Siona lineata</i> (<i>Idaea lineata</i>)		•	•	•	•		•
Moth, Essex Emerald	<i>Thetidia smaragdaria</i>		•	•	•	•		•
Moth, Fiery Clearwing	<i>Bembecia chrysidiformis</i>		•	•	•	•		•
Moth, Fisher's Estuarine	<i>Gortyna borelii</i>		•	•	•	•		•
Moth, New Forest Burnet	<i>Zygaena viciae</i>		•	•	•	•		•
Moth, Reddish Buff	<i>Acosmetia caliginosa</i>		•	•	•	•		•
Moth, Sussex Emerald	<i>Thalera fimbrialis</i>		•	•	•	•		•
Mussel, Fan	<i>Atrina fragilis</i>		•			•		•

continued

Table 2 – continued

Common Name	Scientific Name	EPS	9(1)	9(4)(a)	9(4)(b)	9(5)	9(4A)	9(2)
Mussel, Freshwater Pearl	<i>Margaritifera margaritifera</i>		•	•	•	•		•
Newt, Great Crested (Warty newt)	<i>Triturus cristatus</i>	Yes	•	•	•	•		•
Newt, Palmate	<i>Triturus helveticus</i>					•		
Newt, Smooth	<i>Triturus vulgaris</i>					•		
Otter, Common	<i>Lutra lutra</i>	Yes	•	•	•	•	•	•
Porpoises	Cetacea (all species)	Yes	•	•	•	•		•
Sandworm, Lagoon	<i>Armandia cirrhosa</i>		•	•	•	•		•
Sea Fan, Pink	<i>Eunicella verrucosa</i>		•			•		•
Sea Slug, Lagoon	<i>Tenellia adpersa</i>		•	•	•	•		•
Shad, Twaite	<i>Alosa fallax</i>			•				
Shark, Basking	<i>Cetorhinus maximus</i>		•	•	•	•	•	•
Shrimp, Fairy	<i>Chirocephalus diaphanus</i>		•	•	•	•		•
Shrimp, Lagoon Sand	<i>Gammarus insensibilis</i>		•	•	•	•		•
Slow-worm	<i>Anguis fragilis</i>		•*			•		
Snail, Glutinous	<i>Myxas glutinosa</i>		•	•	•	•		•
Snail, Sandbowl	<i>Catinella arenaria</i>		•	•	•	•		•
Snake, Grass	<i>Natrix helvetica</i>		•*			•		
Snake, Smooth	<i>Coronella austriaca</i>	Yes	•	•	•	•		•
Spider, Fen Raft	<i>Dolomedes plantarius</i>		•	•	•	•		•
Spider, Ladybird	<i>Eresus niger</i>		•	•	•	•		•
Squirrel, Red	<i>Sciurus vulgaris</i>		•	•	•	•		•
Sturgeon	<i>Acipenser sturio</i>	Yes	•	•	•	•		•
Toad, Common	<i>Bufo bufo</i>					•		
Toad, Natterjack	<i>Bufo calamita</i>	Yes	•	•	•	•		•
Turtles, Marine	<i>Caretta caretta</i> <i>Chelonia mydas</i> <i>Lepidochelys kempii</i> <i>Eretmochelys imbricata</i> <i>Dermochelys coriacea</i>	Yes	•	•	•	•		•
Vendace	<i>Coregonus albula</i>		•	•	•	•		•
Vole, Water	<i>Arvicola terrestris</i>			•	•			
Walrus	<i>Odobenus rosmarus</i>		•	•	•	•		•
Whale	Cetacea (all species)	Yes	•	•	•	•	•	•
Whitefish	<i>Coregonus lavaretus</i>		•	•	•	•		•

Table 3

Plants Protected by Schedule 8 Wildlife and Countryside Act 1981 as amended and Regulation 42 Habitats Regulations 1994 (European protected plant species)

Dock, Shore	<i>Rumex rupestris</i>	Naiad, Slender	<i>Najas flexilis</i>
Fern, Killarney	<i>Trichomanes speciosum</i>	Orchid, Fen	<i>Liparis loeselii</i>
Gentian, Early	<i>Gentianella anglica</i>	Plantain, Floating-leaved Water	<i>Luronium natans</i>
Lady's-slipper	<i>Cypripedium calceolus</i>	Saxifrage, Yellow Marsh	<i>Saxifraga hirculus</i>
Marshwort, Creeping	<i>Apium repens</i>		

Plants Protected by Schedule 8 Wildlife and Countryside Act 1981 as amended

Adder's-tongue, Least	<i>Ophioglossum lusitanicum</i>	Frostwort, Pointed	<i>Gymnomitrium apiculatum</i>
Alison, Small	<i>Alyssum alyssoides</i>	Fungus, Hedgehog	<i>Hericium erinaceum</i>
Anomodon, Long-leaved	<i>Anomodon longifolius</i>	Galingale, Brown	<i>Cyperus fuscus</i>
Beech-lichen, New Forest	<i>Enterographa elaborata</i>	Gentian, Alpine	<i>Gentiana nivalis</i>
Blackwort	<i>Southbya nigrella</i>	Gentian, Dune	<i>Gentianella uliginosa</i>
Bluebell	<i>Hyacinthoides non-scripta</i> (in respect of s.13(2) only)	Gentian, Fringed	<i>Gentianella ciliata</i>
		Gentian, Spring	<i>Gentiana verna</i>
Bolete, Royal	<i>Boletus regius</i>	Germander, Cut-leaved	<i>Teucrium botrys</i>
Broomrape, Bedstraw	<i>Orobanche caryophyllacea</i>	Germander, Water	<i>Teucrium scordium</i>
Broomrape, Oxtongue	<i>Orobanche loricata</i>	Gladiolus, Wild	<i>Gladiolus illyricus</i>
Broomrape, Thistle	<i>Orobanche reticulata</i>	Goblin Lights	<i>Catolechia wahlenbergii</i>
Cabbage, Lundy	<i>Rhynchosinapis wrightii</i>	Goosefoot, Stinking	<i>Chenopodium vulvaria</i>
Calamint, Wood	<i>Calamintha sylvatica</i>	Grass-poly	<i>Lythrum hyssopifolia</i>
Caloplaca, Snow	<i>Caloplaca nivalis</i>	Grimmia, Blunt-leaved	<i>Grimmia unicolor</i>
Catapyrenium, Tree	<i>Catapyrenium psoromoides</i>	Gyalecta, Elm	<i>Gyalecta ulmi</i>
Catchfly, Alpine	<i>Lychnis alpina</i>	Hare's-ear, Sickle-leaved	<i>Bupleurum falcatum</i>
Catillaria, Laurer's	<i>Catellaria laureri</i>	Hare's-ear, Small	<i>Bupleurum baldense</i>
Centaury, Slender	<i>Centaureum tenuiflorum</i>	Hawk's-beard, Stinking	<i>Crepis foetida</i>
Cinquefoil, Rock	<i>Potentilla rupestris</i>	Hawkweed, Northroe	<i>Hieracium northroense</i>
Cladonia, Convoluted	<i>Cladonia convoluta</i>	Hawkweed, Shetland	<i>Hieracium zetlandicum</i>
Cladonia, Upright Mountain	<i>Cladonia stricta</i>	Hawkweed, Weak-leaved	<i>Hieracium attenuatifolium</i>
Clary, Meadow	<i>Salvia pratensis</i>	Heath, Blue	<i>Phyllodoce caerulea</i>
Club-rush, Triangular	<i>Scirpus triquetrus</i>	Helleborine, Red	<i>Cephalanthera rubra</i>
Colt's-foot, Purple	<i>Homogyne alpina</i>	Helleborine, Young's	<i>Epipactis youngiana</i>
Cotoneaster, Wild	<i>Cotoneaster integerrimus</i>	Horsetail, Branched	<i>Equisetum ramosissimum</i>
Cottongrass, Slender	<i>Eriophorum gracile</i>	Hound's-tongue, Green	<i>Cynoglossum germanicum</i>
Cow-wheat, Field	<i>Melampyrum arvense</i>	Knawel, Perennial	<i>Scleranthus perennis</i>
Crocus, Sand	<i>Romulea columnae</i>	Knotgrass, Sea	<i>Polygonum maritimum</i>
Crystalwort, Lizard	<i>Riccia bifurca</i>	Lecanactis, Churchyard	<i>Lecanactis hemisphaerica</i>
Cudweed, Broad-leaved	<i>Filago pyramidata</i>	Lecanora, Tarn	<i>Lecanora archariana</i>
Cudweed, Jersey	<i>Gnaphalium luteoalbum</i>	Lecidea, Copper	<i>Lecidea inops</i>
Cudweed, Red-tipped	<i>Filago lutescens</i>	Leek, Round-headed	<i>Allium sphaerocephalon</i>
Cut-grass	<i>Leersia oryzoides</i>	Lettuce, Least	<i>Lactuca saligna</i>
Deptford Pink	<i>Dianthus armeria</i>	Lichen, Arctic Kidney	<i>Nephroma arcticum</i>
Diapensia	<i>Diapensia lapponica</i>	Lichen, Ciliate Strap	<i>Heterodermia leucomelos</i>
Earwort, Marsh	<i>Jamesoniella undulifolia</i>	Lichen, Coralloid Rosette	<i>Heterodermia propagulifera</i>
Eryngo, Field	<i>Eryngium campestre</i>	Lichen, Ear-lobed Dog	<i>Peltigera lepidophora</i>
Feather-moss, Polar	<i>Hygrohypnum polare</i>	Lichen, Forked Hair	<i>Bryoria furcellata</i>
Fern, Dickie's Bladder	<i>Cystopteris dickieana</i>	Lichen, Golden Hair	<i>Teloschistes flavicans</i>
Flapwort, Norfolk	<i>Leiocolea rutheana</i>	Lichen, Orange Fruited Elm	<i>Caloplaca luteoalba</i>
Fleabane, Alpine	<i>Erigeron borealis</i>	Lichen, River Jelly	<i>Collema dichotomum</i>
Fleabane, Small	<i>Pulicaria vulgaris</i>	Lichen, Scaly Breck	<i>Squamarina lentigera</i>

Table 3

Plants Protected by Schedule 8 Wildlife and Countryside Act 1981 as amended – *continued*

Lichen, Stary Breck	<i>Buellia asterella</i>	Pink, Cheddar	<i>Dianthus gratianopolitanus</i>
Lily, Snowdon	<i>Lloydia serotina</i>	Pink, Childling	<i>Petrarghia nanteuillii</i>
Liverwort	<i>Petallophyllum ralfsi</i>	Polypore, Oak	<i>Buglossoporus pulvinus</i>
Liverwort, Lindenberg's Leafy	<i>Adelanthus lindenbergianus</i>	Pseudocyphellaria, Ragged	<i>Pseudocyphellaria lacerata</i>
Marsh-mallow, Rough	<i>Althaea hirsuta</i>	Psora, Rusty Alpine	<i>Psora rubiformis</i>
Milk-parsley, Cambridge	<i>Selinum carvifolia</i>	Puffball, Sandy Stilt	<i>Battarraea phalloides</i>
Moss	<i>Drepanocladus vernicosus</i>	Ragwort, Fen	<i>Senecio paludosus</i>
Moss, Alpine Copper	<i>Mielichoferia mielichoferi</i>	Ramping-fumitory, Martin's	<i>Fumaria martinii</i>
Moss, Baltic Bog	<i>Sphagnum balticum</i>	Rampion, Spiked	<i>Phyteuma spicatum</i>
Moss, Blue Dew	<i>Saelania glaucescens</i>	Restharrow, Small	<i>Ononis reclinata</i>
Moss, Blunt-leaved Bristle	<i>Orthotrichum obtusifolium</i>	Rock-cress, Alpine	<i>Arabis alpina</i>
Moss, Bright Green Cave	<i>Cyclodictyon laetevirens</i>	Rock-cress, Bristol	<i>Arabis stricta</i>
Moss, Cordate Beard	<i>Barbula cordata</i>	Rustwort, Western	<i>Marsupella profunda</i>
Moss, Cornish Path	<i>Ditrichum cornubicum</i>	Sandwort, Norwegian	<i>Arenaria norvegica</i>
Moss, Derbyshire Feather	<i>Thamnobryum angustifolium</i>	Sandwort, Teesdale	<i>Minuartia stricta</i>
Moss, Dune Thread	<i>Bryum mamillatum</i>	Saxifrage, Drooping	<i>Saxifraga cernua</i>
Moss, Flamingo	<i>Desmatodon cernuus</i>	Saxifrage, Tufted	<i>Saxifraga cespitosa</i>
Moss, Glaucous Beard	<i>Barbula glauca</i>	Solomon's-seal, Whorled	<i>Polygonatum verticillatum</i>
Moss, Green Shield	<i>Buxbaumia viridis</i>	Solenopsora, Serpentine	<i>Solenopsora liparina</i>
Moss, Hair Silk	<i>Plagiothecium piliferum</i>	Sow-thistle, Alpine	<i>Cicerbita alpina</i>
Moss, Knothole	<i>Zygodon forsteri</i>	Spearwort, Adder's-tongue	<i>Ranunculus ophioglossifolius</i>
Moss, Large Yellow Feather	<i>Scorpidium turgescens</i>	Speedwell, Fingered	<i>Veronica triphyllos</i>
Moss, Millimetre	<i>Micromitrium tenerum</i>	Speedwell, Spiked	<i>Veronica spicata</i>
Moss, Multifruited River	<i>Cryphaea lamyana</i>	Spike-rush, Dwarf	<i>Eleocharis parvula</i>
Moss, Nowell's Limestone	<i>Zygodon gracilis</i>	Stack Fleawort, South	<i>Tephroses integrifolia</i> (ssp. <i>maritima</i>)
Moss, Rigid Apple	<i>Bartramia stricta</i>	Star-of-Bethlehem, Early	<i>Gagea bohemica</i>
Moss, Round-leaved Feather	<i>Rhyncostegium rotundifolium</i>	Starfruit	<i>Damasonium alisma</i>
Moss, Schleicher's Thread	<i>Bryum schleicheri</i>	Stonewort, Bearded	<i>Chara canescens</i>
Moss, Triangular Pygmy	<i>Acaulon triquetrum</i>	Stonewort, Foxtail	<i>Lamprothamnium papulosum</i>
Moss, Vaucher's Feather	<i>Hypnum vaucheri</i>	Strapwort	<i>Corrigiola litoralis</i>
Mudwort, Welsh	<i>Limosella australis</i>	Sulphur-tresses, Alpine	<i>Alectoria ochroleuca</i>
Naiad, Holly-leaved	<i>Najas marina</i>	Threadmoss, Long-leaved	<i>Bryum neodamense</i>
Orache, Stalked	<i>Halimione pedunculata</i>	Turpswort	<i>Geocalyx graveolens</i>
Orchid, Early Spider	<i>Ophrys sphegodes</i>	Violet, Fen	<i>Viola persicifolia</i>
Orchid, Ghost	<i>Epipogium aphyllum</i>	Viper's-grass	<i>Scorzonera humilis</i>
Orchid, Lapland Marsh	<i>Dactylorhiza lapponica</i>	Water-plantain, Ribbon Leaved	<i>Alisma gramineum</i>
Orchid, Late Spider	<i>Ophrys fuciflora</i>	Wood-sedge, Starved	<i>Carex depauperata</i>
Orchid, Lizard	<i>Himantoglossum hircinum</i>	Woodsia, Alpine	<i>Woodsia alpina</i>
Orchid, Military	<i>Orchis militaris</i>	Woodsia, Oblong	<i>Woodsia ilvensis</i>
Orchid, Monkey	<i>Orchis simia</i>	Wormwood, Field	<i>Artemisia campestris</i>
Pannaria, Caledonia	<i>Pannaria ignobilis</i>	Woundwort, Downy	<i>Stachys germanica</i>
Parmelia, New Forest	<i>Parmelia minarum</i>	Woundwort, Limestone	<i>Stachys alpina</i>
Parmentaria, Oil Stain	<i>Parmentaria chilensis</i>	Yellow-rattle, Greater	<i>Rhinanthus serotinus</i>
Pear, Plymouth	<i>Pyrus cordata</i>		
Penny-cress, Perfoliate	<i>Thlaspi perfoliatum</i>		
Pennyroyal	<i>Mentha pulegium</i>		
Pertusaria, Alpine Moss	<i>Pertusaria bryontha</i>		
Physcia, Southern Grey	<i>Physcia tribacioides</i>		
Pigmyweed	<i>Crassula aquatica</i>		
Pine, Ground	<i>Ajuga chamaepitys</i>		

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Annex C

Habitat types and species of principal importance in England

(Section 74 Countryside and Rights of Way Act 2000)

Habitats of Principal Importance

Ancient and/or species-rich hedgerows	Mesotrophic standing water
Aquifer fed naturally fluctuating water bodies	<i>Modiolus modiolus</i> beds
Blanket bog	Mud habitats in deep water
Cereal field margins	Mudflats
Chalk rivers	Native pine woodlands
Coastal and floodplain grazing marsh	Purple moor grass and rush pastures
Coastal saltmarsh	Reedbeds
Coastal sand dunes	<i>Sabellaria alveolata</i> reefs
Coastal vegetated shingle	<i>Sabellaria spinulosa</i> reefs
Eutrophic standing waters	Saline lagoons
Fens	Seagrass beds
Limestone pavements	Serpulid reefs
Littoral and sublittoral chalk	Sheltered muddy gravels
<i>Lophelia pertusa</i> reefs	Sublittoral sands and gravels
Lowland beech and yew woodland	Tidal rapids
Lowland calcareous grassland	Upland calcareous grassland
Lowland dry acid grassland	Upland hay meadows
Lowland heathland	Lowland mixed deciduous woodland
Lowland meadows	Upland heathland
Lowland raised bog	Upland mixed ashwoods
Lowland wood-pasture and parkland	Upland oakwood
Machair	Upland birch woodland
Maerl beds	Wet woodland
Maritime cliff and slopes	

Species of Principal Importance

Vertebrates

Amphibian	<i>Bufo calamita</i>	Natterjack toad			<i>Molva dypterygia</i>	Blue ling
Amphibian	<i>Rana lessonae</i>	Pool frog			<i>Reinhardtius hippoglossoides</i>	Greenland halibut
Amphibian	<i>Triturus cristatus</i>	Great crested newt			<i>Merluccius merluccius</i>	Hake
Bird	<i>Acrocephalus paludicola</i>	Aquatic warbler			<i>Molva molva</i>	Ling
Bird	<i>Acrocephalus palustris</i>	Marsh warbler			<i>Lophius piscatorius</i>	Sea monkfish/ Angler fish
Bird	<i>Alauda arvensis</i>	Skylark			<i>Hoplostethus atlanticus</i>	Orange roughy
Bird	<i>Botaurus stellaris</i>	Bittern			<i>Sebastes</i> spp.	Redfish
Bird	<i>Burhinus oediconemus</i>	Stone curlew			<i>Coryphaenoides rupestris</i>	Roundnose grenadier
Bird	<i>Caprimulgus europaeus</i>	Nightjar			<i>Brosme brosme</i>	Torsk
Bird	<i>Carduelis cannabina</i>	Linnet			<i>Macrourus berglax</i>	Roughhead grenadier
Bird	<i>Crex crex</i>	Corncrake			<i>Argentina silus</i>	Argentine/Greater silver smelt
Bird	<i>Emberiza cirulus</i>	Cirl bunting			<i>Micromesistius poutassou</i>	Blue whiting
Bird	<i>Emberiza schoeniclus</i>	Reed bunting			<i>Chaceon (Geryon) affinis</i>	Deep-water red crab
Bird	<i>Jynx torquilla</i>	Wryneck			Mammal <i>Arvicola terrestris</i>	Water vole
Bird	<i>Lanius collurio</i>	Red-backed shrike			Mammal <i>Barbastella barbastellus</i>	Barbastelle bat
Bird	<i>Loxia scotica</i>	Scottish crossbill			Mammal <i>Lepus europaeus</i>	Brown hare
Bird	<i>Lullula arborea</i>	Woodlark			Mammal <i>Lutra lutra</i>	European otter
Bird	<i>Melanitta nigra</i>	Common scoter			Mammal <i>Muscardinus avellanarius</i>	Dormouse
Bird	<i>Miliaria calandra</i>	Corn bunting			Mammal <i>Myotis bechsteinii</i>	Bechstein's bat
Bird	<i>Muscicapa striata</i>	Spotted flycatcher			Mammal <i>Myotis myotis</i>	Greater mouse-eared bat
Bird	<i>Passer montanus</i>	Tree sparrow			Mammal <i>Phocoena phocoena</i>	Harbour porpoise
Bird	<i>Perdix perdix</i>	Grey partridge			Mammal <i>Pipistrellus pipistrellus</i>	Pipistrelle bat
Bird	<i>Phalaropus lobatus</i>	Red-necked phalarope			Mammal <i>Rhinolophus ferrumequinum</i>	Greater horseshoe bat
Bird	<i>Pyrrhula pyrrhula</i>	Bullfinch			Mammal <i>Rhinolophus hipposideros</i>	Lesser horseshoe bat
Bird	<i>Sterna dougallii</i>	Roseate tern			Mammal <i>Sciurus vulgaris</i>	Red squirrel
Bird	<i>Streptopelia turtur</i>	Turtle dove			Mammal Baleen Whale species	
Bird	<i>Tetrao tetrix</i>	Black grouse			<i>Balaenoptera musculus</i>	Blue whale
Bird	<i>Tetrao urogallus</i>	Capercaillie			<i>Balaenoptera physalus</i>	Fin whale
Bird	<i>Turdus philomelos</i>	Song thrush			<i>Balaenoptera borealis</i>	Sei whale
Fish	<i>Alosa alosa</i>	Allis shad			<i>Balaenoptera acutorostrata</i>	Minke whale
Fish	<i>Alosa fallax</i>	Twaite shad			<i>Megaptera novaeangliae</i>	Humpback whale
Fish	<i>Cetorhinus maximus</i>	Basking shark			<i>Eubalaena glacialis</i>	Northern right whale
Fish	<i>Coregonus albula</i>	Vendace			Mammal Small dolphin species	
Fish	<i>Coregonus autumnalis</i>	Pollan			<i>Tursiops truncatus</i>	Bottlenose dolphin
Fish	<i>Lota lota</i>	Burbot			<i>Grampus griseus</i>	Risso's dolphin
Fish	<i>Raja batis</i>	Common skate			<i>Lagenorhynchus albirostris</i>	White-beaked dolphin
Fish	Commercial Fish species				<i>Lagenorhynchus acutus</i>	Atlantic white-side dolphin
	<i>Gadus morhua</i>	Cod			<i>Delphinus delphis</i>	Common dolphin
	<i>Merluccius merluccius</i>	Hake			<i>Stenella coeruleoalba</i>	Striped dolphin
	<i>Clupea harengus</i>	Herring			Mammal Toothed whale species	
	<i>Trachurus trachurus</i>	Horse mackerel				
	<i>Scomber scombrus</i>	Mackerel				
	<i>Pleuronectes platessa</i>	Plaice				
	<i>Pollachius virens</i>	Saithe				
	<i>Solea solea</i>	Sole				
	<i>Merlangius merlangus</i>	Whiting				
Fish	Deep water fish species					
	<i>Raja hyperborea</i>	Artic skate				
	<i>Aphanopus carbo</i>	Black scabbardfish				

Species of Principal Importance – continued

	<i>Hyperoodon ampullatus</i>	Northern bottlenose whale	Beetle	<i>Bembidion argenteolum</i>	A ground beetle
	<i>Ziphius cavirostris</i>	Cuvier's beaked whale	Beetle	<i>Bidessus minutissimus</i>	A water beetle
	<i>Mesoplodon bidens</i>	Sowerby's beaked whale	Beetle	<i>Bidessus unistriatus</i>	A water beetle
	<i>Mesoplodon mirus</i>	True's beaked whale	Beetle	<i>Byctiscus populi</i>	Aspen leaf-rolling weevil
	<i>Orcinus orca</i>	Killer whale	Beetle	<i>Carabus intricatus</i>	Blue ground beetle
	<i>Globicephala melas</i>	Long-finned pilot whale	Beetle	<i>Cathormiocerus britannicus</i>	Lizard weevil
	<i>Physeter macrocephalus</i>	Sperm whale	Beetle	<i>Cicindela germanica</i>	Cliff tiger beetle
Reptile	<i>Lacerta agilis</i>	Sand lizard	Beetle	<i>Cicindela hybrida</i>	Northern dune tiger beetle
Reptile	Marine turtle species		Beetle	<i>Cicindela sylvatica</i>	Heath tiger beetle
	<i>Dermochelys coriacea</i>	Leatherback turtle	Beetle	<i>Cryptocephalus coryli</i>	Hazel pot beetle
	<i>Caretta caretta</i>	Loggerhead turtle	Beetle	<i>Cryptocephalus exiguus</i>	Pashford pot beetle
	<i>Lepidochelys kempii</i>	Kemp's ridley turtle	Beetle	<i>Cryptocephalus nitidulus</i>	Shining pot beetle
	<i>Chelonia mydas</i>	Green turtle	Beetle	<i>Cryptocephalus primarius</i>	A pot beetle
	<i>Eretmochelys imbricata</i>	Hawksbill turtle	Beetle	<i>Cryptocephalus sexpunctatus</i>	Six-spotted pot beetle
Invertebrates			Beetle	<i>Curimopsis nigrita</i>	Mire pill beetle
Ant	<i>Anergates atratulus</i>	Dark guest ant	Beetle	<i>Donacia aquatica</i>	A reed beetle
Ant	<i>Formica aquilonia</i>	Scottish wood ant	Beetle	<i>Donacia bicolora</i>	A reed beetle
Ant	<i>Formica exsecta</i>	Narrow-headed ant	Beetle	<i>Ernoporus tiliae</i>	Bast bark beetle
Ant	<i>Formica pratensis</i> (= <i>Formica nigricans</i>)	Black-backed meadow ant	Beetle	<i>Gastrallus immarginatus</i>	Maple wood-boring beetle
Ant	<i>Formica rufibarbis</i>	Red-barbed ant	Beetle	<i>Gnorimus nobilis</i>	Noble chafer
Ant	<i>Formica transcaucasica</i> (= <i>Formica candida</i>)	Bog ant	Beetle	<i>Graphoderus zonatus</i>	Spangled water beetle
Bee	<i>Andrena ferox</i>	A mining bee	Beetle	<i>Harpalus froelichi</i>	A ground beetle
Bee	<i>Andrena gravida</i>	Banded mining bee	Beetle	<i>Helophorus laticollis</i>	A water beetle
Bee	<i>Andrena lathyri</i>	A mining bee	Beetle	<i>Hydrochara caraboides</i>	Lesser silver water beetle
Bee	<i>Bombus distinguendus</i>	Great yellow bumble bee	Beetle	<i>Hydroporus rufifrons</i>	A water beetle
Bee	<i>Bombus humilis</i>	Brown-banded carder bee	Beetle	<i>Laccophilus obsoletus</i>	A water beetle
Bee	<i>Bombus ruderatus</i>	Large garden bumble bee	Beetle	<i>Limoniscus violaceus</i>	Violet click beetle
Bee	<i>Bombus subterraneus</i>	Short haired bumble bee	Beetle	<i>Lucanus cervus</i>	Stag beetle
Bee	<i>Bombus sylvarum</i>	Shrill carder bee	Beetle	<i>Malachius aeneus</i>	Scarlet malachite beetle
Bee	<i>Colletes floralis</i>	Northern colletes	Beetle	<i>Melanapion minimum</i>	Sallow guest weevil
Bee	<i>Nomada armata</i>	A cuckoo bee	Beetle	<i>Melanotus punctolineatus</i>	A click beetle
Bee	<i>Nomada errans</i>	A cuckoo bee	Beetle	<i>Oberea oculata</i>	Eyed longhorn beetle
Bee	<i>Osmia inermis</i>	A mason bee	Beetle	<i>Pachytychius haematocephalus</i>	Gilkicker weevil
Bee	<i>Osmia parietina</i>	A mason bee	Beetle	<i>Panagaeus cruxmajor</i>	Crucifix ground beetle
Bee	<i>Osmia uncinata</i>	A mason bee	Beetle	<i>Paracymus aeneus</i>	Bembridge beetle
Bee	<i>Osmia xanthomelana</i>	A mason bee	Beetle	<i>Paratachys edmondsi</i> (= <i>Tachys edmondsi</i>)	Edmonds' ground beetle
Beetle	<i>Agabus brunneus</i>	A water beetle	Beetle	<i>Procas granulicollis</i>	Climbing cordydalid weevil
Beetle	<i>Amara famelica</i>	A ground beetle	Beetle	<i>Psylliodes sophiae</i>	Flixweed flea beetle
Beetle	<i>Anisodactylus poeciloides</i>	A ground beetle	Beetle	<i>Pterostichus aterrimus</i>	A ground beetle
Beetle	<i>Anostirus castaneus</i>	Chestnut coloured click beetle	Beetle	<i>Pterostichus kugelanni</i>	Kugelann's ground beetle
Beetle	<i>Aphodius niger</i>	Beaulieu dung beetle			

Species of Principal Importance – continued

Beetle	<i>Rhynchaenus testaceus</i>	Alder flea weevil	Fly	<i>Lipsothrix ecucullata</i>	A cranefly
Beetle	<i>Stenus palposus</i>	A rove beetle	Fly	<i>Lipsothrix nervosa</i>	A cranefly
Beetle	<i>Synaptus filiformis</i>	Hairy click beetle	Fly	<i>Lipsothrix nigristigma</i>	A cranefly
Beetle	River shingle beetle species		Fly	<i>Odontomyia hydroleon</i>	A soldier fly
	<i>Bembidion testaceum</i>	A ground beetle	Fly	<i>Thereva lunulata</i>	A stiletto fly
	<i>Lionychus quadrillum</i>	A ground beetle	Fly	<i>Thyridanthrax fenestratus</i>	Mottled beefly
	<i>Hydrochus nitidicollis</i>	A water beetle	Mollusc	<i>Anisus vorticulus</i>	Little ramshorn whirlpool snail
	<i>Meotica anglica</i>	A water beetle	Mollusc	<i>Atrina fragilis</i>	Fan mussel
	<i>Perileptus areolatus</i>	A ground beetle	Mollusc	<i>Catinella arenaria</i>	Sandbowl snail
	<i>Thinobius newberyi</i>	A rove beetle	Mollusc	<i>Margaritifera margaritifera</i>	Freshwater pearl mussel
Bryozoa	<i>Lophopus crystallinus</i>	A freshwater bryozoan	Mollusc	<i>Myxas glutinosa</i>	Glutinous snail
Butterfly	<i>Argynnis adippe</i>	High brown fritillary	Mollusc	<i>Ostrea edulis</i>	Native oyster
Butterfly	<i>Boloria euphrosyne</i>	Pearl-bordered fritillary	Mollusc	<i>Pisidium tenuilineatum</i>	Fine-lined pea mussel
Butterfly	<i>Carterocephalus palaemon</i>	Chequered skipper	Mollusc	<i>Pseudanodonta complanata</i>	Depressed river mussel
Butterfly	<i>Eurodryas aurinia</i> (= <i>Euphydryas aurinia</i>)	Marsh fritillary	Mollusc	<i>Segmentina nitida</i>	Shining ramshorn snail
Butterfly	<i>Hesperia comma</i>	Silver-spotted skipper	Mollusc	<i>Thyasira gouldi</i>	Northern hatchet shell
Butterfly	<i>Lycaena dispar</i>	Large copper	Mollusc	<i>Vertigo angustior</i>	Narrow-mouthed whorl snail
Butterfly	<i>Lysandra bellargus</i>	Adonis blue	Mollusc	<i>Vertigo genesii</i>	Round-mouthed whorl snail
Butterfly	<i>Maculinea arion</i>	Large blue	Mollusc	<i>Vertigo geyeri</i>	Geyer's whorl snail
Butterfly	<i>Mellicta athalia</i>	Heath fritillary	Mollusc	<i>Vertigo moulinsiana</i>	Desmoulin's whorl snail
Butterfly	<i>Plebejus argus</i>	Silver-studded blue	Moth	<i>Acosmetia caliginosa</i>	Reddish buff
Coral	<i>Eunicella verrucosa</i>	Pink sea-fan	Moth	<i>Aspitates gilvaria gilvaria</i>	Straw belle
Coral	<i>Leptopsammia pruvoti</i>	Sunset cupcoral	Moth	<i>Athetis pallustris</i>	Marsh moth
Cricket/ Grasshopper	<i>Decticus verrucivorus</i>	Wart-biter grasshopper	Moth	<i>Catocala promissa</i>	Light crimson underwing
Cricket/ Grasshopper	<i>Gryllotalpa gryllotalpa</i>	Mole cricket	Moth	<i>Catocala sponsa</i>	Dark crimson underwing
Cricket / Grasshopper	<i>Gryllus campestris</i>	Field cricket	Moth	<i>Coleophora tricolor</i>	A case-bearing moth
Cricket / Grasshopper	<i>Stethophyma grossum</i>	Large marsh grasshopper	Moth	<i>Coscinia cribraria bivittata</i>	Speckled footman
Crustacean	<i>Austropotamobius pallipes</i>	White-clawed crayfish	Moth	<i>Cosmia diffinis</i>	White-spotted pinion
Crustacean	<i>Triops cancrivorus</i>	Tadpole shrimp	Moth	<i>Cyclophora pendularia</i>	Dingy mocha
Damsel/ Dragonfly	<i>Coenagrion mercuriale</i>	Southern damselfly	Moth	<i>Dicycla oo</i>	Heart moth
Fly	<i>Asilus crabroniformis</i>	Hornet robberfly	Moth	<i>Epione vespertaria</i> (= <i>Epione paralellaria</i>)	Dark bordered beauty
Fly	<i>Blera fallax</i>	A hoverfly	Moth	<i>Eustroma reticulata</i>	Netted carpet
Fly	<i>Bombylius discolor</i>	Dotted beefly	Moth	<i>Heliophobus reticulata</i>	Bordered gothic
Fly	<i>Bombylius minor</i>	Heath beefly	Moth	<i>Hemaris tityus</i>	Narrow-bordered bee hawk
Fly	<i>Callicera spinolae</i>	Golden hoverfly	Moth	<i>Hydrelia sylvata</i>	Waved carpet
Fly	<i>Chrysotoxum octomaculatum</i>	A hoverfly	Moth	<i>Hypena rostralis</i>	Buttoned snout
Fly	<i>Clorismia rustica</i>	A stiletto fly	Moth	<i>Idaea dilutaria</i>	Silky wave
Fly	<i>Doros conopseus</i>	A hoverfly	Moth	<i>Idaea ochrata cantata</i>	Bright wave
Fly	<i>Dorycera graminum</i>	A picture-winged fly	Moth	<i>Jodia croceago</i>	Orange upperwing
Fly	<i>Eristalis cryptarum</i>	Bog hoverfly	Moth	<i>Lycia zonaria britannica</i>	Belted beauty
Fly	<i>Hammerschmidia ferruginea</i>	A hoverfly			

Species of Principal Importance – continued

Moth	<i>Macaria carbonia</i> (= <i>Semiothisa carbonaria</i>)	Netted mountain moth	Fungus	<i>Hericium erinaceum</i>	Tree hedgehog fungus
Moth	<i>Mythimna turca</i>	Double line	Fungus	<i>Hygrocybe calyptraeformis</i>	Pink meadow cap
Moth	<i>Noctua orbona</i>	Lunar yellow underwing	Fungus	<i>Hygrocybe spadicea</i>	Date coloured waxcap
Moth	<i>Oria musculosa</i>	Brighton wainscot	Fungus	<i>Hypocreopsis rhododendri</i>	An ascomycete
Moth	<i>Pareulype berberata</i>	Barberry carpet	Fungus	<i>Microglossum olivaceum</i>	An earth tongue
Moth	<i>Pechipogon strigilata</i>	Common fan-foot	Fungus	<i>Poronia punctata</i>	Nail fungus
Moth	<i>Polia bombycina</i>	Pale shining brown	Fungus	<i>Tulostoma niveum</i>	A stalked puffball
Moth	<i>Pyropteron chrysidiformis</i> (= <i>Bembecia chrysidiformis</i>)	Fiery clearwing	Fungus	Threatened tooth fungi species	
Moth	<i>Rheumaptera hastata</i>	Argent and sable		<i>Bankera fuligineoalba</i>	A tooth fungus
Moth	<i>Shargacucullia lychnitis</i> (= <i>Cucullia lychnitis</i>)	Striped lychnis		<i>Hydnellum aurantiacum</i>	A tooth fungus
Moth	<i>Siona lineata</i>	Black-veined moth		<i>Hydnellum caeruleum</i>	A tooth fungus
Moth	<i>Trichopteryx polycommata</i>	Barred toothed stripe		<i>Hydnellum concrescens</i>	A tooth fungus
Moth	<i>Tyta luctuosa</i>	Four-spotted moth		<i>Hydnellum ferrugineum</i>	A tooth fungus
Moth	<i>Xestia rhomboidea</i>	Square-spotted clay		<i>Hydnellum peckii</i>	A tooth fungus
Moth	<i>Xylena exsoleta</i>	Sword grass		<i>Hydnellum</i>	A tooth fungus
Moth	<i>Zygaena loti scotica</i>	Slender Scotch burnet		<i>scrobiculatum</i>	
Moth	<i>Zygaena viciae argyllensis</i>	New Forest burnet moth		<i>Hydnellum spongiosipes</i>	A tooth fungus
Sea Anemone	<i>Amphianthus dohrnii</i>	Sea fan anemone		<i>Phellodon confluens</i>	A tooth fungus
Sea Anemone	<i>Edwardsia ivelli</i>	Ivell's sea anemone		<i>Phellodon melaleucus</i>	A tooth fungus
Sea Anemone	<i>Nematostella vectensis</i>	Starlet sea anemone		<i>Phellodon tomentosus</i>	A tooth fungus
Spider	<i>Clubiona rosserae</i>	A spider	Lichen	<i>Sarcodon glaucopus</i>	A tooth fungus
Spider	<i>Dolomedes plantarius</i>	Fen raft spider		<i>Sarcodon imbricatus</i>	A tooth fungus
Spider	<i>Eresus cinnaberinus</i> (= <i>Eresus sandaliatus</i> , <i>E. niger</i>)	Ladybird spider	Lichen	<i>Sarcodon scabrosus</i>	A tooth fungus
Stone Fly	<i>Brachyptera putata</i>	A stonefly		<i>Alectoria ochroleuca</i>	Alpine sulphur-tresses
Cicada	<i>Cicadetta montana</i>	New Forest cicada	Lichen	<i>Arthothelium dictyosporum</i>	A lichen
Wasp	<i>Cerceris quadricincta</i>	A solitary wasp	Lichen	<i>Arthothelium macounii</i> (= <i>Arthothelium reagens</i>)	A lichen
Wasp	<i>Cerceris quinquefasciata</i>	A solitary wasp	Lichen	<i>Bacidia incompta</i>	A lichen
Wasp	<i>Chrysis fulgida</i>	A ruby-tailed wasp	Lichen	<i>Belonia calcicola</i>	A lichen
Wasp	<i>Homonotus sanguinolentus</i>	A spider wasp	Lichen	<i>Biatoridium monasteriense</i>	A lichen
Wasp	<i>Pseudepipona herrichii</i>	Purbeck mason wasp	Lichen	<i>Bryoria smithii</i>	A lichen
			Lichen	<i>Buellia asterella</i>	Starry Breck-lichen
			Lichen	<i>Calicium corynellum</i>	A lichen
			Lichen	<i>Caloplaca aractina</i>	A lichen
			Lichen	<i>Caloplaca luteoalba</i>	Orange-fruited elm-lichen
			Lichen	<i>Catapyrenium psoromoides</i>	Tree catapyrenium
			Lichen	<i>Cladonia botrytes</i>	Stump lichen
			Lichen	<i>Cladonia mediterranea</i>	A reindeer lichen
			Lichen	<i>Cladonia peziziformis</i>	A lichen
			Lichen	<i>Chaenotheca phaeocephala</i>	A lichen
			Lichen	<i>Collema dichotomum</i>	River jelly lichen
			Lichen	<i>Enterographa elaborata</i>	A lichen
			Lichen	<i>Enterographa sorediata</i>	A lichen
			Lichen	<i>Graphina pauciloculata</i>	A lichen
Lower Plants					
Alga	<i>Anotrichium barbatum</i>	Bearded anotrichium			
Alga	<i>Ascophyllum nodosum ecad mackaii</i>	Knotted wrack			
Fungus	<i>Armillaria ectypa</i>	An agaric			
Fungus	<i>Battarraea phalloides</i>	A phalloid			
Fungus	<i>Boletus regius</i>	Royal bolete			
Fungus	<i>Boletus satanas</i>	Devil's bolete			
Fungus	<i>Buglossoporus pulvinus</i> (= <i>Buglossoporus quercinus</i>)	Oak polypore			

Species of Principal Importance – continued

Vascular Plant <i>Athyrium flexile</i>	Newman's lady-fern	Vascular Plant <i>Luronium natans</i>	Floating water plantain
Vascular Plant <i>Bromus interruptus</i>	Interrupted brome	Vascular Plant <i>Lycopodiella inundata</i>	Marsh clubmoss
Vascular Plant <i>Calamagrostis scotica</i>	Scottish small-reed	Vascular Plant <i>Melampyrum sylvaticum</i>	Small cow-wheat
Vascular Plant <i>Carex muricata muricata</i>	Prickly sedge	Vascular Plant <i>Mentha pulegium</i>	Pennyroyal
Vascular Plant <i>Carex vulpine</i>	True fox-sedge	Vascular Plant <i>Najas flexilis</i>	Slender naiad
Vascular Plant <i>Centaurea cyanus</i>	Cornflower	Vascular Plant <i>Najas marina</i>	Holly-leaved naiad
Vascular Plant <i>Cerastium nigrescens</i>	Shetland mouse-ear	Vascular Plant <i>Pilularia globulifera</i>	Pillwort
Vascular Plant <i>Cochlearia micacea</i>	Mountain scurvy-grass	Vascular Plant <i>Potamogeton compressus</i>	Grass-wrack pondweed
Vascular Plant <i>Coincya wrightii</i>	Lundy cabbage	Vascular Plant <i>Potamogeton rutilus</i>	Shetland pondweed
Vascular Plant <i>Cotoneaster cambricus</i>	Wild cotoneaster	Vascular Plant <i>Ranunculus tripartitus</i>	Three-lobed water-crowfoot
Vascular Plant <i>Crepis foetida</i>	Stinking hawk's-beard	Vascular Plant <i>Rumex rupestris</i>	Shore dock
Vascular Plant <i>Cypripedium calceolus</i>	Lady's-slipper orchid	Vascular Plant <i>Salix lanata</i>	Woolly willow
Vascular Plant <i>Damasonium alisma</i>	Starfruit	Vascular Plant <i>Saxifraga hirculus</i>	Yellow marsh saxifrage
Vascular Plant <i>Dianthus armeria</i>	Deptford pink	Vascular Plant <i>Scandix pecten-veneris</i>	Shepherd's needle
Vascular Plant <i>Epipactis youngiana</i>	Young's helleborine	Vascular Plant <i>Schoenoplectus triquetar</i>	Triangular club-rush
Vascular Plant Endemic eyebright species		Vascular Plant <i>Scleranthus perennis prostratus</i>	Prostrate perennial knawel
<i>Euphrasia cambrica</i>	An eyebright	Vascular Plant <i>Silene gallica</i>	Small-flowered catchfly
<i>Euphrasia campbelliae</i>	An eyebright	Vascular Plant <i>Sium latifolium</i>	Greater water-parsnip
<i>Euphrasia heslop-harrisonii</i>	An eyebright	Vascular Plant <i>Sorbus leyana</i>	A whitebeam
<i>Euphrasia rivularis</i>	An eyebright	Vascular Plant <i>Spiranthes romanzoffiana</i>	Irish lady's tresses
<i>Euphrasia rotundifolia</i>	An eyebright	Vascular Plant <i>Thlaspi perfoliatum</i>	Perfoliate pennycress
<i>Euphrasia vigursii</i>	An eyebright	Vascular Plant <i>Torilis arvensis</i>	Spreading hedge-parsley
Vascular Plant <i>Filago lutescens</i>	Red-tipped cudweed	Vascular Plant <i>Trichomanes speciosum</i>	Killarney fern
Vascular Plant <i>Filago pyramidata</i>	Broad-leaved cudweed	Vascular Plant <i>Valerianella rimosa</i>	Broad-fruited corn salad
Vascular Plant <i>Fumaria occidentalis</i>	Western ramping-fumitory	Vascular Plant <i>Woodsia ilvensis</i>	Oblong woodsia
Vascular Plant <i>Fumaria purpurea</i>	Purple ramping-fumitory		
Vascular Plant <i>Galeopsis angustifolia</i>	Red hemp-nettle		
Vascular Plant <i>Galium tricorutum</i>	Corn cleavers		
Vascular Plant <i>Gentianella anglica</i>	Early gentian		
Vascular Plant <i>Gentianella uliginosa</i>	Dune gentian		
Vascular Plant <i>Hieracium</i> Sect. <i>Alpestris</i>	Hawkweeds		
Vascular Plant <i>Juncus pygmaeus</i>	Pygmy rush		
Vascular Plant <i>Juniperus communis</i>	Juniper		
Vascular Plant <i>Leersia oryzoides</i>	Cut-grass		
Vascular Plant Rock sea-lavender species			
<i>Limonium britannicum</i>	A rock sea-lavander		
<i>Limonium dodartiforme</i>	A rock sea-lavander		
<i>Limonium loganicum</i>	A rock sea-lavander		
<i>Limonium paradoxum</i>	A rock sea-lavander		
<i>Limonium parvum</i>	A rock sea-lavander		
<i>Limonium procerum</i>	A rock sea-lavander		
<i>Limonium recurvum</i>	A rock sea-lavander		
<i>Limonium transwillianum</i>	A rock sea-lavander		
Vascular Plant <i>Linnaea borealis</i>	Twinflower		
Vascular Plant <i>Liparis loeselii</i>	Fen orchid		

Annex D

Convention on Wetlands of International Importance Especially as Waterfowl Habitat

Ramsar 2.2.1971: as amended by the Protocol of 3.12.1982

The Contracting Parties,

Recognizing the interdependence of Man and his environment;

Considering the fundamental ecological functions of wetlands as regulators of water regimes and as habitats supporting a characteristic flora and fauna, especially waterfowl;

Being convinced that wetlands constitute a resource of great economic, cultural, scientific, and recreational value, the loss of which would be irreparable;

Desiring to stem the progressive encroachment on and loss of wetlands now and in the future;

Recognizing that waterfowl in their seasonal migrations may transcend frontiers and so should be regarded as an international resource;

Being confident that the conservation of wetlands and their flora and fauna can be ensured by combining far-sighted national policies with co-ordinated international action;

Have agreed as follows:

Article 1

- 1** For the purpose of this Convention wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres.
- 2** For the purpose of this Convention waterfowl are birds ecologically dependent on wetlands.

Article 2

- 1** Each Contracting Party shall designate suitable wetlands within its territory for inclusion in a List of Wetlands of International Importance, hereinafter referred to as 'the list' which is maintained by the bureau established under Article 8. The boundaries of each wetland shall be precisely described and also delimited on a map and they may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands, especially where these have importance as waterfowl habitat.
- 2** Wetlands should be selected for the List on account of their international significance in terms of ecology, botany, zoology, limnology or hydrology. In the first instance wetlands of international importance to waterfowl at any season should be included.

- 3 The inclusion of a wetland in the list does not prejudice the exclusive sovereign rights of the Contracting Party in whose territory the wetland is suited.
- 4 Each Contracting Party shall designate at least one wetland to be included in the List when signing this Convention or when depositing its instrument of ratification or accession as provided in Article 9.
- 5 Any Contracting Party shall have the right to add to the List further wetlands situated within its territory, to extend the boundaries of those wetlands already included by it in the List, or, because of its urgent national interests, to delete or restrict the boundaries of wetlands already included by it in the List and shall, at the earliest possible time, inform the organization or government responsible for the continuing bureau duties specified in Article 8 of any such changes.
- 6 Each Contracting Party shall consider its international responsibilities for the conservation, management and wise use of migratory stocks of waterfowl, both when designating entries for the List and when exercising its right to change entries in the List relating to wetlands within its territory.

Article 3

- 1 The Contracting Parties shall formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in their territory.
- 2 Each Contracting Party shall arrange to be informed at the earliest possible time if the ecological character of any wetland in its territory and included in the List has changed, is changing or is likely to change as the result of technological developments, pollution or other human interference. Information on such changes shall be passed without delay to the organization or government responsible for the continuing bureau duties specified in Article 8.

Article 4

- 1 Each Contracting Party shall promote the conservation of wetlands and waterfowl by establishing nature reserves on wetlands, whether they are included in the List or not, and provide adequately for their wardening.
- 2 Where a Contracting Party in its urgent national interest, deletes or restricts the boundaries of a wetland included in the List, it should as far as possible compensate for any loss of wetland resources, and in particular it should create additional nature reserves for waterfowl and for the protection, either in the same area or elsewhere, of an adequate portion of the original habitat.
- 3 The Contracting Parties shall encourage research and the exchange of data and publications regarding wetlands and their flora and fauna.
- 4 The Contracting Parties shall endeavour through management to increase waterfowl populations on appropriate wetlands.

- 5 The Contracting Parties shall promote the training of personnel competent in the fields of wetland research, management and wardening.

Article 5

- 1 The Contracting Parties shall consult with each other about implementing obligations arising from the Convention especially in the case of a wetland extending over the territories of more than one Contracting Party or where a water system is shared by Contracting Parties. They shall at the same time endeavour to co-ordinate and support present and future policies and regulations concerning the conservation of wetlands and their flora and fauna.

Article 6

- 1 The Contracting Parties shall, as the necessity arises, convene Conferences on the Conservation of Wetlands and Waterfowl.
- 2 The Conferences shall have an advisory character and shall be competent, inter alia:
 - a. to discuss the implementation of this Convention
 - b. to discuss additions to and changes in the List;
 - c. to consider information regarding changes in the ecological character of wetlands included in the List provided in accordance with paragraph 2 of Article 3;
 - d. to make general or specific recommendations to the Contracting Parties regarding the conservation, management and wise use of wetlands and their flora and fauna;
 - e. to request relevant international bodies to prepare reports and statistics on matters which are essentially international in character affecting wetlands;
- 3 The Contracting Parties shall ensure that those responsible at all levels for wetlands management shall be informed of, and take into consideration, recommendations of such Conferences concerning the conservation, management and wise use of wetlands and their flora and fauna.

Article 7

- 1 The representatives of the Contracting Parties at such Conferences should include persons who are experts on wetlands or waterfowl by reason of knowledge and experience gained in scientific, administrative or other appropriate capacities.
- 2 Each of the Contracting Parties represented at a Conference shall have one vote, recommendations being adopted by a simple majority of the votes cast, provided that not less than half the Contracting Parties cast votes.

Article 8

- 1 The International Union for Conservation of Nature and Natural Resources shall perform the continuing bureau duties under this Convention until such time as another organization or government is appointed by a majority of two-thirds of all Contracting Parties.

- 2** The continuing bureau duties shall be, *inter alia*:
- a. to assist in the convening and organizing of Conferences specified in Article 6;
 - b. to maintain the List of Wetlands of International Importance and to be informed by the Contracting Parties of any additions, extensions, deletions or restrictions concerning wetlands included in the List provided in accordance with paragraph 5 of Article 2;
 - c. to be informed by the Contracting Parties of any changes in the ecological character of wetlands included in the List provided in accordance with paragraph 2 of Article 3;
 - d. to forward notification of any alterations to the List, or changes in character of wetlands included therein, to all Contracting Parties and to arrange for these matters to be discussed at the next Conference;
 - e. to make known to the Contracting Party concerned, the recommendations of the Conferences in respect of such alterations to the List or of changes in the character of wetlands included therein.

Article 9

- 1** This Convention shall remain open for signature indefinitely.
- 2** Any member of the United Nations or of one of the Specialized Agencies or of the International Atomic Energy Agency or Party to the Statute of the International Court of Justice may become a Party to this Convention by:
 - a. signature without reservation as to ratification
 - b. signature subject to ratification followed by ratification
 - c. accession.
- 3** Ratification or accession shall be effected by the deposit of an instrument of ratification or accession with the Director-General of the United Nations Educational, Scientific and Cultural Organization (hereinafter referred to as 'the Depositary').

Article 10

- 1** This Convention shall enter into force four months after seven States have become Parties to this Convention in accordance with paragraph 2 of Article 9.
- 2** Thereafter this Convention shall enter into force for each Contracting Party four months after the day of its signature without reservation as to ratification, or its deposit of an instrument of ratification or accession.

Article 10 bis

- 1** The Convention may be amended at a meeting of the Contracting Parties convened for that purpose in accordance with this article.
- 2** Proposals for amendment may be made by any Contracting Party.

- 3 The text of any proposed amendments and the reasons for it shall be communicated to the organization or government performing the continuing bureau duties under the Convention (hereinafter referred to as ‘the Bureau’) and shall promptly be communicated by the Bureau to all Contracting Parties. Any comments on the text by the Contracting Parties shall be communicated to the Bureau within three months of the date on which the amendments were communicated to the Contracting Parties by the Bureau. The Bureau shall, immediately after the last day for submission of comments, communicate to the Contracting Parties all comments submitted by that day.
- 4 A meeting of Contracting Parties to consider an amendment communicated in accordance with paragraph 3 shall be convened by the Bureau upon the written request of one third of the Contracting Parties. The Bureau shall consult the Parties concerning the time and venue of the meeting.
- 5 Amendments shall be adopted by a two-thirds majority of the Contracting Parties present and voting.
- 6 An amendment adopted shall enter into force for the Contracting Parties which have accepted it on the first day the fourth month following the date on which two thirds of the Contracting Parties have deposited an instrument of acceptance with the Depository. For each Contracting Party, which deposits an instrument of acceptance after the date on which two thirds of the Contracting Parties have deposited an instrument of acceptance, the amendment shall enter into force the first day of the fourth month following the date of the deposit of its instrument of acceptance.

Article 11

- 1 This Convention shall continue in force for an indefinite period.
- 2 Any Contracting Party may denounce this Convention after a period of five years from the date on which it entered into force for that Party by giving written notice thereof to the Depository. Denunciation shall take effect four months after the day on which notice thereof is received by the Depository.

Article 12

- 1 The Depository shall inform all States that have signed and acceded to this Convention as soon as possible of:
 - a. signatures to the Convention;
 - b. deposits of instruments of ratification of this Convention;
 - c. deposits of instruments of accession to this Convention;
 - d. the date of entry into force of this Convention;
 - e. notifications of denunciation of this Convention.
- 2 When this Convention has entered into force, the Depository shall have it registered with the Secretariat of the United Nations in accordance with Article 102 of the Charter.

In WITNESS WHEREOF, the undersigned, being duly authorized to that effect, have signed this Convention.

DONE at Ramsar this 2nd day of February 1971, in a single original in the English, French, German and Russian languages, all texts being equally authentic which shall be deposited with the Depository which shall send true copies thereof to all Contracting Parties.

Articles 6 and 7 of the Convention on Wetlands of International Importance especially as Waterfowl Habitat as amended by the Conference of the Parties on 28.5.1987

(amendments are reproduced below in italics)

Article 6

- 1** *There shall be established a Conference of the Contracting Parties to review and promote the implementation of this Convention. The Bureau referred to in Article 8, paragraph 1, shall convene ordinary meetings of the Conference of the Contracting Parties at intervals of not more than three years, unless the Conference decides otherwise, and extraordinary meetings at the written requests of at least one third of the Contracting Parties. Each ordinary meeting of the Conference of the Contracting Parties shall determine the time and venue of the next ordinary meeting.*
- 2** *The Conference of the Contracting Parties shall be competent:*
 - a. to discuss the implementation of this Convention;
 - b. to discuss additions to and changes in the List;
 - c. to consider information regarding changes in the ecological character of wetlands included in the List provided in accordance with paragraph 2 of Article 3;
 - d. to make general or specific recommendations to the Contracting Parties regarding the conservation, management and wise use of wetlands and their flora and fauna;
 - e. to request relevant international bodies to prepare reports and statistics on matters which are essentially international in character affecting wetlands;
 - f. to adopt other recommendations, or resolutions, to promote the functioning of this Convention.*
- 3** The Contracting Parties shall ensure that those responsible at all levels for wetlands management shall be informed of, and take into consideration, recommendations of such Conferences concerning the conservation, management and wise use of wetlands and their flora and fauna.
- 4** *The Conference of the Contracting Parties shall adopt rules of procedure for each of its meetings.*
- 5** *The Conference of the Contracting Parties shall establish and keep under review the financial regulations of this Convention. At each of its ordinary meetings, it shall adopt the budget for the next financial period by a two-third majority of Contracting Parties present and voting.*

- 6 *Each Contracting Party shall contribute to the budget according to a scale of contributions adopted by unanimity of the Contracting Parties present and voting at a meeting of the ordinary Conference of the Contracting Parties.*

Article 7

- 1 The representatives of the Contracting Parties at such Conferences should include persons who are experts on wetlands or waterfowl by reason of knowledge and experience gained in scientific, administrative or other appropriate capacities.
- 2 *Each of the Contracting Parties represented at a Conference shall have one vote, recommendations, resolutions and decisions being adopted by a simple majority of the Contracting Parties present and voting, unless otherwise provided for in this Convention.*

Annex E

Council Directive of 2 April 1979 on the Conservation of Wild Birds (79/409/EEC)

The Council of the European Communities

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission¹

Having regard to the opinion of the European Parliament²

Having regard to the opinion of the Economic and Social Committee³

Whereas the Council declaration of 22 November 1973 on the programme of action of the European Communities on the environment⁴ calls for specific action to protect birds, supplemented by the resolution of the Council of the European Communities and of the representatives of the Governments of the Member States meeting within the Council of 17 May 1977 on the continuation and implementation of a European Community policy and action programme on the environment⁵;

Whereas a large number of species of wild birds naturally occurring in the European territory of the Member States are declining in number, very rapidly in some cases; whereas this decline represents a serious threat to the conservation of the natural environment, particularly because of the biological balances threatened thereby;

Whereas the species of wild birds naturally occurring in the European territory of the Member States are mainly migratory species; whereas such species constitute a common heritage and whereas effective bird protection is typically a trans-frontier environment problem entailing common responsibilities;

Whereas the conditions of life for birds in Greenland are fundamentally different from those in the other regions of the European territory of the Member States on account of the general circumstances and in particular the climate, the low density of population and the exceptional size and geographical situation of the island;

Whereas therefore this Directive should not apply to Greenland;

Whereas the conservation of the species of wild birds naturally occurring in the European territory of the Member States is necessary to attain, within the operation of the common market, of the Community's objectives regarding the improvement of living conditions, a harmonious development of economic activities throughout the Community and a continuous and balanced expansion, but the necessary specific powers to act have not been provided for in the Treaty;

¹ OJ No C 24, 1.2.1977, p. 3; OJ No C 201, 23.8.1977, p. 2.

² OJ No C 163, 11.7.1977, p. 28.

³ OJ No C 152, 29.6.1977, p. 3.

⁴ OJ No C 112, 20.12.1973, p. 40.

⁵ OJ No C 139, 13.6.1977, p. 1.

Whereas the measures to be taken must apply to the various factors which may affect the numbers of birds, namely the repercussions of man's activities and in particular the destruction and pollution of their habitats, capture and killing by man and the trade resulting from such practices; whereas the stringency of such measures should be adapted to the particular situation of the various species within the framework of a conservation policy;

Whereas conservation is aimed at the long-term protection and management of natural resources as an integral part of the heritage of the peoples of Europe; whereas it makes it possible to control natural resources and governs their use on the basis of the measures necessary for the maintenance and adjustment of the natural balances between species as far as is reasonably possible;

Whereas the preservation, maintenance or restoration of a sufficient diversity and area of habitats is essential to the conservation of all species of birds; whereas certain species of birds should be the subject of special conservation measures concerning their habitats in order to ensure their survival and reproduction in their area of distribution; whereas such measures must also take account of migratory species and be coordinated with a view to setting up a coherent whole;

Whereas, in order to prevent commercial interests from exerting a possible harmful pressure on exploitation levels it is necessary to impose a general ban on marketing and to restrict all derogation to those species whose biological status so permits, account being taken of the specific conditions obtaining in the different regions;

Whereas, because of their high population level, geographical distribution and reproductive rate in the Community as a whole, certain species may be hunted, which constitutes acceptable exploitation; where certain limits are established and respected, such hunting must be compatible with maintenance of the population of these species at a satisfactory level;

Whereas the various means, devices or methods of large-scale or non-selective capture or killing and hunting with certain forms of transport must be banned because of the excessive pressure which they exert or may exert on the numbers of the species concerned;

Whereas, because of the importance which may be attached to certain specific situations, provision should be made for the possibility of derogations on certain conditions and subject to monitoring by the Commission;

Whereas the conservation of birds and, in particular, migratory birds still presents problems which call for scientific research; whereas such research will also make it possible to assess the effectiveness of the measures taken;

Whereas care should be taken in consultation with the Commission to see that the introduction of any species of wild bird not naturally occurring in the European territory of the Member States does not cause harm to local flora and fauna;

Whereas the Commission will every three years prepare and transmit to the Member States a composite report based on information submitted by the Member States on the application of natural provisions introduced pursuant to this Directive;

Whereas it is necessary to adapt certain Annexes rapidly in the light of technical and scientific progress; whereas, to facilitate the implementation of the measures needed for this purpose,

provision should be made for a procedure establishing close cooperation between the Member States and the Commission in a Committee for Adaptation to Technical and Scientific Progress,

Has Adopted this Directive:

Article 1

- 1** This Directive relates to the conservation of all species of naturally occurring birds in the wild state in the European territory of the Member States to which the Treaty applies. It covers the protection, management and control of these species and lays down rules for their exploitation.
- 2** It shall apply to birds, their eggs, nests and habitats.
- 3** This Directive shall not apply to Greenland.

Article 2

Member States shall take the requisite measures to maintain the population of the species referred to in Article 1 at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level.

Article 3

- 1** In the light of the requirements referred to in Article 2, Member States shall take the requisite measures to preserve, maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Article 1.
- 2** The preservation, maintenance and re-establishment of biotopes and habitats shall include primarily the following measures:
 - a. creation of protected areas;
 - b. upkeep and management in accordance with the ecological needs of habitats inside and outside the protected zones;
 - c. re-establishment of destroyed biotopes;
 - d. creation of biotopes.

Article 4

- 1** The species mentioned in Annex I shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution.

In this connection, account shall be taken of:

- a. species in danger of extinction;
- b. species vulnerable to specific changes in their habitat;

- c. species considered rare because of small populations or restricted local distribution;
- d. other species requiring particular attention for reasons of the specific nature of their habitat.

Trends and variations in population levels shall be taken into account as a background for evaluations.

Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this Directive applies.

- 2** Member States shall take similar measures for regularly occurring migratory species not listed in Annex I, bearing in mind their need for protection in the geographical sea and land area where this Directive applies, as regards their breeding, moulting and wintering areas and staging posts along their migration routes. To this end, Member States shall pay particular attention to the protection of wetlands and particularly to wetlands of international importance.
- 3** Member States shall send the Commission all relevant information so that it may take appropriate initiatives with a view to the coordination necessary to ensure that the areas provided for in paragraphs 1 and 2 above form a coherent whole which meets the protection requirements of these species in the geographical sea and land area where this Directive applies.
- 4** In respect of the protection areas referred to in paragraphs 1 and 2 above, Member States shall take appropriate steps to avoid pollution or deterioration of habitats or any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article. Outside these protection areas, Member States shall also strive to avoid pollution or deterioration of habitats.

Article 5

Without prejudice to Articles 7 and 9, Member States shall take the requisite measures to establish a general system of protection for all species of birds referred to in Article 1, prohibiting in particular:

1. deliberate killing or capture by any method;
2. deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
3. taking their eggs in the wild and keeping these eggs even if empty;
4. deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant having regard to the objectives of this Directive;
5. keeping birds of species the hunting and capture of which is prohibited.

Article 6

- 1** Without prejudice to the provisions of paragraphs 2 and 3, Member States shall prohibit, for all the bird species referred to in Article 1, the sale, transport for sale, keeping for sale and the

offering for sale of live or dead birds and of any readily recognisable parts or derivatives of such birds.

- 2 The activities referred to in paragraph 1 shall not be prohibited in respect of the species referred to in Annex III/1, provided that the birds have been legally killed or captured or otherwise legally acquired.
- 3 Member States may, for the species listed in Annex III/2, allow within their territory the activities referred to in paragraph 1, making provision for certain restrictions, provided the birds have been legally killed or captured or otherwise legally acquired.

Member States wishing to grant such authorisation shall first of all consult the Commission with a view to examining jointly with the latter whether the marketing of specimens of such species would result or could reasonably be expected to result in the population levels, geographical distribution or reproductive rate of the species being endangered throughout the Community. Should this examination prove that the intended authorisation will, in the view of the Commission, result in any one of the aforementioned species being thus endangered or in the possibility of their being thus endangered, the Commission shall forward a reasoned recommendation to the Member State concerned stating its opposition to the marketing of the species in question. Should the Commission consider that no such risk exists, it will inform the Member State concerned accordingly.

The Commission's recommendation shall be published in the *Official Journal of the European Communities*.

Member States granting authorisation pursuant to this paragraph shall verify at regular intervals that the conditions governing the granting of such authorisation continue to be fulfilled.

- 4 The Commission shall carry out studies on the biological status of the species listed in Annex III/3, and on the effects of marketing on such status.

It shall submit, at the latest four months before the time limit referred to in Article 18(1) of this Directive, a report and its proposals to the Committee referred to in Article 16, with a view to a decision on the entry of such species in Annex III/2.

Pending this decision, the Member States may apply existing national rules to such species without prejudice to paragraph 3 hereof.

Article 7

- 1 Owing to their population level, geographical distribution and reproductive rate throughout the Community, the species listed in Annex II may be hunted under national legislation. Member States shall ensure that the hunting of these species does not jeopardise conservation efforts in their distribution area.
- 2 The species referred to in Annex II/1 may be hunted in the geographical sea and land area where this Directive applies.
- 3 The species referred to in Annex II/2 may be hunted only in the Member States in respect of which they are indicated.

- 4 Member States shall ensure that the practice of hunting, including falconry if practised, as carried on in accordance with the national measures in force, complies with the principles of wise use and ecologically balanced control of the species of birds concerned and that this practice is compatible as regards the population of these species, in particular migratory species, with the measures resulting from Article 2. They shall see in particular that the species to which hunting laws apply are not hunted during the rearing season nor during the various stages of reproduction. In the case of migratory species, they shall see in particular that the species to which hunting regulations apply are not hunted during their period of reproduction or during their return to their rearing grounds. Member States shall send the Commission all relevant information on the practical application of their hunting regulations.

Article 8

- 1 In respect of the hunting, capture or killing of birds under this Directive, Member States shall prohibit the use of all means, arrangements or methods used for the large-scale or non-selective capture or killing of birds or capable of causing the local disappearance of a species, in particular the use of those listed in Annex IV (a).
- 2 Moreover, Member States shall prohibit any hunting from the modes of transport and under the conditions mentioned in Annex IV (b).

Article 9

- 1 Member States may derogate from the provisions of Articles 5, 6, 7 and 8, where there is no other satisfactory solution, for the following reasons:
- a.
- in the interests of public health and safety,
 - in the interests of air safety,
 - to prevent serious damage to crops, livestock, forests, fisheries and water,
 - for the protection of flora and fauna;
- b. for the purposes of research and teaching, of re-population, of re-introduction and for the breeding necessary for these purposes;
- c. to permit, under strictly supervised conditions and on a selective basis, the capture, keeping or other judicious use of certain birds in small numbers.
- 2 The derogations must specify:
- the species which are subject to the derogations,
 - the means, arrangements or methods authorised for capture or killing,
 - the conditions of risk and the circumstances of time and place under which such derogations may be granted,
 - the authority empowered to declare that the required conditions obtain and to decide what means, arrangements or methods may be used, within what limits and by whom,
 - the controls which will be carried out.

- 3 Each year the Member States shall send a report to the Commission on the implementation of this Article.
- 4 On the basis of the information available to it, and in particular the information communicated to it pursuant to paragraph 3, the Commission shall at all times ensure that the consequences of these derogations are not incompatible with this Directive. It shall take appropriate steps to this end.

Article 10

- 1 Member States shall encourage research and any work required as a basis for the protection, management and use of the population of all species of bird referred to in Article 1.
- 2 Particular attention shall be paid to research and work on the subjects listed in Annex V. Member States shall send the Commission any information required to enable it to take appropriate measures for the coordination of the research and work referred to in this Article.

Article 11

Member States shall see that any introduction of species of bird which do not occur naturally in the wild state in the European territory of the Member States does not prejudice the local flora and fauna. In this connection they shall consult the Commission.

Article 12

- 1 Member States shall forward to the Commission every three years, starting from the date of expiry of the time limit referred to in Article 18(1), a report on the implementation of national provisions taken thereunder.
- 2 The Commission shall prepare every three years a composite report based on the information referred to in paragraph 1. That part of the draft report covering the information supplied by a Member State shall be forwarded to the authorities of the Member State in question for verification. The final version of the report shall be forwarded to the Member States.

Article 13

Application of the measures taken pursuant to this Directive may not lead to deterioration in the present situation as regards the conservation of species of birds referred to in Article 1.

Article 14

Member States may introduce stricter protective measures than those provided for under this Directive.

Article 15

Such amendments as are necessary for adapting Annexes I and V to this Directive to technical and scientific progress and the amendments referred to in the second paragraph of Article 6(4) shall be adopted in accordance with the procedure laid down in Article 17.

Article 16

- 1 For the purposes of the amendments referred to in Article 15 of this Directive, a Committee for the Adaptation to Technical and Scientific Progress (hereinafter called 'the Committee'), consisting of representatives of the Member States and chaired by a representative of the Commission, is hereby set up.

Article 17

- 1 The Commission shall be assisted by the Committee for the Adaptation to Technical and Scientific Progress.
- 2 Where reference is made to this Article, Articles 5 and 7 of Decision 1999/468/EC ⁽¹⁾ shall apply.

The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

- 3 The committee shall adopt its rules of procedure.

Article 18

- 1 Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive within two years of its notification. They shall forthwith inform the Commission thereof.
- 2 Member States shall communicate to the Commission the texts of the main provisions of national law which they adopt in the field governed by this Directive.

Article 19

This Directive is addressed to the Member States.

Done at Luxembourg, 2 April 1979.

For the Council

The President

J. François-Poncet

¹ OJ L 184, 17.7.1999, p.23

Annex F

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

The Council of the European Communities

Having regard to the Treaty establishing the European Economic Community, and in particular Article 130s thereof,

Having regard to the proposal from the Commission¹

Having regard to the opinion of the European Parliament²

Having regard to the opinion of the Economic and Social Committee³

Whereas the preservation, protection and improvement of the quality of the environment, including the conservation of natural habitats and of wild fauna and flora, are an essential objective of general interest pursued by the Community, as stated in Article 130r of the Treaty;

Whereas the European Community policy and action programme on the environment (1987 to 1992)⁴ makes provision for measures regarding the conservation of nature and natural resources;

Whereas, the main aim of this Directive being to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements, this Directive makes a contribution to the general objective of sustainable development; whereas the maintenance of such biodiversity may in certain cases require the maintenance, or indeed the encouragement, of human activities;

Whereas, in the European territory of the Member States, natural habitats are continuing to deteriorate and an increasing number of wild species are seriously threatened; whereas given that the threatened habitats and species form part of the Community's natural heritage and the threats to them are often of a transboundary nature, it is necessary to take measures at Community level in order to conserve them;

Whereas, in view of the threats to certain types of natural habitat and certain species, it is necessary to define them as having priority in order to favour the early implementation of measures to conserve them;

Whereas, in order to ensure the restoration or maintenance of natural habitats and species of Community interest at a favourable conservation status, it is necessary to designate special areas of conservation in order to create a coherent European ecological network according to a specified timetable;

¹ OJ No C 247, 21.9.1988, p. 3; and OJ No C 195, 3.8.1990, p. 1.

² OJ No C 75, 20.3.1991, p. 12.

³ OJ No C 31, 6.2.1991, p. 25.

⁴ OJ No C 328, 7.12.1987, p. 1.

Whereas all the areas designated, including those classified now or in the future as special protection areas pursuant to Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds⁵, will have to be incorporated into the coherent European ecological network;

Whereas it is appropriate, in each area designated, to implement the necessary measures having regard to the conservation objectives pursued;

Whereas sites eligible for designation as special areas of conservation are proposed by the Member States but whereas a procedure must nevertheless be laid down to allow the designation in exceptional cases of a site which has not been proposed by a Member State but which the Community considers essential for either the maintenance or the survival of a priority natural habitat type or a priority species;

Whereas an appropriate assessment must be made of any plan or programme likely to have a significant effect on the conservation objectives of a site which has been designated or is designated in future;

Whereas it is recognised that the adoption of measures intended to promote the conservation of priority natural habitats and priority species of Community interest is a common responsibility of all Member States; whereas this may, however, impose an excessive financial burden on certain Member States given, on the one hand, the uneven distribution of such habitats and species throughout the Community and, on the other hand, the fact that the 'polluter pays' principle can have only limited application in the special case of nature conservation;

Whereas it is therefore agreed that, in this exceptional case, a contribution by means of Community co-financing should be provided for within the limits of the resources made available under the Community's decisions;

Whereas land-use planning and development policies should encourage the management of features of the landscape which are of major importance for wild fauna and flora;

Whereas a system should be set up for surveillance of the conservation status of the natural habitats and species covered by this Directive;

Whereas a general system of protection is required for certain species of flora and fauna to complement Directive 79/409/EEC; whereas provision should be made for management measures for certain species, if their conservation status so warrants, including the prohibition of certain means of capture or killing, whilst providing for the possibility of derogations on certain conditions;

Whereas, with the aim of ensuring that the implementation of this Directive is monitored, the Commission will periodically prepare a composite report based, *inter alia*, on the information sent to it by the Member States regarding the application of national provisions adopted under this Directive;

⁵ OJ No L 103, 25.4.1979, p. 1. Directive as last amended by Directive 91/244/EEC (OJ No L 115, 8.5.1991, p. 41).

Whereas the improvement of scientific and technical knowledge is essential for the implementation of this Directive; whereas it is consequently appropriate to encourage the necessary research and scientific work;

Whereas technical and scientific progress mean that it must be possible to adapt the Annexes; whereas a procedure should be established whereby the Council can amend the Annexes;

Whereas a regulatory committee should be set up to assist the Commission in the implementation of this Directive and in particular when decisions on Community co-financing are taken;

Whereas provision should be made for supplementary measures governing the re-introduction of certain native species of fauna and flora and the possible introduction of non-native species;

Whereas education and general information relating to the objectives of this Directive are essential for ensuring its effective implementation,

Has Adopted This Directive:

Definitions

Article 1

For the purpose of this Directive:

- (a) *conservation* means a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status as defined in (e) and (i);
- (b) *natural habitats* means terrestrial or aquatic areas distinguished by geographic, abiotic and biotic features, whether entirely natural or semi-natural;
- (c) *natural habitat types of Community interest* means those which, within the territory referred to in Article 2:
 - i. are in danger of disappearance in their natural range;
or
 - ii. have a small natural range following their regression or by reason of their intrinsically restricted area;
or
 - iii. present outstanding examples of typical characteristics of one or more of the seven following biogeographical regions: Alpine, Atlantic, Boreal, Continental, Macaronesian, Mediterranean and Pannonian.

Such habitat types are listed or may be listed in Annex I;

- (d) *priority natural habitat types* means natural habitat types in danger of disappearance, which are present on the territory referred to in Article 2 and for the conservation of which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory referred to in Article 2; these priority natural habitat types are indicated by an asterisk (*) in Annex I;
- (e) *conservation status of a natural habitat* means the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2.

The conservation status of a natural habitat will be taken as 'favourable' when:

- its natural range and areas it covers within that range are stable or increasing, and
 - the species structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
 - the conservation status of its typical species is favourable as defined in (i);
- (f) *habitat of a species* means an environment defined by specific abiotic and biotic factors, in which the species lives at any stage of its biological cycle;
- (g) *species of Community interest* means species which, within the territory referred to in Article 2, are:
- i. endangered, except those species whose natural range is marginal in that territory and which are not endangered or vulnerable in the western palearctic region;
 - ii. vulnerable, i.e. believed likely to move into the endangered category in the near future if the causal factors continue operating; or
 - iii. rare, i.e. with small populations that are not at present endangered or vulnerable, but are at risk. The species are located within restricted geographical areas or are thinly scattered over a more extensive range; or
 - iv. endemic and requiring particular attention by reason of the specific nature of their habitat and/or the potential impact of their exploitation on their habitat and/or the potential impact of their exploitation on their conservation status.

Such species are listed or may be listed in Annex II and/or Annex IV or V;

- (h) *priority species* means species referred to in (g)(i) for the conservation of which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory referred to in Article 2; these priority species are indicated by an asterisk (*) in Annex II;
- (i) *conservation status of a species* means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2;

The *conservation status* will be taken as 'favourable' when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
 - the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
 - there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis;
- (j) *site* means a geographically defined area whose extent is clearly delineated;
- (k) *site of Community importance* means a site which, in the biogeographical region or regions to which it belongs, contributes significantly to the maintenance or restoration at a favourable conservation status of a natural habitat type in Annex I or of a species in Annex II and may also contribute significantly to the coherence of Natura 2000 referred to in Article 3, and/or contributes significantly to the maintenance of biological diversity within the biogeographic region or regions concerned.
- For animal species ranging over wide areas, sites of Community importance shall correspond to the places within the natural range of such species which present the physical or biological factors essential to their life and reproduction;
- (l) *special area of conservation* means a site of Community importance designated by the Member States through a statutory, administrative and/or contractual act where the necessary conservation measures are applied for the maintenance or restoration, at a favourable conservation status, of the natural habitats and/or the populations of the species for which the site is designated;
- (m) *specimen* means any animal or plant, whether alive or dead, of the species listed in Annex IV and Annex V, any part or derivative thereof, as well as any other goods which appear, from an accompanying document, the packaging or a mark or label, or from any other circumstances, to be parts or derivatives of animals or plants of those species;
- (n) *the committee* means the committee set up pursuant to Article 20.

Article 2

- 1** The aim of this Directive shall be to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies
- 2** Measures taken pursuant to this Directive shall be designed to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest
- 3** Measures taken pursuant to this Directive shall take account of economic, social and cultural requirements and regional and local characteristics.

Conservation of natural habitats and habitats of species

Article 3

- 1 A coherent European ecological network of special areas of conservation shall be set up under the title Natura 2000. This network, composed of sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range.

The Natura 2000 network shall include the special protection areas classified by the Member States pursuant to Directive 79/409/EEC.

- 2 Each Member State shall contribute to the creation of Natura 2000 in proportion to the representation within its territory of the natural habitat types and the habitats of species referred to in paragraph 1. To that effect each Member State shall designate, in accordance with Article 4, sites as special areas of conservation taking account of the objectives set out in paragraph 1.
- 3 Where they consider it necessary, Member States shall endeavour to improve the ecological coherence of Natura 2000 by maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora, as referred to in Article 10.

Article 4

- 1 On the basis of the criteria set out in Annex III (Stage 1) and relevant scientific information, each Member State shall propose a list of sites indicating which natural habitat types in Annex I and which species in Annex II that are native to its territory the sites host. For animal species ranging over wide areas these sites shall correspond to the places within the natural range of such species which present the physical or biological factors essential to their life and reproduction. For aquatic species which range over wide areas, such sites will be proposed only where there is a clearly identifiable area representing the physical and biological factors essential to their life and reproduction. Where appropriate, Member States shall propose adaptation of the list in the light of the results of the surveillance referred to in Article 11.

The list shall be transmitted to the Commission, within three years of the notification of this Directive, together with information on each site. That information shall include a map of the site, its name, location, extent and the data resulting from application of the criteria specified in Annex III (Stage 1) provided in a format established by the Commission in accordance with the procedure laid down in Article 21.

- 2 On the basis of the criteria set out in Annex III (Stage 2) and in the framework both of each of the seven biogeographical regions referred to in Article 1(c)(iii) and of the whole of the territory referred to in Article 2(1), the Commission shall establish, in agreement with each Member State, a draft list of sites of Community importance drawn from the Member States' lists identifying those which host one or more priority natural habitat types or priority species.

Member States whose sites hosting one or more priority natural habitat types and priority species represent more than 5% of their national territory may, in agreement with the

Commission, request that the criteria listed in Annex III (Stage 2) be applied more flexibly in selecting all the sites of Community importance in their territory.

The list of sites selected as sites of Community importance, identifying those which host one or more priority natural habitat types or priority species, shall be adopted by the Commission in accordance with the procedure laid down in Article 21.

- 3 The list referred to in paragraph 2 shall be established within six years of the notification of this Directive.
- 4 Once a site of Community importance has been adopted in accordance with the procedure laid down in paragraph 2, the Member State concerned shall designate that site as a special area of conservation as soon as possible and within six years at most, establishing priorities in the light of the importance of the sites for the maintenance or restoration, at a favourable conservation status, of a natural habitat type in Annex I or a species in Annex II and for the coherence of Natura 2000, and in the light of the threats of degradation or destruction to which those sites are exposed.
- 5 As soon as a site is placed on the list referred to in the third subparagraph of paragraph 2 it shall be subject to Article 6(2),(3) and (4).

Article 5

- 1 In exceptional cases where the Commission finds that a national list as referred to in Article 4(1) fails to mention a site hosting a priority natural habitat type or priority species which, on the basis of relevant and reliable scientific information, it considers to be essential for the maintenance of that priority natural habitat type or for the survival of that priority species, a bilateral consultation procedure shall be initiated between that Member State and the Commission for the purpose of comparing the scientific data used by each.
- 2 If, on expiry of a consultation period not exceeding six months, the dispute remains unresolved, the Commission shall forward to the Council a proposal relating to the selection of the site as a site of Community importance.
- 3 The Council, acting unanimously, shall take a decision within three months of the date of referral.
- 4 During the consultation period and pending a Council decision, the site concerned shall be subject to Article 6(2).

Article 6

- 1 For special areas of conservation, Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites.
- 2 Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the

species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive.

- 3 Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.
- 4 If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Whereas the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.

Article 7

Obligations arising under Article 6(2),(3) and (4) of this Directive shall replace any obligations arising under the first sentence of Article 4(4) of Directive 79/409/EEC in respect of areas classified pursuant to Article 4(1) or similarly recognised under Article 4(2) thereof, as from the date of implementation of this Directive or the date of classification or recognition by a Member State under Directive 79/409/EEC, where the latter date is later.

Article 8

- 1 In parallel with their proposals for sites eligible for designation as special areas of conservation, hosting priority natural habitat types and/or priority species, the Member States shall send, as appropriate, to the Commission their estimates relating to the Community co-financing which they consider necessary to allow them to meet their obligations pursuant to Article 6(1).
- 2 In agreement with each of the Member States concerned, the Commission shall identify, for sites of Community importance for which co-financing is sought, those measures essential for the maintenance or re-establishment at a favourable conservation status of the priority natural habitat types and priority species on the sites concerned, as well as the total costs arising from those measures.
- 3 The Commission, in agreement with the Member States concerned, shall assess the financing, including co-financing, required for the operation of the measures referred to in paragraph 2, taking into account, amongst other things, the concentration on the Member State's territory of priority natural habitat types and/or priority species and the relative burdens which the required measures entail.

- 4 According to the assessment referred to in paragraphs 2 and 3, the Commission shall adopt, having regard to the available sources of funding under the relevant Community instruments and according to the procedure set out in Article 21, a prioritised action framework of measures involving co-financing to be taken when the site has been designated under Article 4(4).
- 5 The measures which have not been retained in the action framework for lack of sufficient resources, as well as those included in the above mentioned action framework which have not received the necessary co-financing or have only been partially co-financed, shall be reconsidered in accordance with the procedure set out in Article 21, in the context of the two-yearly review of the action framework and may, in the meantime, be postponed by the Member States pending such review. This review shall take into account, as appropriate, the new situation of the site concerned.
- 6 In areas where the measures dependent on co-financing are postponed, Member States shall refrain from any new measures likely to result in deterioration of those areas.

Article 9

The Commission, acting in accordance with the procedure laid down in Article 21, shall periodically review the contribution of Natura 2000 towards achievement of the objectives set out in Article 2 and 3. In this context, a special area of conservation may be considered for declassification where this is warranted by natural developments noted as a result of the surveillance provided for in Article 11.

Article 10

Member States shall endeavour, where they consider it necessary, in their land-use planning and development policies and, in particular, with a view to improving the ecological coherence of the Natura 2000 network, to encourage the management of features of the landscape which are of major importance for wild fauna and flora.

Such features are those which, by virtue of their linear and continuous structure (such as rivers with their banks or the traditional systems for marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species.

Article 11

Member States shall undertake surveillance of the conservation status of the natural habitats and species referred to in Article 2 with particular regard to priority natural habitat types and priority species.

Protection of species

Article 12

- 1 Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV(a) in their natural range, prohibiting:

- a. all forms of deliberate capture or killing of specimens of these species in the wild;
 - b. deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration;
 - c. deliberate destruction or taking of eggs from the wild;
 - d. deterioration or destruction of breeding sites or resting places.
- 2** For the species, Member States shall prohibit the keeping, transport and sale or exchange, and offering for sale or exchange, of specimens taken from the wild, except for those taken legally before this Directive is implemented.
- 3** The prohibition referred to in paragraph 1 (a) and (b) and paragraph 2 shall apply to all stages of life of the animals to which this Article applies.
- 4** Member States shall establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV(a). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned.

Article 13

- 1** Member States shall take the requisite measures to establish a system of strict protection for the plant species listed in Annex IV(b), prohibiting:
- a. the deliberate picking, collecting, cutting, uprooting or destruction of such plants in their natural range in the wild;
 - b. the keeping, transport and sale or exchange and offering for sale or exchange of specimens of such species taken in the wild, except for those taken legally before this Directive is implemented.
- 2** The prohibitions referred to in paragraph 1 (a) and (b) shall apply to all stages of the biological cycle of the plants to which this Article applies.

Article 14

- 1** If, in the light of the surveillance provided for in Article 11, Member States deem it necessary, they shall take measures to ensure that the taking in the wild of specimens of species of wild fauna and flora listed in Annex V as well as their exploitation is compatible with their being maintained at a favourable conservation status.
- 2** Where such measures are deemed necessary, they shall include continuation of the surveillance provided for in Article 11. Such measures may also include in particular:
- regulations regarding access to certain property,
 - temporary or local prohibition of the taking of specimens in the wild and exploitation of certain populations,
 - regulation of the periods and/or methods of taking specimens,

- application, when specimens are taken, of hunting and fishing rules which take account of the conservation of such populations,
- establishment of a system of licences for taking specimens or of quotas,
- regulation of the purchase, sale, offering for sale, keeping for sale or transport for sale of specimens,
- breeding in captivity of animal species as well as artificial propagation of plant species, under strictly controlled conditions, with a view to reducing the taking of specimens from the wild,
- assessment of the effect of the measures adopted.

Article 15

In respect of the capture or killing of species of wild fauna listed in Annex V(a) and in cases where, in accordance with Article 16, derogations are applied to the taking, capture or killing of species listed in Annex IV(a), Member States shall prohibit the use of all indiscriminate means capable of causing local disappearance of, or serious disturbance to, populations of such species, and in particular:

- a. use of the means of capture and killing listed in Annex VI(a);
- b. any form of capture and killing from the modes of transport referred to in Annex VI(b).

Article 16

- 1 Provided that there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range, Member States may derogate from the provisions of Articles 12, 13, 14 and 15 (a) and (b):
 - a. in the interest of protecting wild fauna and flora and conserving natural habitats;
 - b. to prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property;
 - c. in the interests of public health and public 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;
 - d. for the purpose of research and education, of repopulating and re-introducing these species and for the breeding operations necessary for these purposes, including the artificial propagation of plants;
 - e. to allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species listed in Annex IV in limited numbers specified by the competent national authorities.
- 2 Member States shall forward to the Commission every two years a report in accordance with the format established by the Committee on the derogations applied under paragraph 1. The

Commission shall give its opinion on these derogations within a maximum time limit of 12 months following receipt of the report and shall give an account to the Committee.

- 3** The reports shall specify:
 - a. the species which are subject to the derogations and the reason for the derogation, including the nature of the risk, with, if appropriate, a reference to alternatives rejected and scientific data used;
 - b. the means, devices or methods authorised for the capture or killing of animal species and the reasons for their use;
 - c. the circumstances of when and where such derogations are granted;
 - d. the authority empowered to declare and check that the required conditions obtain and to decide what means, devices or methods may be used, within what limits and by what agencies, and which persons are to carry out the task;
 - e. the supervisory measures used and the results obtained.

Information

Article 17

- 1** Every six years from the date of expiry of the period laid down in Article 23, Member States shall draw up a report on the implementation of the measures taken under this Directive. This report shall include in particular information concerning the conservation measures referred to in Article 6(1) as well as evaluation of the impact of those measures on the conservation status of the natural habitat types of Annex I and the species in Annex II and the main results of the surveillance referred to in Article 11. The report, in accordance with the format established by the committee, shall be forwarded to the Commission and made accessible to the public.
- 2** The Commission shall prepare a composite report based on the reports referred to in paragraph 1. This report shall include an appropriate evaluation of the progress achieved and, in particular, of the contribution of Natura 2000 to the achievement of the objectives set out in Article 3. A draft of the part of the report covering the information supplied by a Member State shall be forwarded to the Member State in question for verification. After submission to the committee, the final version of the report shall be published by the Commission, not later than two years after receipt of the reports referred to in paragraph 1, and shall be forwarded to the Member States, the European Parliament, the Council and the Economic and Social Committee.
- 3** Member States may mark areas designated under this Directive by means of Community notices designed for that purpose by the committee.

Research

Article 18

- 1 Member States and the Commission shall encourage the necessary research and scientific work having regard to the objectives set out in Article 2 and the obligation referred to in Article 11. They shall exchange information for the purposes of proper coordination of research carried out at Member State and at Community level.
- 2 Particular attention shall be paid to scientific work necessary for the implementation of Articles 4 and 10, and trans-boundary cooperative research between Member States shall be encouraged.

Procedure for amending the Annexes

Article 19

Such amendments as are necessary for adapting Annexes I, II, III, V and VI to technical and scientific progress shall be adopted by the Council acting by qualified majority on a proposal from the Commission.

Such amendments as are necessary for adapting Annex IV to technical and scientific progress shall be adopted by the Council acting unanimously on a proposal from the Commission.

Committee

Article 20

The Commission shall be assisted by a committee.

Article 21

- 1 Where reference is made to this Article, Articles 5 and 7 of Decision 1999/468/EC ⁽¹⁾ shall apply, having regard to the provisions of Article 8 thereof.
The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.
- 2 The Committee shall adopt its rules of procedure.

¹ Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission (OJ L 184, 17.7.1999, p.23).

Supplementary provisions

Article 22

In implementing the provisions of this Directive, Member States shall:

- a. study the desirability of re-introducing species in Annex IV, that are native to their territory where this might contribute to their conservation, provided that an investigation, also taking into account experience in other Member States or elsewhere, has established that such re-introduction contributes effectively to re-establishing these species at a favourable conservation status and that it takes place only after proper consultation of the public concerned;
- b. ensure that the deliberate introduction into the wild of any species which is not native to their territory is regulated so as not to prejudice natural habitats within their natural range or the wild native fauna and flora and, if they consider it necessary, prohibit such introduction. The results of the assessment undertaken shall be forwarded to the committee for information;
- c. promote education and general information on the need to protect species of wild fauna and flora and to conserve their habitats and natural habitats.

Final provisions

Article 23

- 1 Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive within two years of its notification. They shall forthwith inform the Commission thereof.
- 2 When Member States adopt such measures, they shall contain a reference to this Directive or be accompanied by such reference on the occasion of their official publication. The methods of making such a reference shall be laid down by the Member States.
- 3 Member States shall communicate to the Commission the main provisions of national law which they adopt in the field covered by this Directive.

Article 24

This Directive is addressed to the Member States.

Done at Brussels, 21 May 1992.

For the Council

The President

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APPENDIX 3 R v Cornwall CC Ex p Hardy

*473 R. v Cornwall County Council,



Positive/Neutral Judicial Consideration

Court

Queen's Bench Division

Judgment Date

22 September 2000

Report Citation

[2001] Env. L.R. 25

Queen's Bench Division (Crown Office List)

(Harrison J.

September 22, 2000 ¹

H1 *Environmental Impact Assessment—nature conservation—waste disposal—proposed extension of existing landfill—effect upon protected species—Habitats Directive—adequacy of “environmental information”—whether planning authority had sufficient information about the impact of the proposed development on European protected species*

H2. An application for planning permission was made to the respondent County Council (“CCC”) as county planning authority, to extend an existing landfill site at Redruth. The planning application was accompanied by an environmental statement pursuant to the [Town and Country Planning \(Environmental Impact Assessment\) \(England and Wales\) Regulations 1999](#) (“the 1999 Regulations”). The environmental statement raised a number of issues of nature conservation concern relating to badgers, the liverwort plant and lesser horseshoe bats. These latter were a protected species for the purposes of the Habitats Directive (92/43). English Nature and the Cornwall Wildlife Trust were consulted on the planning application and responded that these nature conservation interests would require further study before development commenced and appropriate mitigation required as part of the grant of any permission. On October 25, 1999, CCC granted planning permission subject to numerous conditions. One of the conditions required the applicant to undertake further nature conservation surveys and prepare appropriate mitigation measures.

H3. The applicant (“H”) sought permission for judicial review of the grant of planning permission. H argued that the grant of planning permission was unlawful because CCC did not have the necessary information required by the 1999 Regulations, namely the information on the nature conservation surveys which were only to be undertaken after permission had been granted. It was not possible, therefore, to identify the measures which should have been taken to avoid or reduce any significant adverse effects as required by the 1999 Regulations. *474

H4. In addition, H argued that CCC had failed to comply with [regulations 3\(2\) and 21](#) of the 1999 Regulations. Under regulation 3(2) it was argued that CCC had failed to state in its decision that it had taken the relevant environmental information into account. Under regulation 21 H argued that CCC had failed to inform the public of all of the material that was before it and had failed to inform the public of the main reasons and considerations on which the decision was based.

H5. CCC argued that the adequacy of the environmental information was a matter for the planning authority and not the Court. In addition, the nature of the staged procedures found in the 1999 Regulations envisaged that not all of the information would be available at the first or subsequent stages. The 1999 Regulations did not require all information to be included in the environmental statement, only such data as was required to identify and assess the main effects of the development. CCC was entitled to conclude that the nature conservation aspects did not constitute “main effects” or involve “significant adverse effects”.

H6. Held, in allowing the application and quashing the grant of planning permission:

H7. (1) The strong advice of English Nature and the Cornish Wildlife Trust was that further surveys were necessary to establish the impact of the proposed development upon nature conservation interests. CCC had accepted that advice on

the basis that the lesser horseshoe bats or their resting places might, or were likely to be found in the mine shafts. If the surveys indicated that this was the case and that they were likely to be adversely affected by the proposed development, it was an inescapable conclusion that, having regard to the system of strict protection for a European Protected Species, this would amount to a “significant adverse effect” and a “main effect” within the meaning of Part II of Schedule 4 to the 1999 Regulations. In such circumstances, CCC could not have concluded rationally that there were no significant nature conservation effects until they had the data from the surveys. It was not in a position to know whether it had the full environmental information required by regulation 3 of the 1999 Regulations before granting planning permission.

H8. (2) Having determined that the decision to grant planning permission was unlawful, it was not necessary to express a concluded view on the alleged procedural breaches of regulations 3 and 21 of the 1999 Regulations. Nevertheless, there was a clear breach of regulation 21 as the environmental statement did not *475 contain the main reasons and considerations on which the decision to grant planning permission was granted.

H9 Legislation considered:

Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, regs 2(1), 3(2), 21(1)(c), 30, Sched. 4, Part II .
Habitats Directive 92/43, Arts 12(1), 16(1) .

H10 Legislation referred to:

Town and Country Planning Act 1990, s.288 .
Conservation (Natural Habitats, etc.) Regulations 1994, regs 39, 40(3) (4); Annex IV(a) .

H11 Case considered:

R. v. Rochdale M.B.C., ex p. Tew (1999) 3 P.L.R. 74; [2000] Env. L.R. 1 .

H12 Case referred to:

Berkeley v. Secretary of State for the Environment [2001] Env. L.R. 16 .

Harrison J.:

Introduction

1. This is an application, made with the permission of Keene J., for judicial review of the grant of planning permission by the respondent, Cornwall County Council, dated October 25, 1999 for an extension of the United Mines landfill site for the disposal of various kinds of waste at United Downs, St Day, Redruth in Cornwall. The three applicants were Gwenapp Parish Council, Jill Hardy and Gladys Sidebottom. Following the grant of permission by Keene J., Gwenapp Parish Council and Gladys Sidebottom withdrew for reasons unconnected with the merits of the case, leaving Jill Hardy as the sole applicant.

2. A previous application for planning permission for extension of the landfill site had been made in January 1998. That application had been accompanied by an environmental statement. The application was refused in December 1998. In May 1999, a revised application, again accompanied by an environmental statement, was made in order to address the reasons for refusal of the previous application. That was the application which was granted planning permission on October 25, 1999, which is the subject of this application for judicial review.

3. The environmental statement was submitted pursuant to the Town and Country Planning (Environmental Impact Assessment) (England and **476* Wales) Regulations 1999 (“the Regulations”). Those Regulations implement the requirements of Council Directive 85/337, as amended by Council Directive 98/11, dealing with the assessment of the effects of certain public and private projects on the environment. It is common ground that the proposed development in this case is an EIA development, as defined in the Regulations, and that an environmental statement was therefore required to be submitted with the application for planning permission. The environmental statement submitted with the application consisted of six volumes, one of which contained a section dealing with ecology. The ecological assessment referred to systematic surveys of the habitat, flora and fauna present within the site which had been undertaken in 1995, 1996 and 1997 in connection with the previous application for planning permission. Those surveys identified firstly, a nationally scarce liverwort close to the southern boundary within the site but outside the area to be filled in an area which could be affected by the routing of surface water and sewer pipelines; secondly, an infrequently used outlying badger sett on the southern edge of the site but just outside the area to be filled, and, thirdly, preliminary surveys of mine shafts for roosting bats were undertaken in September 1995 but none were found. The ecological survey stated, however, that it was possible that the open shafts in Arsenic Works would support bats but more detailed underground surveys were required. There is known to be a roost of lesser horseshoe bats of international conservation importance to the south-west of the site. They are protected species under Annex IV(a) of the Habitats Directive, Council Directive 92/43.

4. The applicant's main ground of challenge to the grant of planning permission in this case is that the respondent council, when granting planning permission, failed to take into account the full “environmental information”, as defined in the Regulations, because there was at that time inadequate information about the impact of the proposed development on the bats, the badgers and the nationally scarce liverwort. In order to deal with that ground of challenge it is necessary first to refer to the relevant Regulations and, secondly, to the way in which the respondent council dealt with this matter.

The 1999 Regulations

5. Dealing first with the Regulations, regulation 3(2) states:

“The relevant planning authority ... shall not grant planning permission pursuant to an application to which this Regulation applies unless they have first taken the environmental information into consideration, and they shall state in their decision that they have done so.” **477*

6. The expression “environmental information” is defined in regulation 2(1) as follows:

“‘Environmental information’ means the environmental statement, including any further information, any representations made by any body required by these Regulations to be invited to make representations, and any representations duly made by any other person about the environmental effects of the development.”

7. The expression “environmental statement” is defined in the same regulation as follows:

“‘Environmental statement’ means a statement—

- (a) that includes such of the information referred to in Part I of Schedule 4 as is reasonably required to assess the environmental effects of the development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile, but
- (b) that includes at least the information referred to in Part II of Schedule 4.”

8. Part II of Schedule 4 to the Regulations includes the following three items of information:

- “1. A description of the development comprising information on the site, design and size of the development.
- 2. A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.
- 3. The data required to identify and assess the main effects which the development is likely to have on the environment.”

9. Regulation 30 provides that a grant of planning permission by the Secretary of State in contravention of regulation 3 is to be taken as not being within the powers of the Town and Country Planning Act under section 288 of that Act.

10. I will have to return to those provisions of the Regulations when dealing with the submissions made by both sides, but it is necessary next to consider the material that was before the respondent and how they dealt with it.

Factual background

11. The ecological assessment, carried out by independent environmental consultants, stated at paragraph 8.19 that no part of the site was considered to be of international, national or county nature conservation significance. In paragraph 8.26, it was stated:

“Most habitats within the landfill extension site will be lost during construction. The restored grassland, arable and the smaller areas of *478 plantation woodland, scrub, heath and mine shafts will be excavated to create new areas for waste. In addition, small parcels of land outside the landfill extension boundary may be used for soil storage during the construction phase or for the installation of a settling pond, pipelines and ditches. The location of these features has not yet been determined.”

12. Dealing with species, paragraphs 8.30 and 8.32 of the assessment stated:

“8.30. The social group of badgers which use the site will lose part of their foraging territory and may suffer from disturbance at the outlying sett. The impact of construction on this species is considered to be minor but, as badger setts are legally protected, special working practices may be required. If further underground surveys find that bats roost in the mine shafts, these legally protected species will be affected if the mine shafts are excavated or capped and covered over.

...

8.32. The nationally scarce liverwort may be lost depending on the precise siting of the pipelines and ditches along the southern boundary of the site.”

13. Under the heading “Avoid sensitive areas”, paragraphs 8.42 and 8.43 of the assessment stated:

“8.42. Within the current boundary, the landfill extension affects almost all the habitats and there is little scope to avoid sensitive areas. However, provision will have to be made for legally protected areas such as the badger sett or the possible bat roosts. If it is not possible to create a 30 metre buffer zone around the sett to avoid disturbance, it will be necessary to exclude badgers from the sett under a licence from English Nature before work can proceed. Similarly, if bats are found to be roosting in the mine shafts and it is not possible to avoid these shafts, English Nature will be consulted so that the impact of construction on the bats and their roosts is mitigated for under licence.

8.43. The landfill extension may impinge on the nationally scarce liverwort, depending on the siting of the associated drainage ditches and pipelines. If feasible within the design of the scheme, these features will be sited to avoid the liverwort. However, if the plant cannot be avoided, it will be relocated to a suitable area off-site.”

14. Finally, under the heading “Environmental consequences”, paragraph 8.56 stated:

“There may be limited effects on some species, including badgers, bats and breeding birds. Mitigation measures will reduce disturbance and provide alternative breeding sites and habitats.”

15. A further report before the respondent dealt with a comparative assessment made on behalf of the developer of all the sites, including the application site, which had been considered. Three coloured notations *479 were given for the rating of each site on various issues as well as for a site's overall rating. A green notation indicated an issue assessed as having a potentially insignificant impact reflecting a high level of confidence that the issue would not represent a major hurdle to development. A blue notation indicated an issue as having a potentially minor impact, or a paucity of data, leading to a low level of confidence over a potential impact. It was stated that:

“The issue will either require mitigating measures to be undertaken or alternatively further information is required before the significance of the issue can be properly assessed.”

16. A red notation indicated an issue assessed as having a potential major impact representing a major hurdle to development likely to lead to refusal of planning permission. The assessment for the United Mines site included a green notation for planning policy and for nature conservation. It was the only site to have a green notation for its overall rating. Three other sites had an overall blue notation and all the other sites had a red notation. The site assessment summary for the United Mines site, when dealing with the green notation for nature conservation, stated:

“Limited nature conservation interest. No protected species to be affected. No objection by English Nature.”

17. There was also a Non-Technical Summary which, under the heading “Ecology”, stated:

“The site has been designed to ensure that areas containing legally protected species such as bats and badgers are to be avoided wherever possible.”

18. Under the heading “Conclusions”, the Non-Technical Summary stated, in paragraph 52:

“The Environmental Impact Assessment process is an objective assessment of the likely environmental effects of the proposed development, and has been undertaken by independent environmental consultants. Its findings conclude that there will be no significant adverse environmental effects that should prevent the proposals from gaining planning permission. Through careful site design and incorporation of appropriate mitigation measures, the potential for adverse effects has been reduced to the minimum practicable level.”

19. Next, it is necessary to consider the consultation replies received by the council on this issue. Both English Nature and the Cornwall Wildlife Trust relied on the replies they had sent in relation to the previous application as there was no significant difference between the two applications so far as this aspect of the matter is concerned. **480*

20. English Nature, in a letter of March 6, 1998, stated that they did not object to the proposal but they recommended, *inter alia*, firstly that further bat and badger surveys should be carried out to ensure that those protected species would not be directly adversely affected and secondly, that the locations of the nationally scarce liverwort should not be affected, that is to say that the development should work around them. In a letter of September 1, 1998, they stated that they had been asked to look again at the wildlife impacts, particularly whether further survey work should take place before any further permission is granted. They stated that they remained content for their recommendations to remain as conditions on the understanding that some of them must take place before any development takes place and that they may require changes to the design.

21. Cornwall Wildlife Trust, in a letter of March 11, 1998, stated that they did not consider that there were strong nature conservation grounds for an outright objection but that any outstanding concern could be dealt with by appropriately worded conditions on any planning permission that was given. They requested a further survey to establish what course of action was necessary to safeguard the outlying badger sett. So far as bats are concerned, they stated that, although bats were not detected at the time of the survey, it was possible that they may have been present but dormant. The most likely bats were greater and lesser horseshoe bats both of which are present in the vicinity and which are closely associated with mine shafts, the greater horseshoe bat being on the U.K. Biodiversity short list requiring immediate action for conservation. The Trust recommended further surveys by a trained bat worker of the open shafts within the proposed landfill area, failing which the shafts should be left open but secured with bat castles.

22. The Trust also sent to the County Council correspondence between them and the Cornwall Bat Group. They told the County Council that the Trust's views corresponded with the Bat Group's views, which they summarised as follows:

“1. Bat surveys of the underground workings are required.

2. However, we recognise that because of the technical difficulties these are best carried out after determination of the application.

3. Conditions should therefore be placed on any planning consent to ensure that appropriate surveys are carried out and mitigation measures are put in place.”

23. In their letter to the Bat Group, the Trust explained that the technical difficulties related to the stability of the shafts and the possibility of landfill gas which would have necessitated specialist equipment to survey the underground workings which in turn would have necessitated clearance and removal of substantial areas of woodland to facilitate access. They considered that it would be wrong to clear the woodland before the *481 application was determined because there was no guarantee that planning permission would eventually be granted. They therefore thought that any permission should be conditional on appropriate underground surveys being carried out and mitigation measures put in place if required.

24. Those consultation replies were duly summarised in an appendix to the Planning Director's report to the County Planning Committee, as were the objections of the Gwenapp Parish Council and the Carharrack Parish Council, both of whose objections included ecological concerns. The Gwenapp Parish Council's objection was attached at the end of the appendix.

25. As can be imagined, there were many and varied important matters relating to the proposed development which had to be dealt with by the Planning Director in his report to the County Planning Committee. The nature conservation aspect formed only a small part of the whole picture. The report of the Planning Director ran to 24 pages covering a great many matters, and it was accompanied by a number of appendices. When dealing with nature conservation in his report, the Director of Planning stated:

“79. The proposal does not affect any known or proposed areas of designated or indicated nature conservation interest. The woodland which would be felled as part of the proposal is not an ancient woodland.

80. However, the Environmental Assessment prepared by CES raised a number of issues of nature conservation concern relating to protected and/or uncommon species. These include bats, badgers and a nationally sparse liverwort. English Nature and the Cornwall Wildlife Trust have indicated that these aspects would require further study by the applicant before the development was commenced and appropriate mitigation required as part of any subsequent consent. This can be achieved by appropriate planning conditions.

81. The application therefore raises no significant nature conservation issues and further mitigation can be required by planning condition. The proposed restoration will, in my view, add to the nature conservation value of the entire landfill/raising site in the long term. This application is not significantly in conflict with the policy framework provided by Policies W2 and ENV5 of the Structure Plan ...”

26. In his affidavit, the Planning Director added that the Cornwall Wildlife Trust had since repeated and stressed their view that it was imperative that surveys be undertaken immediately prior to the execution of works because the creatures have an itinerant nature and their exact habitat position must be confirmed at the time of working rather than at any earlier time which would not show an up-to-date position. At that stage, he said, mitigation measures could be finalised in accordance with the conditions of the planning permission. *482

The decision

27. On October 20, 1999 the County Planning Committee resolved to grant planning permission for the proposed development. The planning permission was granted on October 25, 1999. It included a large number of conditions, only two of which are relevant to this case.

28. Condition 5 provided:

“This planning permission shall only relate to the site edged red on Figure 1.2 (Volume 4 dated May 1999) and the development hereby permitted shall only be carried out within the site in accordance with the details in the submitted

application form dated May 10, 1999, Environmental Statement Volumes 1–6 dated May 1999, except where modified by other accompanying conditions, or as may otherwise be agreed with the CPA.”

29. Condition 8 provided as follows:

“Unless otherwise agreed with the CPA, no development, including preliminary groundworks, shall take place within the new extension area [i.e. that land hatched in purple on Figure 1.2 (Volume 4 dated May 1999)] until the applicants have undertaken additional badger, bat and bryophyte surveys in accordance with details to be agreed with the CPA in consultation with Cornwall Wildlife Trust and English Nature. The applicants shall submit for approval by the CPA appropriate mitigation measures to cater for these protected species in addition to those mitigation measures included in the Environmental Assessment Chapter 8 Volume 3 [dated May 1999] prior to the commencement of development, in the abovementioned extension area including preliminary groundworks.”

Submissions

30. Having dealt with the statutory provisions, the factual background to the decision and the decision itself, I turn next to the submissions that were made. They really fell into two main areas. Firstly, the legality of the decision itself and, secondly, alleged procedural breaches of the Regulations following the decision. I turn firstly to deal with the submissions relating to the legality of the decision to grant planning permission.

(a) The legality of the decision

31. Mr McCracken submitted on behalf of the applicant that the planning permission was not lawfully granted because there was not the material before the respondent required by Regulation 3 before planning permission could lawfully be granted. It was accepted for the purposes of this hearing that the adequacy of the environmental information was a matter for the local authority rather than for the court, although Mr McCracken wished to reserve the right to argue on appeal that it was a matter for the *483 court. It was submitted that, when considering the adequacy of the environmental information, the respondent had failed to take into account Article 12 of the Habitats Directive (Directive No. 92/43) or the question of derogation under Article 16 of the Directive.

32. Article 12(1) provides:

“Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV(a) in their natural range, prohibiting—
... (d) deterioration or destruction of breeding sites or resting places.”

33. In this case, the bats, which it was thought the surveys might reveal were present in a mine shaft on the site, are Annex IV(a) species which, it is said, are afforded a system of strict protection under the Directive which prohibits the destruction of their roosts or resting places.

34. Article 16(1) of the Directive states:

“Provided that there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range, Member States may derogate from the provisions of Article 12 ...

(c) in the interests of public health and public 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.”

35. Mr McCracken submitted that the respondent had failed to take into account, when considering the adequacy of the environmental information, the strict protection afforded to the bats by Article 12 or the relevant tests for derogation provided by Article 16.

36. The Conservation (Natural Habitats, etc.) Regulations 1994, transpose the Directive into domestic law. Annex IV(a) species are called “European protected species” and regulation 39 makes it an offence, *inter alia*, to damage or destroy a breeding site or resting place of such an animal. Regulation 40(3)(c), however, provides that, a person shall not be guilty of an offence by reason of any act made unlawful by regulation 39 if he shows that the act was the incidental result of a lawful operation and could not reasonably have been avoided. Regulation 40(4) provides that a person cannot rely on that defence in relation to anything done to bats unless he had first notified the appropriate nature conservation body of the proposed action or operation and allowed them a reasonable time to advise him whether it should be carried out and, if so, the method to be used.

37. It follows, therefore, that it would not be unlawful to destroy the bats' roosts when carrying out the planning permission provided that the provisions of regulation 40 were observed and provided that it was not ^{*484} contrary to such mitigation measures as may be imposed pursuant to condition 8 of the planning permission.

38. Mr McCracken submitted that it was perverse for the respondent to have concluded, in accordance with paragraph 8 of the report of the Planning Director, that the application raised no significant nature conservation issues when the surveys may reveal the existence of bats and/or their roosts in a mine shaft which, according to paragraphs 8.26 and 8.30 of the ecological report, will or may have to be excavated or capped and covered. Similarly, paragraphs 8.32 and 8.43 of the ecological report show that the nationally scarce liverwort may be lost depending on the precise siting of the associated pipelines and ditches. Mr McCracken submitted that any change in the layout of the pipelines and ditches would be contrary to condition 5 of the planning permission. It was also contended that the conclusion in the site assessment survey that no protected species would be affected was perverse. It was suggested that the green notation for the nature conservation and planning policy aspects of the site should, on any reasonable assessment, have been blue, which may have affected the comparative assessment of sites. The Planning Director had stated in paragraph 8 of his report that the application was not significantly in conflict with Structure Plan policy ENV5. That policy provides, *inter alia*, that development should not adversely affect to a significant degree any protected species or its habitat. If surveys revealed bats or their roosts in a mine shaft, the appropriate notation for the nature conservation and planning policy aspects of the site, it was said, would then be a red notation.

39. Mr McCracken submitted that, until the surveys had been carried out, there was not the necessary data required by paragraph 3 of Part II of Schedule 4 to the Regulations, nor was it possible to say what measures should be taken to avoid or reduce significant adverse effects as required by paragraph 2 of Part II of Schedule 4 to the Regulations. All of those matters had to be contained in the environmental information considered by the respondent pursuant to Regulation 3 before they could grant planning permission.

40. I was referred to the case of *R. v Rochdale M.B.C., ex p. Tew (1999) 3 P.L.R. 74*, which was a case decided under the 1988 Assessment Regulations rather than under the 1999 Regulations. It involved a bare outline planning application for a business park accompanied by an environmental statement based on a illustrative plan. It was held that such an environmental statement did not comply with Schedule 3 of the 1988 Regulations. Sullivan J. dealt in his judgment with the suggestion that it was sufficient to leave some of the “specified information”, as it was called in the 1988 Regulations, to the reserved matters stage. He said at page 97E:

“It is no answer to say that some of the specified information will be ^{*485} provided in due course at the reserved matters stage. This, no doubt, reflects the role of an outline planning permission under the 1990 Act. Once outline planning permission has been granted, the principle of the development is established. Even if significant adverse impacts are identified at the reserved matters stage, and it is then realised that mitigation measures will be inadequate, the local planning authority is powerless to prevent the development from proceeding.”

41. Mr Straker laid emphasis upon the fact that the local planning authority felt that, in imposing conditions, it had ensured that adequate powers would be available to it at the reserved matters stage. That, in my view, is no answer. At the reserved matters stage there are not the same statutory requirements for publicity and consultation. The environmental statement does not stand alone. Representations made by consultees are an important part of the environmental information which must be considered by the local planning authority before granting planning permission. Moreover, it is clear from the comprehensive list of likely significant effects in paragraph 2(c) of Schedule 3, and the reference to mitigation measures in paragraph 2(d), that it is intended that in accordance with the objectives of the Directive, the information contained in the environmental statement

should be both comprehensive and systematic, so that a decision to grant planning permission is taken “in full knowledge” of the project's likely significant effects on the environment. If consideration of some of the environmental impacts and mitigation measures is effectively postponed until the reserved matters stage, the decision to grant planning permission would have been taken with only a partial rather than a “full knowledge” of the likely significant effects of the project. That is not to suggest that full knowledge requires an environmental statement to contain every conceivable scrap of environmental information about a particular project. The Directive and the Assessment Regulations require likely significant effects to be assessed. It will be for the local planning authority to decide whether a particular effect is significant, but a decision to defer a description of a likely significant adverse effect and any measures to avoid, reduce or remedy it to a later stage would not be in accordance with the terms in Schedule 3, would conflict with the public's right to make an input into the environmental information and would therefore conflict with the underlying purpose of the Directive.

“That is, in effect, what has happened in the present case. There may well be scope for argument in some cases as to the extent to which details of mitigation measures may be left for subsequent approval. I do not suggest that an environmental statement must contain every detail, provided the mitigation measures are described.”

42. Mr McCracken submitted that in this case it was not permissible to leave the information arising from the surveys to the reserved matters *486 stage, pursuant to condition 8 of the planning permission, because it was too late to prevent the development at that stage and there was no requirement for publicity or public consultation on the impact arising from the surveys or the mitigation measures that may be required.

43. In the *Tew* case, Sullivan J. held that it was for the local planning authority to judge the adequacy of the information to be supplied pursuant to Schedule 3 of the 1988 Regulations. The planning permission in that case was quashed. The local planning authority subsequently granted a planning permission which was again challenged by way of judicial review. Once again, it came before Sullivan J. One of the issues was whether the adequacy of the information was a matter for the local planning authority or a matter for the court to decide. Judgment was given on the last day of the hearing in this case. A transcript of Sullivan J.'s judgment was not available at the time of preparing this judgment. In those circumstances, the parties provided me with an agreed note of what Sullivan J. held on that particular issue. Sullivan J. held that the adequacy of the environmental information was a matter for the local planning authority to decide; it was not a matter for the court to decide as a matter of primary fact.

44. Mr Straker q.c. submitted on behalf of the respondent that no bats had been found on the site and that the nationally scarce liverwort and the badger sett were only on the edge of the site. Bats were itinerant creatures and it had been agreed that there were only two mine shafts within the area to be filled, one choked and one open. There had been no objection from English Nature or from Cornwall Wildlife Trust, both of whom were satisfied that those aspects could be dealt with by appropriately worded conditions with the surveys being undertaken before the development commenced. Neither of them had requested that the surveys should be carried out before planning permission was granted. The environmental consultants and the Planning Director were satisfied that there were no significant adverse effects and there was no objection from the Environment Agency. With the exception of Gwenapp and Carharrack Parish Councils, the public debate on this aspect was said to be all one way. As a result, Mr Straker submitted, it was not perverse for the respondent to take the view that those matters did not constitute “main effects” or “significant adverse effects” within the meaning of paragraphs 3 and 2 respectively of Part II of Schedule 4 to the Regulations and that condition 8 would provide protection if contingencies occurred.

45. So far as the bats and their roosts were concerned, it involved, he said, contingency upon contingency. Firstly, that the bats or their roosts were there and secondly, if they were there, that it could not be dealt with by mitigation measures under condition 8. If those contingencies were satisfied, he accepted that the bats and/or their roosts would have to go, *487 albeit legitimately. He accepted that the words “mitigated for” in the last sentence of paragraph 8.42 of the ecological survey meant that they would have to go. The contingencies so far as the liverwort is concerned is that the pipes and ditches may not be able to avoid the plant. If that were so, it would either be lost or transported elsewhere.

46. Mr Straker submitted that the adequacy of the environmental information was a matter for the respondent and that the staged procedure of the Regulations envisaged that not all the information would be available at the first or subsequent stages. He contended that paragraph 3 of Part II of Schedule 4 to the Regulations did not require all data to be included in the environmental statement, only such data as is required to identify and assess the main effects of the development. The mitigation measures referred to in paragraph 2 of Part II of Schedule 4, could, he said, include future control; it was not necessary to put off a description of likely significant effects because the Regulations allowed for contingent circumstances.

47. Overall, Mr Straker submitted that the respondent was entitled to conclude that the nature conservation aspects did not constitute “main effects” or involve “significant adverse effects” and, if that were right, it was the end of the matter.

(b) Procedural breaches of the Regulations

48. I turn next to the submissions that were made relating to alleged procedural breaches of the Regulations following the decision.

49. It was alleged on behalf of the applicant that the respondent had failed to comply with regulation 3(2) and regulation 21. Both of those allegations were made late in the day. The alleged breach of regulation 3(2) was not raised until July 6, 2000 and the alleged breach of regulation 21 was raised for the first time at the hearing. I offered Mr Straker an adjournment if it was necessary to obtain the relevant material to deal with the latter point, but he was able to obtain the relevant material without an adjournment.

50. I have already set out the terms of regulation 3(2) earlier in this judgment. It requires the relevant planning authority not only to take the environmental information into consideration but also to state in their decision that they have done so. It is accepted on behalf of the respondent that they did not state in their decision that they had taken the environmental information into consideration. Mr Straker submitted that I could properly deal with the matter either by accepting an undertaking from him that the respondent would state in their decision that they had taken the environmental information into consideration or by the court ordering them to do so. It would, he said, be strange if the planning permission had to be quashed for that omission if the respondent had otherwise gone through the procedure legitimately. *488

51. Mr McCracken, on the other hand, submitted that the purpose of the requirement in regulation 3(2) was to ensure that the environmental information was taken into consideration. It was not, therefore, superfluous to the requirements of the Directive. It is, he said, for the respondent to decide whether they can state that they have taken the environmental statement into consideration, and the statement has to be made simultaneously with the announcement of the decision.

52. Secondly, it was submitted on behalf of the applicant that there had been a breach of regulation 21(1)(c) which provides as follows:

“21 —

(1) where an EIA application is determined by a local planning authority, the authority shall ...

(c) make available for public inspection at the place where the appropriate register (or relevant section of that register) is kept a statement containing—

- (i) the content of the decision and any conditions attached thereto;
- (ii) the main reasons and considerations on which the decision is based; and
- (iii) a description, where necessary, of the main measures to

avoid, reduce and, if possible, offset the major adverse effects of the development.”

53. The statement which the respondent had made available for public inspection in this case recited the three requirements of regulation 21(1)(c) and then stated:

“To provide information on the above, attached to this Statement are the following—

- (a) copy of Agenda report and update sheet that was considered by the County Planning Committee at the meeting on 20th October 1999;
- (b) copies of a Section 106 Legal Agreement and a Unilateral Undertaking referred to in the abovementioned report;
- (c) copy of Decision Notice and approved plans (dated October 25, 1999).”

54. Mr Straker submitted that that statement complied with the requirements of regulation 21(1)(c). Alternatively, if that were not so, he said that the matter could and should properly be dealt with either by accepting an undertaking from him or by the court ordering the respondent to make available a statement that complies with the regulation. Such a course of action would, he said,

satisfy the requirement for publicity which is the purpose of the regulation. There would then be compliance with the Regulation. It would, he said, be wrong to quash a perfectly proper planning permission on account of such a procedural failure. *489

55. Mr McCracken, on the other hand, submitted that the respondent's statement only informed the public of some of the material that was before the respondent. It failed to inform the public of the main reasons and considerations on which the decision was based. There was nothing in the minutes which recorded the resolution of the Planning Committee to say, whether by reference to the report of the Planning Director or otherwise, what the main reasons or considerations were on which the decision was based. I was referred to Article 9 of Directive 85/337 which requires the competent authority granting planning permission to make available to the public the three matters now specified in regulation 21(1)(c). Mr McCracken therefore submitted that there was a failure to comply with the requirements of regulation 21(1)(c) which are not superfluous to the requirements of the Directive. He contended that it was not possible to remedy the failure in the manner suggested by Mr Straker. One of the reasons for the requirement of the regulation was to enable a potential objector to challenge the decision, but, if the reasons for the decision were now to be given, such a potential challenger would be out of time to make his challenge by virtue of Order 53, rule 4. It was therefore submitted that there is an obligation to quash the planning permission on account of the failure to comply with regulation 21(1)(c).

55. 63

Conclusion

(a) Legality of decision

56. In dealing with the submissions that I have summarised, I deal first with the issue of the legality of the decision to grant planning permission. In considering that issue, the starting point must be Regulation 3, which provides that the relevant planning authority shall not grant planning permission for an EIA development unless they have first taken the environmental information into consideration. By virtue of regulation 2(1), environmental information includes the environmental statement which itself has to include the information referred to in Part II of Schedule 4 to the Regulations. I agree with Sullivan J. that it is for the relevant planning authority to judge the adequacy of the environmental information, subject of course to review by the courts on the normal *Wednesbury* principles, but information that is capable of meeting the requirements of Part II of Schedule 4 to the Regulations must be provided and considered by the planning authority before planning permission is granted.

57. Paragraphs 1 to 3 of Part II of Schedule 4 are not, it seems to me, in a logically correct sequence. Firstly, the environmental statement must contain a description of the development (paragraph 1). Secondly, it must contain the data required to identify and assess the main effects which the *490 development is likely to have on the environment (paragraph 3). Thirdly, it must contain a description of the measures envisaged to avoid, reduce and, if possible, remedy significant adverse effects (paragraph 2). The requirement to provide the paragraph 2 information relating to the measures to be taken does not arise if, in the planning authority's view, there are no "significant adverse effects". Similarly, the requirement to provide the paragraph 3 information relating to the data does not arise if, in the planning authority's view, it is not required to identify and assess the "main effects" of the development.

58. Applying those principles to the facts of this case, if the nature conservation aspects relating to the bats, badgers and liverwort did not involve "significant adverse effects", there would be no requirement for the environmental statement to contain the measures envisaged to deal with them and no duty on the respondent to consider those measures before granting planning permission. Similarly, if those nature conservation aspects did not amount to "main effects" there would be no requirement for the environmental statement to contain the data to assess them and no duty on the respondent to consider that data before granting planning permission. It is therefore necessary to consider whether the respondent could rationally conclude that those nature conservation aspects did not amount to "significant adverse effects" or "main effects".

59. The non-technical summary of the environmental statement stated that there would be no significant adverse environmental effects which should prevent the proposal from gaining planning permission, and the site assessment summary, when dealing with nature conservation, stated that no protected species would be affected. That was, of course, information supplied by the environmental consultants responsible for compiling the environmental statement. However, the Director of Planning also advised the Planning Committee in his report that there were no significant nature conservation issues and he advised them that there was no significant conflict with Structure Plan policy ENV5 which provides that development should not adversely affect to a significant degree any protected species or its habitat.

60. It is difficult, however, to see how the Planning Committee could have accepted that advice in the light of their acceptance of the advice from English Nature and Cornish Wildlife Trust that further surveys should be carried out to ensure, *inter alia*, that bats would not be adversely affected by the development.

61. The bats are European protected species. They and their roosts, or resting places, are subject to strict protection under the Habitats Directive. There was evidence in the ecological report that bats or their resting places may be found in the mine shafts if surveys were carried out. The strong advice of English Nature, Cornish Wildlife Trust and the Cornwall Bat *491 Group was that those surveys should be carried out. The respondent concluded that those surveys should be carried out. They could only have concluded that those surveys should be carried out if they thought that bats or their resting places might, or were likely, to be found in the mine shafts. If their presence were found by the surveys and if it were found that they were likely to be adversely affected by the proposed development, it is, in my view, an inescapable conclusion, having regard to the system of strict protection for these European protected species, that such a finding would constitute a “significant adverse effect” and a “main effect” within the meaning of paragraphs 2 and 3 of Part II of Schedule 4 to the Regulations, with the result that the information required by those two paragraphs would have to be contained in the environmental statement and considered by the Planning Committee before deciding whether to grant planning permission.

62. Having decided that those surveys should be carried out, the Planning Committee simply were not in a position to conclude that there were no significant nature conservation issues until they had the results of the surveys. The surveys may have revealed significant adverse effects on the bats or their resting places in which case measures to deal with those effects would have had to be included in the environmental statement. They could not be left to the reserved matters stage when the same requirements for publicity and consultation do not apply. Having decided that the surveys should be carried out, it was, in my view, incumbent on the respondent to await the results of the surveys before deciding whether to grant planning permission so as to ensure that they had the full environmental information before them before deciding whether or not planning permission should be granted.

63. I appreciate that the advice of English Nature and of the Cornish Wildlife Trust was that the surveys should be carried out before the development started rather than before planning permission was granted. However, that advice was not, in my view, consistent with the requirements of the Directive and the Regulations, however understandable the reasons for the advice may have been, because the results of the surveys could have contained information which, under the Regulations, would have to be in the environmental statement which had to be considered by the respondent before deciding whether to grant planning permission. If it is thought that bats are, or may be, present within the area to be filled, the fact that they are itinerant creatures cannot excuse a failure to ascertain their presence as part of the environmental statement before planning permission is granted because that is the time at which the information has to be provided. The technical difficulty of carrying out the survey in the woodland area was not a matter relied upon by the Director of Planning in the body of his report, nor was it relied upon by Mr Straker on behalf of the *492 respondent and, in any event, as Mr McCracken suggested, there could, if necessary, be a “minded to grant” resolution to overcome that aspect.

64. In my judgment, the grant of planning permission in this case was not lawful because the respondent could not rationally conclude that there were no significant nature conservation effects until they had the data from the surveys. They were not in a position to know whether they had the full environmental information required by regulation 3 before granting planning permission. I would therefore quash the planning permission dated October 25, 1999.

65. Having based that decision on the surveys relating to the bats whose importance is recognised at the European level, it is not necessary to reach a concluded view on the liverwort or on the badgers. All I would say is that there was no evidence of significant adverse effects on the badgers. So far as the liverwort is concerned, it seems to me that it was open to the respondent as a matter of judgment to conclude that the liverwort need not be significantly affected by the ditches or the pipelines.

65. 75

(b) Procedural breaches of regulations 3 and 21

66. In view of my decision to quash the planning permission it is not necessary for me to express a concluded view relating to the alleged procedural breaches of regulations 3 and 21.

67. In fact, the breach of regulation 3, by not stating in the decision that the respondent had taken the environmental information into account, is admitted. Had I not decided to quash the planning permission for the reason stated, I would have been inclined

to agree with Mr Straker that the breach of regulation 3 could have been appropriately dealt with by the court by way of a mandatory order.

68. The breach of regulation 21 is not admitted. There was, however, in my judgment, a clear breach of regulation 21. All that the respondent did was to attach to the statement the report of the Planning Director, the section 106 agreement and the decision notice with the approved plans. Whilst that would have satisfied regulation 21(c)(i) relating to the decision and conditions attached to it, the statement did not contain the main reasons and considerations on which the decision was based. As Mr McCracken rightly said, the statement simply referred to some of the material that was before the respondent. There was no attempt to inform the public what the main reasons and considerations were on which the decision was based.

69. The question of what relief ought to be afforded in respect of the breach of regulation 21 is not so straightforward, but as I am quashing the permission in any event, it is not necessary or desirable for me to express an opinion as to whether that breach could have been dealt with by a **493* mandatory order or whether it would have necessitated the quashing of the permission.

Relief

70. I was referred to the House of Lords decision in *Berkeley v. Secretary of State for the Environment* [2000] 3 W.L.R. 420 on the question of discretion whether to grant relief in a case involving a failure to comply with the Directive and Regulations relating to environmental assessments. However, Mr Straker did not suggest that I should not quash the planning permission if I were to find against him on the legality of the decision to grant permission. His submissions on the question of relief were confined to the procedural breaches of regulations 3 and 21. I have already indicated that, in the light of my finding that the grant of planning permission in this case was not lawful, it would be appropriate to quash the planning permission. I would therefore grant an order of certiorari to quash the planning permission.

H13. *Solicitors* —Earthrights; Cornwall County Council. **494*

Footnotes

1 Paragraph numbers added by the publishers.

APPENDIX 4

Appeal APP/D3505/W/18/3212219



Appeal Decision

Site visit made on 23 July 2019

by Tom Gilbert-Wooldridge BA (Hons) MTP MRTPI IHBC

an Inspector appointed by the Secretary of State

Decision date: 28 August 2019

Appeal Ref: APP/D3505/W/18/3212219

Vine Farm, Nedging Road, Nedging Tye, Ipswich IP7 7HJ

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
 - The appeal is made by Mrs Ruth Kingsbury against the decision of Babergh District Council.
 - The application Ref DC/17/06324, dated 22 December 2017, was refused by notice dated 6 April 2018.
 - The development proposed is alterations and extension to a former farm building to create a new dwelling.
-

Decision

1. The appeal is dismissed.

Procedural Matter

2. The postcode above is taken from the appeal form rather than the application form or decision notice, as this more accurately locates the site's address.

Main Issues

3. The main issues are:
 - (a) the effect of the development on the use of rural buildings, including the effect on protected species;
 - (b) whether the development would have acceptable access to everyday services and facilities; and
 - (c) the effect of the development on the living conditions of occupiers of neighbouring properties.

Reasons

Use of rural buildings and the effect on protected species

4. The appeal site is located to the rear of the Grade II listed Vine Farmhouse on Nedging Road. The site contains a barn/workshop/cart lodge, along with a small pond and large area of green space. The building is within the curtilage of the listed farmhouse and, based on its age and function, is considered to form part of the listed building for control purposes. Listed building consent (ref DC/17/06325) has already been granted for the conversion of the building to residential use.

5. Policy CR19 of the Babergh Local Plan 2006 (LP) permits the conversion of barns or other redundant or under-used buildings in the countryside into dwellings or hotel accommodation provided that 8 criteria are met. The Council has raised concerns with the first, second and final criteria.
6. The first and second criteria relate to whether alternative uses for business, community and leisure have been thoroughly explored and discounted, and that the location makes it unsuitable for conversion to other uses. The condition of the appeal building is poor and needs renovation. While no marketing appears to have taken place, the appellant's evidence indicates that the market value of using the building for employment purposes would be significantly lower than the proposed cost of renovating and converting the building for such purposes. As such, it would not be viable. The evidence also highlights that the remote rural position of the building and its proximity to residential properties would not make it suitable for an employment related use. Therefore, I consider that the development would not conflict with the first and section criteria.
7. The final criterion relates to no material adverse impact on protected species, particularly bats and barn owls. Ecological survey work in 2015 revealed that great crested newts were present in both the on-site pond and a pond immediately adjacent to the site. Further great crested newt survey work in April-May 2017 concluded that any ground disturbance on the site is highly likely to impact on this species if precautions and mitigation are not implemented. The 2015 survey found little evidence of water voles although recommended further assessment prior to development commencing on site. The 2015 survey also found a reasonable likelihood of bat roosts occurring within the barn and recommended further survey work as impacts could not be ruled out.
8. I have not been provided with details of any further survey work relating to bats. I also note that the report for the 2017 great crested newt survey states on page 11 that if there is a delay of over two years before site works begin then an updated survey is recommended. As a consequence, I am not satisfied that I have sufficient and up to date information on bats and great crested newts to conclude that there would be an acceptable impact on protected species. It would not be appropriate to leave this matter to a planning condition or a note informing the appellant of their responsibilities, as the information is needed to inform the planning decision.
9. Concluding on this main issue, it has not been adequately demonstrated that the development would have an acceptable effect on the use of rural buildings having regard to the evidence before me on protected species. Therefore, the development would conflict with LP Policy CR19.

Access to services and facilities

10. The site is located within a small cluster of dwellings and agricultural buildings along Nedging Road. The settlements of Nedging and Nedging Tye at either end of the road are not large and contain few facilities. Bildeston to the north-west contains more everyday facilities, but Nedging Road has no pavement or street lighting with sections at the national speed limit, and it connects with busier B roads. In combination with the distance to Bildeston of approximately 1 mile, these conditions would not encourage future occupants of the development to walk or cycle. With no public transport nearby, occupants are likely to be

largely reliant on the private car to access services and facilities. The development would not be isolated given existing dwellings, while accessibility is only one part of sustainability. However, there would be negative social and environmental effects arising from the site's location.

11. Concluding on this main issue, the development would not have acceptable access to everyday services and facilities. Therefore, it would conflict with Policy CS2 of the Babergh Core Strategy 2014 (BCS) which seeks to direct development towards larger settlements, and criteria (xviii) of BCS Policy CS15 which seeks to minimise the need to travel by car. The development would also not meet the sustainable development objectives in paragraph 8 of the National Planning Policy Framework (NPPF) in terms of achieving accessible services and using natural resources prudently.

Living conditions

12. The site is to the rear of residential properties at Vine Farmhouse and Vine Farm Barn. The physical bulk of the development would largely follow the existing barn/workshop/cart lodge and so would have little effect on outlook. Window openings at first floor would be restricted or face away from the neighbouring properties to reduce impacts on privacy. There would be some increase in noise and disturbance and domestic paraphernalia arising from a residential use, but as Vine Farmhouse and Vine Farm Barn already experience this from each other, the increase would not be significant. Lighting from vehicle movements would likely be limited given the proposal only involves a single new dwelling.
13. Concluding on this main issue, the development would have an acceptable effect on the living conditions of occupiers of neighbouring properties. Therefore, it would accord with LP Policy CN01 which, amongst other things, requires development to pay particular attention to the scale, form and nature of adjacent development and the environment surrounding the site.

Planning balance

14. Although the Council's appeal statement asserts that it can now demonstrate a 5 year supply of housing land, evidence provided by the appellant indicates that there is no such supply. The appellant also argues that LP Policy CR19 is out of date due to inconsistencies with national legislation and policies that take a more flexible approach to the re-use of rural buildings for other purposes including housing. The appellant considers the BCS as a whole is now out of date due to the length of time since its adoption. However, national policy and regulation only stipulates a requirement to review a local plan every 5 years. The age of a policy does not automatically mean it is out of date.
15. A lack of 5 year housing land supply and/or LP Policy CR19 being out of date would trigger the 'tilted balance' in NPPF paragraph 11(d)(ii) which states that where the policies which are most important for determining the application are out of date, planning permission should be granted unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits when assessed against the policies in the NPPF taken as a whole.
16. In terms of adverse impacts, the proposal would not have acceptable access to everyday services and facilities. The fact that the proposal only involves a single dwelling moderates this adverse impact. However, it has also not been

adequately demonstrated that the proposal would have an acceptable effect on the use of rural buildings having regard to protected species. While LP Policy CR19 may not be consistent with the NPPF, the NPPF seeks to protect and enhance biodiversity in Section 15. As such, I attach significant weight to the overall adverse impacts and policy conflicts.

17. Turning to the benefits, the proposal would provide an additional dwelling to help boost local supply as well as help the local economy. However, as a single dwelling, the above benefits are modest. The proposal would also enhance a heritage asset by converting it to a new use and could result in biodiversity improvements. However, in the absence of adequate information on protected species, I can only give these benefits limited weight.
18. Therefore, even with the application of NPPF paragraph 11(d), the adverse impacts would significantly and demonstrably outweigh the benefits. The presumption in favour of sustainable development would not apply which indicates that planning permission should not be granted in this instance.

Conclusion

19. For the above reasons, and having had regard to all other matters raised, I conclude that the appeal should be dismissed.

Tom Gilbert-Wooldridge

INSPECTOR

APPENDIX 5

Appeal APP/W3520/W/17/3174638



Appeal Decision

Site visit made on 29 August 2017

by **D. M. Young BSc (Hons) MA MRTPI MIHE**

an Inspector appointed by the Secretary of State for Communities and Local Government

Decision date: 18th September 2017

Appeal Ref: APP/W3520/W/17/3174638

Pooles Farm, Thorney Green Road, Stowupland IP14 4AJ.

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
 - The appeal is made by Mrs Helen Brown against the decision of Mid Suffolk District Council.
 - The application Ref: 0426/17, dated 30 January 2017, was refused by notice dated 7 April 2017.
 - The development proposed is the erection of a new farmhouse style dwelling.
-

Decision

1. The appeal is dismissed.

Preliminary Matters

2. I have taken the description of development from the Council's Decision Notice as this is more succinct than the version provided on the Application Forms.
3. Section 66(1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 (the Act) requires that, when considering development which affects a listed building or its setting, special regard shall be had to the desirability of preserving the building or its setting.
4. There is no dispute between the parties that the Council cannot demonstrate a 5 year supply of housing. In such situations paragraphs 47 and 49 of the "*National Planning Policy Framework*" (the Framework) state that the relevant policies for the supply of housing should not be considered up to date and that permission should be granted unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits. This balancing exercise will be returned to later in the decision.

Main Issues

5. The main issues are;
 - (a) Whether the principle of development outside the settlement boundary is consistent with local and national policies on housing in the countryside;
 - (b) The effect on the character and appearance of the countryside;
 - (c) Whether the location of the development would be sustainable;
 - (d) The effect on the setting of Pooles Farm (Grade II listed), and
 - (e) Ecology.

Reasons

Suitable site for housing

6. The appeal site lies outside the defined settlement boundary of Stowupland in the CS. It is therefore in the countryside for planning purposes. Policy CS1 of the "Mid Suffolk Core Strategy Development Plan Document 2008" (the CS) seeks to direct the majority of new development to towns and key service centres. Policy CS2 strictly controls new residential development in the countryside which it states will only be permitted in exceptional circumstances. It is not part of the appellant's case that the proposal accords with any of the exceptions set out in Policy CS2 and therefore the development would conflict with the development plan in that regard.
7. However given the age of the CS and the Council's 5-year housing supply position, the matter clearly does not end there and it is necessary to consider the development against policies in the more recent Framework. The Framework does not stipulate a requirement for any 'exceptional' or 'special' circumstances to be met by all development in the countryside. The 'special circumstances' only apply to development which would be considered isolated (my emphasis). Moreover, the approach of controlling the principle of development beyond settlement boundaries is patently more restrictive than the balanced, cost/benefit approach set out in the Framework. Reflecting this, the Council states that it is more supportive of sites which are located outside settlement boundaries provided they are otherwise well related.
8. Based on the foregoing, being outside the settlement boundary is not the determinative factor in this appeal and other material considerations have to be weighed in the balance.

Character and appearance

9. The Council's reason for refusal and Statement of Case refer, albeit fleetingly, to the character and appearance of the countryside which Policies CS1 and CS2 seek to protect. The overarching aims of Policies CS1 and CS2 in seeking to protect the countryside for its own sake are generally consistent with the core planning principles at Paragraph 17 of the Framework.
10. The scheme involves the erection of a two-storey cottage style dwelling and creation of new driveway via an extension to the existing farm access. The dwelling would be sited in open countryside to the northern end of a rectangular field on the edge of the farmstead.
11. In my opinion, the scale and siting of the dwelling would seriously erode the character and appearance of the countryside. Its siting roughly equidistant between the farmstead and pair of cottages would relate poorly to both and it would be stranded in a proverbial 'no-man's land'. The erection of the dwelling along with associated driveways, attendant vehicles, residential curtilage with domestic paraphernalia therein and boundary treatments would completely change the open and green character of the land. I acknowledge that the existing landscaping would obscure, perhaps even conceal, views of the dwelling from the green. However, it would inevitably be visible in longer distance views from the north and west where it would appear, irrespective of its detailed design, as a stark visual intrusion into the open landscape on the periphery of Stowupland.

12. Based on the foregoing, I conclude that the development would harm the character and appearance of the countryside. It would thus conflict with Policies CS1 and CS2 of the CS as well as the Framework, a core planning policy of which is to recognise the intrinsic character and beauty of the countryside.

Accessibility

13. Paragraph 55 of the Framework states that housing in rural areas should be located where it will enhance or maintain the vitality of rural communities. It also states that isolated homes in the countryside should be avoided unless there are special circumstances. This fits into the overall core planning principle of supporting thriving rural communities.
14. The pivotal issue is therefore whether the development would be isolated in the terms of the Framework and if so, are any of the special circumstances set out in paragraph 55 met. The Framework does not define what is meant by isolated. Clearly, the development site is not physically isolated, as it is located on the edge of a small farmstead with other dwellings nearby. However, in the context of the guidance the assessment of isolation cannot only be a consideration of whether there are other properties near to the appeal site but rather how well the site relates to defined settlements, the level, proximity and accessibility of services and facilities and such things as whether the site has good access to public transport or is in a generally accessible location.
15. The appeal site is outside but adjacent to the settlement boundary of Stowupland which is defined as a Key Service Centre under Policy CS1. As I saw at the time of my visit, there is a petrol filling station including shop, fish & chip shop, public house, church, primary and high school and bus stops all within a 20 minute walk of the appeal site. The walk to these destinations for the most part benefits from either pedestrian footways or wide, user-friendly grass verges. While I recognise that the walk to those more distant destinations such as the primary school might be onerous for the less mobile, it is not beyond the scope of those who are normally fit and active and the route itself would not be off-putting.
16. While the number and range of services in the village is relatively modest, they would provide for some day-to-day essentials. It is also pertinent that the neighbouring town of Stowmarket, a short drive from the appeal site, contains a wide range of services including a train station, two supermarkets and a leisure centre. Although it is unlikely future residents would walk to the railway station and perhaps other facilities in Stowmarket on a daily basis, the relatively flat and short nature of the route would be conducive to cycling. I have noted the Council's view that bus services through the village are infrequent. However, as no bus timetables have been supplied I cannot discount the possibility that future residents could travel or commute by bus.
17. I am satisfied that there is a reasonable functional relationship between the appeal site and Stowupland, such that the development would help maintain the facilities within the village and those in Stowmarket nearby which would be accessible by public transport and cycling.
18. Notwithstanding the above, I accept that future occupants would still be reliant on a motor vehicle to access more distant destinations. However, the Framework recognises that the opportunities to maximise sustainable transport

solutions will vary from urban to rural areas. The fact that paragraph 55 highlights the potential for housing in one village to support services in another implies an acceptance that some travel in a rural area may be necessary. In my view, neither the number of vehicle movements nor the level of car dependency would be at a level where there would be conflict with the aims of the Framework in terms of the need to minimise travel and maximise the use of sustainable forms of transport. Taking all these matters in the round, I find that the development would be located in an accessible area in a rural context.

Effect on setting of Pooles Farmhouse

19. The dwelling would be sited some distance from the listed farmhouse to the south which is already tightly enclosed by existing development on three sides. I noted that several curtilage buildings of varying design have been erected to the north of the farmhouse. Given that the dwelling would be sited well beyond these structures, I am not persuaded that it would challenge the dominance of the farmhouse or affect one's appreciation of it particularly bearing in mind the landscaping along the eastern site boundary.
20. I therefore find no conflict with Policies GP1, SB2 and HB1 of the "Mid Suffolk Local Plan 1998" (the LP) and Policy CS5 of the CS insofar as they seek to safeguard the setting of listed buildings. There would also be no conflict with the statutory duty under the Act or with Section 11 of the Framework. In coming to that view I have noted the comments of the Parish Council regarding the access road. However, the section of access road adjacent to the farmhouse is already in situ. The new section of driveway would be located on the far side of the agricultural buildings to the north and would not therefore have a significant effect on the setting of the farmhouse.

Ecology

21. It is common ground that there is a strong probability of newts and possibly bats, both protected species, being present in the adjacent pond and Building A. Guidance on the conservation of protected species is given in ODPM Circular 06/2005. At paragraph 99 the Circular advises that the presence or otherwise of protected species, and the extent to which they might be affected by the proposed development, must be established before planning permission is granted. However, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development. Where this is the case, the survey should be completed and any necessary measures to protect the species should be in place before the permission is granted.
22. Although an Ecological Report was submitted with the application, it did not include surveys to establish the presence of protected species. Bearing in mind advice in the Circular and notwithstanding that it might well be possible to mitigate the impact on any protected species should they be present, without the requisite surveys, it is not possible to ascertain the effect of the development on a protected species and a precautionary approach should be adopted. Consequently, I conclude that the scheme would conflict with Policies GP1 and SB2 of the LP, Policy CS5 of the CS and the aims of paragraphs 109 and 118 of the Framework which collectively seek to conserve and enhance biodiversity and the natural environment.

Other Matters

23. I have had regard to comments made by a neighbouring occupier regarding the vehicular access to the site. However, whether a right of access exists or not, is a private legal matter to be resolved between the various parties and not a material planning consideration to which I can attribute any degree of weight.

Overall Conclusions and Planning Balance

24. The starting point in weighing the various factors is that the proposal would conflict with various policies in the development plan concerned with landscape protection and ecology. As to whether material considerations indicate that the permission should be allowed, the Framework is one such consideration. This establishes that the purpose of the planning system is to contribute to the achievement of sustainable development, which includes economic, social and environmental dimensions.
25. Given the inconsistency of Policies CS1 and CS2 with the Framework and the Council's housing land supply position I consider them to be out-of-date, insofar as they seek to restrict housing to defined settlements. Not only does this reduce the weight that I can attach to these policies in the overall balance but it also engages the default position identified in paragraph 14 of the Framework and Policy FC 1 of the "Mid-Suffolk Core Strategy Focused Review 2012" (the CSFR) and the balance shifts in favour of the grant of consent. Only if the Council is able to demonstrate harm which "significantly and demonstrably" outweighs the benefits of the development should consent be refused.
26. The development would support the *economic* role through the purchase of materials and services in connection with the construction of the dwelling. The occupants of the dwelling would also provide some support for local facilities which would contribute to maintaining or enhancing the vitality of the rural community. Although, the economic gains would be limited, the Framework does not state that the support of local vitality must be significant, only that a development is capable of achieving this aim. The provision of one residential unit would provide some modest *social* benefits through the delivery of additional housing in an area of need. Given the scale of development, I attach moderate weight to this benefit.
27. In *environmental* terms, the erection of a large dwelling in the open countryside would be contrary to the Framework's aspirations for planning to recognise the intrinsic character and beauty of the countryside. There would also be some potential harm in terms of ecology. Collectively, I attach significant weight to these harms. The location of the development would be acceptable in accessibility terms and there would be no harm to the setting of Pooles Farmhouse. However, an absence of harm in these areas is only a neutral factor in the planning balance.
28. Taking all these considerations in the round, the development would deliver economic and social benefits consistent with the Framework and the CSFR. Nevertheless, either on their own or in combination, these considerations do not outweigh the significant *environmental* harm I have identified through the development's effect on the character and appearance of the area and the conflict with the development plan in that regard. I therefore find that the adverse impacts of the proposal would significantly and demonstrably out-

weigh the benefits and the scheme would not constitute sustainable development.

29. For the reasons given above and taking into account all other matters raised, I conclude that the appeal should be dismissed.

D. M. Young

Inspector

APPENDIX 6

Appeal APP/Y1945/W/20/3261681



Appeal Decision

Site Visit made on 9 August 2021

by Martin Allen BSc (Hons) MSc MRTPI

an Inspector appointed by the Secretary of State

Decision date: 3rd November 2021

Appeal Ref: APP/Y1945/W/20/3261681

9 - 19 Monmouth Road, Watford, WD17 1QW

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
 - The appeal is made by Santok Homes (Monmouth) Limited against the decision of Watford Borough Council.
 - The application Ref 19/01471/FULM, dated 3 October 2019, was refused by notice dated 26 May 2020.
 - The development proposed is the demolition of the existing buildings and erection of a part 3, part 5, part 7 storey building comprising 57 residential units (Use Class C3), landscaping, access and servicing, car parking and associated works.
-

Decision

1. The appeal is dismissed.

Preliminary Matters

2. Since the appeal was submitted the Government has published a new National Planning Policy Framework (the Framework). The main parties have had the opportunity to provide comments on the revisions and I have taken these into account in reaching my decision. I have considered the appeal on the basis of the revised Framework.

Main Issues

3. The main issues are the effect of the development on (i) protected species, and (ii) the character and appearance of the area.

Reasons

Protected species

4. The appeal scheme would result in the demolition of six existing dwellings within the site in order to accommodate the proposed development. In support of the proposals, the appellant undertook an ecological survey of the existing buildings. This survey did not find any evidence of bats within the interior of the buildings.
5. However, the survey also identifies that a number of the buildings had features that were suitable for crevice dwelling bats, these included lifted lead flashing around chimneys, gaps in the roof along valleys and hips, uneven tiles, minor cracks, and crevices, render peeling away from walls, as well as gaps around rooflights, soffits and areas of missing mortar.

6. As a result of these findings, the recommendations of the survey include that further presence/likely absence surveys are required in respect of five of the existing buildings. While three of the buildings are considered to have low potential for bats to be present, two are considered to have moderate potential.
7. This matter has not been advanced as a reason for refusal by the Council and I note that in the event that the appeal is allowed, the Council recommend a planning condition, which requires the undertaking of the further survey work, together with details of any mitigation that may be required in respect of protected species, be submitted for approval before the buildings are demolished. The views of the main parties have been sought as to the acceptability of such a condition, were I minded to allow the appeal.
8. While I note comments provided by the parties that it is appropriate to deal with this matter by way of condition, I am also mindful of the guidance of Circular 06/2005 - Biodiversity and Geological Conservation – Statutory obligations and their impact within the planning system (the Circular). The presence of a protected species is a material planning consideration. The Circular clearly outlines that it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before planning permission is granted. Otherwise, all relevant considerations may not have been addressed in making the decision.
9. In light of the findings of the survey and the recommendations, I consider there to be a reasonable likelihood of protected species being present. Accordingly, detailed surveys establishing this, or otherwise, should be completed, and any necessary mitigation secured, before any permission is granted. The Circular further advises that the need to ensure that ecological surveys are carried out should only be left to coverage under planning conditions in exceptional circumstances. I am not convinced that any such circumstances exist in this case.
10. I acknowledge that it has been suggested that to deal with the matter by condition is a pragmatic and reasonable approach. However, in light of the contents of the Circular I cannot agree with this approach.
11. Therefore, I have insufficient information to be able to be satisfied that the development would not have a harmful effect on protected species. Thus, I am unable to find that the proposal would accord with policy SE31 of the Watford District Plan (2000), insofar as it seeks to ensure that development does not have an adverse impact on protected species.

Character and appearance

12. The appeal site currently accommodates six dwellings, a mix of semi-detached and detached units. The dwellings are two-storey in height which is reflective of the remainder of the dwellings in the street as well as those located along the nearby Albert Road. The street along which the appeal site is located is a no-through road, truncated by the presence of a dual lane highway, Beechen Grove, to the south.
13. To the east of the appeal site, there are notably larger buildings present which provide a backdrop to views of the dwellings, albeit that this is somewhat

softened by the presence of large trees to the rear of the site. The transition between Monmouth Road and Beechen Grove is also softened by the presence of large trees, as well as other vegetation. As a result, the immediate vicinity of the site has a suburban character, but one that is influenced by large buildings and road infrastructure located nearby.

14. The site is located within Character Area 7H, which is defined within the Watford Character Area Study – Supplementary Planning Document (2011). This identifies areas within Character Type 7 comprising of pre-dominantly two storey heights, with narrow and deep plot sizes. There is also a typical use of yellow stock or red brick. Specifically, Area 7H is identified as a residential character area, which is bordered by larger scale development, that retains its Victorian character, due to amongst other things the scale of buildings being fairly consistent.
15. The Character Area within which the site is located is also directly bordered by two further areas, 30B and 36C. Area 30B is located directly to the rear of the site and is a mixed-use character area, that is dominated by buildings that are relatively large and modern. Area 36C lies to the south, which is separated from the site by Beechen Grove, and is also a mixed-use character area. The construction of the ring road necessitated the demolition of the part of Monmouth Road that once sat within this area.
16. The appeal site lies along Monmouth Road, which due to its alignment and layout, results in a large part of the site not being generally visible from the nearby Albert Road. Due to this, the site shares little affinity with the remainder of the Character Area. The buildings along Monmouth Road positioned close to Albert Road are more readily appreciated. That the site is located at the end of a no-through road with no pedestrian link through also reinforces the degree of disconnection with the surrounding area.
17. The appeal scheme proposes the erection of a new building within the site, that would rise to a height of 7 storeys at its highest extent. The massing of the building would be broken down into three distinct elements. To the north of the site would be two pitched roof blocks comprising one element, rising to three-storeys in height. Adjacent would be a five-storey block with the seven-storey element located to the southern extremity of the site, each of which would have a flat roof.
18. The three-storey element of the building would be visible in views to observers when passing the entrance to Monmouth Road and thus would share the closest relationship with the remainder of the Character Area. While this element would be a storey taller than the surrounding development, it would not appear out of proportion with the immediately surrounding built form.
19. The seven-storey element would be positioned such that it would be at the innermost extremity of Monmouth Road where there would be a reasonable degree of separation between it and the existing dwellings. The differentiation between the proposed and existing heights would be strengthened by the steps in the height of the building, which would successfully mediate the height of the proposed between that of the surrounding dwellings as well as that of the larger buildings nearby.
20. It is likely that there would be views of the taller elements above the existing buildings in Monmouth Road. However, they would be clearly distinct from the

existing buildings and would not appear overly dominant. The taller elements would be viewed as larger structures behind more modest development; a situation that is not uncommon in the surrounding area.

21. The elevations of the proposed building include appropriate articulation, in that they are broken down into differing elements, which through the use of materials and detailing, breaks down its massing and allows the elements to be appreciated individually. In this respect, the form of the building would be reminiscent of the urban grain found in the wider area. I acknowledge that the seven-storey part of the building would be viewed as a larger element, however, given its location at the end of Monmouth Road, it can be viewed as a feature distinct from the nearby two-storey units, including those in the wider area, and thus its presence would not be a discordant addition at this location. This is particularly so given the position at the very edge of the Character Area. Moreover, there would be little effect on the Victorian character of the remainder of the Character Area.
22. I accept that the varying heights of the proposed building would be above those seen in the Character Area within which the site lies. However, as is identified above, there are character areas adjacent which contain larger and more modern buildings. Given the position of the site at the end of a truncated road, which is somewhat distinct from the remainder of the two-storey development in the wider area, the increase in height at this location would be acceptable. That in the wider area I observed larger buildings positioned near to two-storey buildings reinforces my view that structures of a taller height can be assimilated into the area.
23. The larger elevation and massing of the building would be particularly visible from the adjacent ring road (Beechen Grove). However, this would be softened by the presence of substantial trees along the highway verge, as well as its setback from this road. Furthermore, from this vantage point the development would be viewed within the context of what is a key thoroughfare into Watford that is lined by larger buildings.
24. I note that the Council contend that there is no reason why the appeal site should act as a transitional area between the Character Areas. However, given my findings above, there is nothing before me that persuades me that it is incapable of performing as such. There is a level of distinction between the site and the remainder of the Character Area within which it lies, and there is a relationship in terms of proximity to the larger buildings within the nearby Character Areas.
25. In respect of the building line, I note that the front elevation is stepped, with the larger seven-storey element being positioned closest to the road. In light of the layout of the development and the separation from nearby buildings, this would be an appropriate element of the scheme.
26. I have had regard to the Character Area Study – Supplementary Planning Document, insofar as it seeks to describe the characteristics of the various areas. Nonetheless, as the Council highlights within its statement of case, the study does not set policy or guidance on how new development should respond to the specific character area within which it would sit. As I set out above, I find that the appeal proposal is an appropriate design response at this location, having regard to its context.

27. Accordingly, I find that the proposal would have an acceptable effect on the character and appearance of the area. Thus, it would accord with policy UD1 of Watford's Local Plan – Core Strategy (2013), insofar as it seeks to ensure that development respects local character. The scheme would also accord with the design aims of the Framework.

Planning Balance

28. Whilst I have found above that the proposal would not be harmful to the character and appearance of the area, there is insufficient information to conclude that there would not be a harmful effect on protected species. Given the level of protection afforded to protected species, I consider this to be a high level of harm and attribute significant weight to it.

29. There would be a range of social and economic benefits resulting from the proposal. These include the provision of jobs during the construction of the development, wider economic benefits through household expenditure and a small contribution towards the provision of affordable housing, together with a contribution to housing in general. These attract moderate weight.

30. Overall, I consider that the package of benefits that would result from the development should be given moderate weight in the planning balance. However, as I have identified above, I accord significant weight to the harm that would result. Accordingly, in my judgement the negative factors resulting from the proposals are sufficient to significantly and demonstrably outweigh the positive ones. Thus, the planning balance does not indicate that a decision should be taken other than in accordance with the development plan.

Other Matters

31. I note that a completed Unilateral Undertaking has been provided by the appellant, securing contributions towards the variation of a Controlled Parking Zone Order, the administration of the undertaking and monitoring of a Travel Plan. In addition, it secures the three units of affordable housing. While this is noted, given that I am dismissing the appeal I have no need to address this matter further.

32. Concerns have been raised by interested parties in respect of additional matters including, but not limited to, the effect of the proposal on living conditions of nearby occupiers, highway safety and parking, loss of family homes, low provision of affordable housing, lack of communal space, effect on trees and the setting of a precedent. I note that the Council raise no objection to the development on any grounds other than those stated in the reason for refusal. Nonetheless, as I am dismissing the appeal for reasons following from the main issues above, it is not necessary that I address these additional concerns.

33. It has been contended that the dwellings that are proposed to be demolished comprise non-designated heritage assets. However, the Council has not indicated that it considers them to be such. Furthermore, there is no evidence that convinces me that they should warrant such a classification. As such, this matter has little bearing on my decision.

Conclusion

34. I have found that there would be no harm to the character and appearance of the area. However, I am unable to find that there would be no harm to protected species; this matter is decisive.

35. For the reasons given above, I conclude that the appeal should be dismissed.

Martin Allen

INSPECTOR

APPENDIX 7

**Appeals APP/L2820/C/19/3240989 and
APP/L2820/W/20/3249282 at Loddington**



Appeal Decisions

Inquiry held on 9 - 11 November 2021, 17 - 20 and 24 - 27 May 2022

Site visit made on 26 May 2022

by J A Murray LLB(Hons) Dip.Plan.Env DMS Solicitor

an Inspector appointed by the Secretary of State

Decision date: 30 August 2022

Appeal A Ref: APP/L2820/C/19/3240989

Land east of Cransley Road, Loddington, Northamptonshire, NN14 1JX.

- The appeal is made under section 174 of the Town and Country Planning Act 1990 as amended. The appeal is made by Mr James Delaney against an enforcement notice issued by Kettering Borough Council.
 - The notice, numbered ENFO/2019/00160, was issued on 15 October 2019.
 - The breach of planning control as alleged in the notice is, without planning permission, the making of a material change of use of the land from a use for agriculture to a use for the stationing and human habitation of caravans, the construction of an area of hard standing together with a hard standing means of access and erection of a breeze block building on the western side of the site adjacent to the point of access onto Cransley Road.
 - The requirements of the notice are to:
 - (1) Cease the use of the land for human habitation.
 - (2) Permanently remove from the land all caravans, vehicles, buildings, portable toilets, machinery, equipment and personal items, and other items and works associated with human habitation.
 - (3) Take up and permanently remove from the land all hard core, road planings and other such materials deposited in and on the land and forming areas of hard standing. Remove from the land all materials and rubble arising from this step.
 - (4) Restore the land to its condition before the breach took place by re-seeding it with grass seed.
 - The periods for compliance with the requirements are 7 days for each of requirements (1) to (3) and 14 days for requirement (4).
 - The appeal is proceeding on the ground set out in section 174(2)(g) of the Town and Country Planning Act 1990 as amended.
-

Appeal B Ref: APP/L2820/W/20/3249281

Land east of Cransley Road, Loddington, Kettering, Northamptonshire, NN14 1JX, 482053, 278056

The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.

- The appeal is made by Mr James Delaney against the decision of Kettering Borough Council.
- The application Ref KET/2019/0711, dated 10 October 2019, was refused by notice dated 26 February 2020.
- The development proposed is the change of use of land to use as a residential caravan site for 8 gypsy families, each with two caravans, including erection of 8 No. utility buildings, laying of hardstanding and improvement of access.

Decisions

Appeal A – Ref APP/L2820/C/19/3240989

1. It is directed that the enforcement notice is varied in section 5 by substituting the following periods for compliance:
6 months in relation to Steps 1 and 2; and
8 months in relation to steps 3 and 4.
2. Subject to these variations, the appeal is dismissed, and the enforcement notice is upheld.

Appeal B - Ref APP/L2820/W/20/3249281

3. The appeal is dismissed.

Procedural and preliminary matters

4. With effect from April 2021, Kettering Borough Council was superseded by North Northamptonshire Unitary Authority (the Council).
5. Although appeals A and B were lodged in November 2019 and March 2020 respectively, the start of the inquiry was delayed by the Covid-19 pandemic, as the appeals were deemed unsuitable for a 'virtual' inquiry. The inquiry opened on 9 November 2021 but was adjourned on 11 November, when one of the participants fell ill. I resumed on 17 May 2022 and sat during two consecutive weeks. Evidence and submissions were heard face to face, save that, with the agreement of the parties, closing submissions were made through a 'virtual' session on Microsoft Teams, but interested parties were able to observe.
6. I conducted an accompanied site inspection on 26 May 2022. I also carried out several unaccompanied inspections, namely on 8, 9 and 11 November 2021 and 26 May 2022. During those visits, I walked along public footpaths GG6, HC3, GR5 and bridleway GR10. I viewed from and drove along Cransley Road in both directions and viewed from Northfield Road to the southeast of the site. I also saw the location of the Northfield Farm caravan site on Northfield Road, Cransley, some 2 miles by road from the appeal site. In all, I spent about 3 hours in the area and on the site.
7. The appellant intended to appeal against the enforcement notice on grounds (a) and (g). Ground (a) is that planning permission should be granted for the matters alleged. However, he applied for planning permission for the development and the Council issued the enforcement notice before the time to determine the application had expired. Accordingly, by letter of 29 November 2019, the Planning Inspectorate confirmed that the appeal on ground (a) was barred under section 174(2A) of the 1990 Act.
8. The appeal against the enforcement notice (appeal A) therefore proceeds on ground (g) only. I will consider the appeal against refusal of planning permission (appeal B) first because, if permission is granted, the notice will cease to have effect in so far as it is inconsistent with that permission.
9. Given the nature of the issues, evidence was not taken under oath. Drainage, ecology, and need and supply were all addressed through 'round table' sessions

(RTS). The remaining matters were the subject of formal examination in chief, cross examination and, where necessary, re-examination.

10. The Council had initially requested amendments to the enforcement notice to require reinstatement of the original profile of the land.¹ However, for the R.6 party, Mr Hughes indicated that expanding the requirements in this way would probably cause injustice, and it would not be possible to protect any remaining archaeological remains. On 26 May 2022, Mr Lintott confirmed the Council no longer sought that amendment because of possible prejudice to archaeology.

APPEAL B

The description of the development

11. The description of the development in the application, refusal notice and appeal form, makes no reference to the terracing and reprofiling works that have taken place on site. A cut and fill operation has created terraces, namely 4 on each side of the central driveway, with a pitch on each. The soil and stone on the southern sides of each terrace is retained by timber walls, around 1m in height, with timber post and rail fencing above. Similar walls and fences retain each side of the central driveway, which slopes from north to south, down towards Cransley Reservoir.
12. It is not entirely clear when these works were carried out, but Mr Jupp says they appeared to have been recently undertaken when he visited the site on 4 June 2020, a few months after the refusal of the planning application. This is broadly consistent with the chronology at Mr Hughes' appendix 4. That refers to deliveries of stone and timber, and ongoing work, including the erection of fences and groundworks, at the end of May and beginning of June 2020.
13. These reprofiling and terracing works represent significant engineering operations. On the first day of the inquiry, Mr Brown said that, because of the terracing, it would be necessary to split the proposed utility buildings. These are shown on the plans as semi-detached blocks, each serving 2 pitches and straddling the east-west pitch boundaries. The appellant clearly intends the terracing works to remain, even though they were not indicated on the application plans.
14. The fact that the site, as developed does not accord with the refused site plan, because of the considerable terracing works and their implications for the utility buildings, is recorded in the Statement of Common Ground (SOCG)². I am satisfied that all parties have had an opportunity to consider the implications of those works, and in the circumstances, the description of the development should be altered from that in the application to:

“The material change of use of land to use as residential caravan site for 8 gypsy families, each with two caravans, including erection of 8 No. utility buildings, the reprofiling and terracing of the site, laying of hardstanding and improvement of access.”

I have considered the appeal on that basis.

¹ Mr Jupp's proof paragraph 3.16 and Inquiry Document (ID) 3 paragraph 2.5.

² ID10

Main Issues

15. The main issues are:

- the effect of the development on the character and appearance of the landscape;
- whether the occupants of the site would have adequate access to services and facilities;
- the effect of the development on highway safety;
- whether the development will result in contaminated runoff impacting on the Cransley Reservoir Local Wildlife Site;
- the effect of the development on ecology, including protected species and the Cransley Reservoir Local Wildlife Site;
- the need for and supply of Gypsy and traveller pitches;
- the impact of the development on a potential non-designated heritage asset, namely potential below ground archaeology
- whether the development constitutes intentional unauthorised development and, if so, the weight to be attached to that; and
- the availability of alternative accommodation and other personal circumstances of the occupiers, including the best interests of any children, all in the context of Human Rights considerations and the Public Sector Equality Duty.

Reasons

The character and appearance of the landscape

16. As set out in the SOCG, the appeal site comprises 0.64 hectares of land located along the eastern side of Cransley Road, about 350 metres south of the village of Loddington. It is roughly rectangular in shape and bounded by a bridleway to the northwest (GR10) and by open fields to the east and northeast.
17. The site has hedgerows to all boundaries and is within a valley, whereby it slopes down towards the south. Access to the site is from Cransley Road via an entrance at the northern end of the road frontage, adjacent to the start of the bridleway. The northern end of the appeal site would remain as a grass paddock, with the access driveway running eastwards from the road, before turning south down the centre of the land, to serve 8 caravan pitches; 4 each side of the access road.
18. Although among the reasons for issuing the enforcement notice, the impact on the character and appearance of the landscape was not one of the original reasons for refusing the planning application. It was added by the Council's Planning Committee on 29 July 2020, after the appeals were lodged.
19. The appellant's planning consultant, Mr Brown, says Planning Policy for Traveller Sites (PPTS) acknowledges that some gypsy and traveller sites will be in rural areas and the countryside, and this has inevitable consequences. Caravans, hard standings, utility buildings and residential paraphernalia can be

atypical in the countryside, so some degree of visual harm must be accepted, if an adequate supply of gypsy sites is to be provided.

20. Policy 31(h) of the North Northamptonshire Joint Core Strategy 2011 – 2031 (JCS), adopted July 2016 requires that gypsy and traveller site development should not have “a significant adverse impact” on the character of the landscape. It should also take account of the Landscape Character Assessment of the area and provide appropriate landscaping and treatment to boundaries to mitigate any impact. This policy is compatible with the recognition that some harm is inevitable. Mr Brown says the test is whether unacceptable harm is caused, and he notes that paragraph 26 of PPTS makes clear soft landscaping can positively enhance the environment.
21. Whilst paragraph 174 of the National Planning Policy Framework (the Framework) says policies and decisions should recognise the intrinsic character and beauty of the countryside and valued landscapes should be protected and enhanced, Mr Brown draws attention to paragraph 175. This makes clear local plans should distinguish between the hierarchy of international, national, and locally designated sites. He acknowledged in oral evidence that the appeal site is in an attractive area of countryside, and the development will cause some harm. However, he said it is not nationally designated or identified in the development plan as being of any particular landscape quality; it is not really out of the ordinary and cannot be regarded as a valued landscape in terms of paragraph 174(a) of the Framework. I shall return to that issue.
22. In any event, the appellant says the site is only visible within short range views and any harm could be mitigated to some extent by hedgerow and tree planting carried out along the southern edge of the access driveway, between the proposed pitches and, in the south-western corner of the site. Mr Brown says the development is capable of assimilation into this part of the countryside without significant adverse effect on landscape character or visual amenity. Glimpses from Cransley Reservoir, the footpath, or road cannot have a significant adverse impact. He adds that PPTS places weight on sites not being so enclosed as to give the impression of being deliberately isolated from the rest of the community and CS31 places weight on landscape mitigation.
23. Mr Brown is not a landscape architect but said that some 40 years’ experience as a planning consultant enables him to judge what will be acceptable in landscape and visual impact terms, which ultimately is a subjective judgement. In any event, the appellant draws support from the response to the planning application from the Council’s landscape consultant.
24. The Council consulted Mr Dudley on landscape matters when the application was submitted. In short, his response³ was that the development would be likely to result in some harmful effects upon the character and appearance of the local landscape, because of its incongruous appearance and the loss of characteristic grassland. It would not therefore entirely recognise the intrinsic character and beauty of this rural landscape, or accord with the Framework, PPTS and relevant development plan policies, including JCS Policy 31.
25. However, due to factors such as the restricted visual envelope of the site and the location of the development on the most sheltered part of the field, Mr Dudley’s conclusion at the time was that the conflict with national and local

³ Mr Brown’s appendix 1

policies would be insufficient to make it unacceptable in landscape and visual terms.

26. However, in oral evidence, Mr Dudley explained that his initial consultation response was “a brief outline exercise based on information communicated”, but it was “defective in terms of the baseline information relied on”. He had used the field survey findings of the Council’s planning officer, but his response would have been different had he personally undertaken a site visit. In cross examination, he said was not carrying out a full landscape and visual impact assessment (LVIA) at the consultation stage.
27. Ultimately, when the appeal was lodged, the Council revisited the issue of landscape character and visual impact, and Mr Dudley was instructed to prepare a full LVIA. I have that, in the form of his proof, along with a separate LVIA prepared by Ms Bolger on behalf of the R.6 party.
28. Both Mr Dudley and Ms Bolger are qualified landscape architects and explain that their LVIA’s have been prepared in accordance with the third edition of the Guidelines for Landscape and Visual Impact Assessment (GLVIA), published by the Landscape Institute and Institute of Environmental Management and Assessment. That is the industry standard, generally regarded as best practice and it is a material consideration for me. In line with GLVIA, both landscape architects assess landscape and visual effects separately.
29. Mr Dudley’s LVIA sets out the landscape and visual baseline context. Dealing first with **landscape impact**, in terms of Natural England’s National Landscape Character Assessment, the site lies within the Northamptonshire Vales National Character Area (NCA). This is broadly described as a series of low-lying clay vales and river valleys, including those of the rivers Nene and Welland and their tributaries. However, it has several key characteristics, of which Mr Dudley says the site and its landscape setting are highly representative, namely:
 - An open landscape of gently undulating clay ridges and valleys with occasional steep scarp slopes. There is an overall visual uniformity to the landscape and settlement pattern.
 - Diverse levels of tranquillity, from busy urban areas to some deeply rural parts.
 - A mixed agricultural regime of arable and pasture, with arable land tending to be on the broader, flat river terraces and smaller pastures on the slopes of many minor valleys and on more undulating ground.
 - Relatively little woodland cover but with a timbered character derived largely from spinneys and copses on the ridges and more undulating land, and from waterside and hedgerow trees and hedgerows, though the density, height and pattern of hedgerows are varied throughout.
 - A strong field pattern of predominantly 19th-century and, less frequently, Tudor enclosure.
 - Riverside meadows and waterside trees and shrubs are common, along with flooded gravel pits, open areas of winter flooded grassland, and wetland mosaics supporting large numbers of wetland birds and wildfowl.

- Frequent small towns and large villages often characterised by red brick buildings and attractive stone buildings in older village centres and eastern towns and villages. Frequent imposing spired churches are also characteristic, together with fine examples of individual historic buildings.
30. At the local level, Northamptonshire's current Landscape Character Assessment places the site within the Kettering and Wellingborough Slopes Character Area, associated with the Rolling Ironstone Valley Slopes Landscape Type. Among other things, that assessment says, "Despite urban influences having an impact on the character and perception of wide tracts of the landscape, much retains a quiet rural character." Mr Dudley says the following key characteristics are relevant to the site:
- Broad valley slopes dissected by numerous tributary streams.
 - Ironstone geology expressed in local vernacular buildings and in rich red soils.
 - Rolling landform, extensive views, and sense of exposure on some prominent locations.
 - Steep slopes adjacent to more elevated landscapes.
 - Numerous water bodies.
 - Productive arable farmland in medium and large scale fields predominates on elevated land although sheep and cattle pastures are also prevalent, often in smaller fields adjacent to watercourses.
 - Agricultural practices create a patchwork of contrasting colours and textures extending across valley slopes.
 - Where broadleaved woodlands and mature hedgerow trees combine, these impart a sense of a well treed landscape.
 - Building materials vary although vernacular architecture and churches display the local ironstone.
31. Mr Dudley concludes that the site and its setting are highly representative of the most positive characteristics of the Rolling Ironstone Valley Slopes. Detracting influences such as the presence of urban areas are notably absent, despite the proximity to Kettering. He says the site reflects the more positive and tranquil rural characteristics. The village of Loddington, on the ridgeline to the west, represents the only urbanising influence within this otherwise deeply rural valley landscape. However, it features a characteristic and imposing spired church and much of the village is covered by a Conservation Area designation
32. Mr Dudley says the valley is strongly characterised by the presence of the picturesque Cransley Reservoir, which the public can access and appreciate from public footpaths HC3 and GG6. The reservoir now has a tranquil, recreational character, with no motorised sports, and it supports sailing, paddleboarding and angling, as well as a Local Wildlife Site. The website of the sailing club based on the reservoir describes it as "one of the prettiest inland sailing areas in the county located in an idyllic valley", implying an associative value.

33. Mr Dudley notes that landscapes in Northamptonshire are not designated at local level. Nevertheless, he concludes in his proof and oral evidence that, having seen the area, the discrete rural valley landscape in which the appeal site is located is a “valued landscape”, for the purposes of paragraph 174(a) of the Framework. In reaching that conclusion, he had regard to a range of factors including: landscape condition; scenic quality; representativeness; conservation interest; recreation value; and perceptual aspects, namely the tranquil deeply rural character.
34. Mr Dudley also had regard to the fact that Cransley Reservoir was protected by saved Policy 10 of the Local Plan for Kettering Borough, where development would not normally be permitted.⁴ However, closer examination of the Proposals Map⁵ in cross-examination of Ms Bolger, later established that the appeal site lay outside the defined area of the reservoir for the purposes of Policy 10. In any event, when the inquiry resumed on 17 May 2022 it was confirmed that Policy 10 was no longer saved, following the adoption of the Kettering Site Specific Part 2 Local Plan in December 2021.
35. Nevertheless, when cross-examined, Mr Dudley said his conclusion that this is a valued landscape was based on his full assessment, and the development plan requirement to have regard to the Landscape Character Assessment of the area, not just on the relationship with Cransley Reservoir or the former Policy 10 protection. I note that the Northamptonshire Landscape Character Assessment includes a statement that reservoirs are an important landscape feature.⁶ I shall return to what is meant by “valued landscape.”
36. Mr Dudley finds the landscape to be particularly sensitive to new development and says that, where it may be acceptable, development should contribute to local distinctiveness and reinforce vernacular styles. He conducted a site visit and identified the relevant landscape receptors, setting out a detailed analysis of their susceptibility to change; their value and overall sensitivity; the magnitude of change resulting from the proposed development; and the overall level of impact significance. His conclusions are summarised as follows:

Landscape receptor	Overall level of impact significance
Open, pastoral grassland typical of lower valley slopes	Major/Moderate Adverse.
Well-developed boundary hedgerows and trees	Moderate Adverse.
Adjacent Cransley Reservoir	Major Adverse.
Deeply rural character to surrounding landscape	Major/Moderate Adverse.
Overall character of the Site	Major/Moderate Adverse.
Overall character of the setting of the Site	Major Adverse

⁴ Mr Dudley’s proof paragraphs 2.10 and 4.57.

⁵ Inquiry document (ID) 6

⁶ Ms Bolger’s proof, paragraph 5.2.2.

37. On behalf of the R.6 Party, Ms Bolger also finds that the landscape surrounding the site is representative of several the key characteristics of the Northamptonshire Vales NCA. She particularly highlights the following, in broad agreement with Mr Dudley:

- overall visual uniformity to the landscape;
- diverse levels of tranquilly – the deeply rural character of the location, despite the proximity to the urban area of Kettering;
- timbered character;
- strong field pattern; and
- frequent imposing spired churches, with the spire of the church at Loddington having a strong visual presence in landscape.

38. Ms Bolger similarly finds the landscape surrounding the site to be representative of the Kettering and Wellingborough Slopes Character Area, and the Rolling Ironstone Valley Slopes Landscape Type. She especially highlights the following factors, which again accords with Mr Dudley’s assessment:

- the rolling landform and extensive views;
- the numerous waterbodies, in this case, Cransley Reservoir;
- the patchwork of contrasting colours and textures extending across valley slopes; and
- the sense of a well-treed landscape.

39. Ms Bolger finds that the ridge and valley formation is clear in the landscape surrounding the site and Cransley Reservoir is an important landscape feature lying between two ridges on which the villages of Loddington and Great Cransley are located. Cransley Road links those ridges, rising and falling with the rolling landform and, despite the proximity to the urban edge of Kettering the area has a well-managed rural character and a strong sense of place.

40. Ms Bolger finds that the value of the landscape in which the site is located is high. She undertakes a similar assessment to that of Mr Dudley and agrees that it should be considered a “valued landscape” for the purposes of paragraph 174(a) of the Framework. She describes the site as an integral part of the landscape that provides a setting to Cransley Reservoir. The previous character of the site, a small sloping hedged field of improved or semi improved grassland, was entirely in keeping with the rural nature and quality of this valley landscape and made a positive contribution to the setting of the reservoir.

41. In finding this to be a valued landscape, Ms Bolger also relied to some extent in her proof on her contention that the site was covered by Policy 10 of the Local Plan for Kettering Borough. However, when cross-examined, she accepted the site lay outside the Policy 10 area, and that policy is no longer saved anyway. Nevertheless, Ms Bolger maintained that a landscape does not have to be designated to be a valued landscape for the purposes of the Framework. This is consistent with advice in GLVIA and Technical Guidance Note 02/21 (Assessing

landscape value outside national designations), which is also published by the Landscape Institute and indeed Ms Bolger is one of its authors.

42. In any event, Ms Bolger said that, even if this is found not to be a valued landscape for the purposes of the Framework, that does not mean there would be no significant landscape harm, should the appeal proposals be allowed. It still contains many valued features which are an integral part of the intrinsic character and beauty of the countryside. Having regard to the distinctive qualities, she finds the following harm:
- The topography of the valley slope within the site has been altered and the overall integrity of the valley side harmed as a result of the ground levelling.
 - There has been a loss of pasture, harm to the hedgerows and potential harm to hedgerow trees.
 - The setting of the reservoir has been harmed by the introduction of visually intrusive and incongruous development.
 - The impression of a well-wooded landscape has been interrupted.
 - The settlement pattern has been diluted.
 - The quiet, rural, and well managed character has been disrupted, particularly as experienced from Cransley Road.
43. Ms Bolger says the unauthorised and proposed works are not sensitive to the landscape setting and would harm rather than enhance the distinctive qualities of the Kettering and Wellingborough Slopes LCA. Whilst Mr Dudley looked at individual receptors, Ms Bolger explained in cross-examination that she takes a broader approach; there is no set procedure, but both approaches are consistent with GLVIA and require professional judgements. Her broad findings are that:
- the site has **medium/high** susceptibility to the change proposed due to the harm that would be caused to the distinctive qualities of the Kettering and Wellingborough Slopes LCA;
 - considering the **high** value of the landscape in which the site is located and the **medium/high** susceptibility of the site to the development proposed, the sensitivity of the site to the proposed development is **medium/high**;
 - the magnitude of change is **medium** and the nature of the change would be **adverse**. The overall effect on the landscape would be **moderate/major** adverse, the magnitude of change would be medium and the nature of the change would be adverse; and
 - the overall effect on the landscape would be **moderate/major adverse**.
44. These conclusions are broadly in line with those of Mr Dudley and Ms Bolger confirmed that a moderate/major adverse effect amounts to a significant adverse impact in terms of JCS Policy 31(h).
45. Returning to the question of valued landscapes, on day 3 of the inquiry Mr Masters accepted that, having regard to *Nixon & East Herts DC v SSCHLG & Mahoney* [2020] EWHC 3036 (Admin)⁷ a landscape does not have to be

⁷ ID8.

designated to be a valued landscape for the purposes of the Framework; it is simply a matter of judgement. However, on resumption, Mr Masters reopened that question when taking Mr Brown through his evidence in chief. He ultimately submitted that, in *Nixon*, the court merely considered whether the Inspector had properly applied the test in *Forest of Dean DC v SSHCLG* [2016] EWHC 2429, the relevant passage from that judgment being quoted at paragraph 50 of *Nixon*, as follows:

“31. As I have indicated, it was common ground between the parties before the Inspector that the relevant landscape was not designated; and, following *Stroud*, the issue for the Inspector was whether the landscape was "valued" in the sense that it had physical attributes which took it out of the ordinary. On the basis of the submissions made to him, that was quite clearly an issue that required determination.” [emphasis added]”

46. Mr Masters noted that both paragraph 174(a) in the current version of the Framework and paragraph 170(a) of the 2019 version, in force at the time of *Nixon*, stated as follows:

“...Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)...”

47. Mr Masters’ point for the appellant is that, at the time of the judgment in *Forest of Dean*, the words in parenthesis were not included in the equivalent paragraph of the Framework. Mr Masters was one of the advocates in *Nixon* and says this point was never made to the court.

48. However, the question before the court in *Nixon* was, “whether the Inspector erred by finding that this was not a valued landscape within the meaning of [170] of the NPPF.” Paragraph 170 was set out in full in the judgment, including the words in parenthesis. The court in *Nixon* was applying *Forest of Dean*, but nevertheless held in unequivocal terms that, “Ultimately the question of whether or not the area is a valued landscape is a matter of planning judgement. The Inspector applied paragraph 170 correctly by considering whether it was within a statutory designation and whether it had any particular qualities that took it out of the ordinary...”

49. I am unable to conclude that, having clearly stated the terms of paragraph 170, Mrs Justice Lieven simply misunderstood it. Where valued landscapes are designated, the Framework now requires their protection and enhancement in a manner commensurate with their designation. However, I am not driven to the conclusion that a landscape must be nationally or locally designated to be a valued landscape. Moreover, the requirements in JCS Policy 31(h) and 3 to take account of the Landscape Character Assessment of the area effectively necessitates protection commensurate with the identified quality of the landscape.

50. I am also mindful of Ms Bolger’s evidence that, whilst a local landscape designation would indicate value, many planning authorities gave up on local designations, as they were encouraged by national policy to rely on criteria

based policies such as JCS Policy 3. It is unreasonable to assume all those local authorities no longer have valued landscapes outside national designations.

51. I respect Mr Brown’s professional experience and judgement as a planner. However, I have summarised the more detailed, methodical, and rigorous analysis of the 2 landscape architects, in line with transparent criteria from GLVIA, and I find that more compelling. The proposed development, including extensive hard surfacing within the site, reprofiling and terracing, the alterations to the access, the proposed utility buildings, siting of mobile homes and caravans and erection of fences would effect a marked change in the character of the landscape.
52. Nothing from my own extensive inspection of the area leads me to depart from the landscape architects’ conclusions. They clearly indicate that the development would be incongruous and have a significant and unacceptably adverse impact on the character of the landscape. I also accept their oral evidence that the harm to landscape character, as opposed to visual impact, could not be mitigated by planting. Mr Brown tended to talk as if landscape impact and visual impact were the same thing.
53. I also find that the landscape qualities identified mean the area is out of the ordinary. These include the deeply rural and tranquil character of the locality; its scenic quality and contribution to the setting of the very pretty Cransley Reservoir; and the degree to which the site and area are representative of key characteristics in the NCA & relevant Northamptonshire Landscape Character Assessment area. I am satisfied that it is valued landscape for the purposes of paragraph 174(a) of the Framework.
54. Turning to **visual impact**, Mr Dudley established a Zone of Theoretical Visibility to identify a list of visual receptors to guide his field survey and find representative viewpoints. These assisted my own unaccompanied inspections. The visual envelope is heavily influenced by the valley landform. Whilst no views are likely to be available beyond the ridges, the sloping nature of the site results in significant exposure across the valley slopes and reservoir, particularly in winter, given the deciduous nature of surrounding vegetation.
55. Mr Dudley considered the identified visual receptors in terms of their sensitivity to change, and the magnitude of change caused by the development, to form a view on the extent of any adverse impact. In the context of his belief that before the development of the site, there were no visually detracting features, Mr Dudley’s conclusions can be summarised as follows:

Visual receptor	Visual impact
Users of Public Footpath GG6	Major/Moderate Adverse
Users of Cransley Reservoir	Major Adverse
Users of Public Bridleway GR10	Major/Moderate Adverse
Users of Cransley Road	Major/Moderate Adverse
Users of Public Footpath GR5	Moderate Adverse
Users of Northfield Road	Moderate Adverse

56. Ms Bolger similarly assesses visual effects as being a result of the sensitivity of visual receptors and the magnitude of change to existing views. She explains that the most sensitive receptors are residents at home; people engaged in outdoor activities whose attention is focused on the landscape and view; and visitors to heritage assets or other attractions, where views are an important part of the experience. The sensitivity of road users varies according to how busy or main the route is. Those on busy or main routes are considered to have medium or low sensitivity, whilst users of rural roads or scenic routes will have medium or even high sensitivity.
57. Having regard to the sensitivity of the visual receptors and the magnitude of change, Ms Bolger’s conclusions in relation to what she identifies as the main receptors are as follows:

Visual receptor	Visual impact
Users of Public Footpath GR10	Moderate Adverse in summer Moderate/Major Adverse in winter
Users of Public Footpath GG6	Minor Adverse in summer Moderate Adverse in winter
Users of Cransley Road	Moderate Adverse in summer Moderate/Major Adverse in winter
Users of/visitors to Cransley Reservoir	Minor Adverse in winter Moderate Adverse in winter
Users of Public Footpath GR5	Minor Adverse

58. Mr Dudley and Ms Bolger therefore agree that the visual impact on users of the bridleway GR10 and Cransley Road would be moderate/major adverse, at least in winter, and this conforms with my own view. Whilst there were still leaves on the hedges and trees during my November site visits, it was clear that these vantage points afford more than the glimpsed views described by Mr Brown.
59. From the bridleway, even without the more urbanising effect of the proposed utility buildings and mobile homes, whatever their colour, the site represented quite a dense collection of caravans and vehicles. For those enjoying a walk or ride along the bridleway, this is a marked change from the previous pastoral field. The site appears incongruous in this tranquil valley, detracting from the rural setting of the reservoir and the area generally. Although some of the site residents said the site was untidy before they moved onto it, I have seen no evidence to indicate that its prior condition seriously diminished its value in visual amenity terms.
60. I note Mr Brown’s contention that caravan sites are not unexpected in locations such as this. My attention was drawn to one Caravan Club Site at Northfield Farm, Northfield Road and, with the parties’ agreement, I visited that location unaccompanied on 26 May 2022. However, that is some 2 miles by road from the appeal site and the caravan pitches are set back from

Northfield Road, with any views being screened by a roadside hedge and bank, and rising ground beyond those. Other than from signage, that caravan site was not apparent from the road, and I was not made aware of any public rights of way from which it might be viewed. The visual impact of that site is not comparable to that of the appeal site and its existence does not indicate that caravan sites are characteristic of this area.

61. From Cransley Road, there are views into the appeal site, which is now largely hard surfaced, with terracing and internal fencing and it is populated by caravans and vehicles. The proposal would add mobile homes and utility buildings and the alterations and increased hard surface at the access exacerbate the site's visual impact. That involves a prominent interruption to the former glimpsed views of the reservoir across a grassland site. Those views are clearly illustrated by photographs appended to Mr Dudley's and Ms Bolger's proofs. Whilst planting along the lines indicated on the site layout plan could partially mitigate the adverse visual impact, given the topography and extent of development, I am not persuaded that suitable planting would reduce it to an acceptable level.
62. Mr Dudley was more concerned than Ms Bolger about the impact on users of Cransley Reservoir, footpaths GG6 and GG5 and Northfield Road. Ms Bolger says the impact on users of and visitors to Cransley Reservoir is likely to be similar to that on the users of footpath GG6. I agree, save that those on the water will come closer to the site than those on GG6, which traverses the dam at the reservoir's eastern edge.
63. Mr Dudley's Zone of Theoretical Visibility plan indicates that this development on the lower valley side is likely to be visible across a significant proportion of the reservoir. The site was formerly an area of sloping pasture, which contributed to the attractive, rural backdrop to the reservoir; the "idyllic valley" setting referred to on the sailing club's website.
64. Being located on the ridge above the valley, the village of Loddington does not detract significantly from that setting. Notwithstanding that some of the village development may be recent, this is a historic settlement. Settlements on upper valley slopes are characteristic of the Kettering and Wellingborough Slopes Character Area, and St Leonards Church is an example of the imposing spired churches, which are among the key characteristics of the NCA.
65. Having regard to Ms Bolger's explanation of the sensitivity of receptors, the attention of people enjoying activity on and around the water will be focused on the landscape and views to a significant extent. The landscape and views will be important aspects of the experience of the reservoir, as an attraction in itself. Taking the evidence of Mr Dudley and Ms Bolger together with my own observations, I am satisfied that the visual impact of the development on users of Cransley Reservoir will be at least moderate/major adverse.
66. The attention of users of footpath GG6 will also be focussed on the landscape and view, but from further away than for some users of the reservoir. Caravans on the site were visible from that footpath when I visited, as was some lighting at dusk. I would chart a middle course between the evidence of Mr Dudley and Ms Bolger on this. I conclude the impact on those users would be moderate adverse, even though lighting, including from caravans, utility buildings and vehicles could exacerbate the impact after dark.

67. In reaching that conclusion, I have taken account of the fact that, as I walked south in failing light across the dam on footpath GG6, my eye was to some extent drawn to the extensive lighting around Nus Hill Lodge to the southeast of the appeal site, particularly that around the property's access road. Nus Hill Lodge appears on an 1884 Ordnance Survey map and, whilst it is probably largely residential now, it has obvious agricultural origins. That lighting does cause some harm, but Nus Hill Lodge is not on the same valley side as the appeal site, which was previously dark, between the reservoir and Loddington on the ridge.
68. The existence of lighting at Nus Hill Lodge does not justify its introduction at the appeal site location. External lighting could be controlled by condition to some extent, but there would be at least some light spillage from mobile homes, caravans, utility buildings and vehicles.
69. Though some distance from the appeal site, footpath GR5 affords panoramic views across the pastoral valley. It allows a good appreciation of the very attractive, tranquil, and largely undeveloped rural character of the area. Users of the footpath can see the Loddington Grange farm complex nearby to the east, and a barn to the northeast of the appeal site. However, these are expected features a rural setting and are not located in the valley bottom.
70. When I walked footpath GR5, I could see one white shape on the appeal site. However, the deciduous tree and hedge cover was still substantially in leaf. There would probably be more significant views in winter, and when the mobile homes and utility buildings were in place, along with attendant touring caravans and vehicles. This would be so, even if the mobile homes were finished in colours other than white, and even with further suitable planting on site. I am satisfied that the visual impact on this receptor would be moderate/adverse in winter.
71. From Northfield Road⁸ too, I could see white shapes on the site, which I knew to be caravans. However, the distance is significantly greater than that from relevant parts of footpath GR5, and the buildings at Nus Hill Lodge are more prominent in the intervening ground. Drivers, and even vehicle passengers, are unlikely to notice the appeal site, given the distance and their probable speed of travel.
72. Furthermore, whilst this rural road may attract walkers, cyclists, and riders, unlike footpath GR5, its function is not primarily recreational walking, so peoples' attention would not be so focused on the landscape and view. Ms Bolger does not assess visual impact from Northfield Road itself and, in all the circumstances, I find that the impact on this receptor would be no more than minor/adverse.
73. For the reasons given, I find that the development would have a moderate/major adverse visual impact on the users of bridleway GR10, Cransley Reservoir and Cransley Road. It would have a moderate adverse impact on the users of footpath GG6 and GR5 and a minor impact on users of Northfield Road. All of these, save perhaps Northfield Road, are important vantage points.

⁸ In particular, Mr Dudley's viewpoint 5, at his appendix 7.

Conclusions on the first main issue

74. Any gypsy caravan site is likely to detract from the character and/or appearance of the countryside in some way and it is clear from PPTS that such sites can be acceptable in the countryside. However, I have had regard to the scale, characteristics, and visual impact of this particular development in this specific, deeply rural, and tranquil valley landscape. I have been guided by the transparent assessments made by two highly experienced and qualified landscape architects.
75. Notwithstanding the deficiencies in the initial consultation response to the Council, the assessments now before me have been carried out in accordance with GLVIA. For all the reasons given, I conclude that, having regard to the Landscape Character Assessment of the Area, the proposal would have a significant adverse impact on the character of the landscape, and a significantly detrimental visual impact on the countryside. Neither of these impacts could be adequately mitigated by appropriate landscaping or boundary treatment. The advice in PPTS that traveller sites should not be enclosed with so much hard landscaping, high walls, or fences to create an impression of deliberate isolation does not mean these detrimental impacts should be tolerated.
76. The development therefore conflicts with JCS Policy 31(h), which is the most directly relevant one. However, I need to consider the most relevant policies; not just the single most relevant policy. As found in another recent appeal Ref APP/L28/W/20/3247096 in this Council's area,⁹ and as ultimately accepted by Mr Brown in cross examination, JCS Policy 3 is also relevant in conjunction with Policy 31(h). This is so notwithstanding the Council's decision notice did not refer to Policy 3. The scheme also conflicts with that policy, which requires development to be located and designed in a way that is sensitive to its landscape setting, retaining and, where possible, enhancing the distinctive qualities of the landscape character area which it would affect.
77. At paragraph 174(b), the Framework requires decision makers to recognise the intrinsic character and beauty of the countryside. The significant adverse impact in this case means that a grant of planning permission would not recognise that. In addition, whilst the conflict with JCS Policies 31(h) and 3 does not depend on this, as the landscape is worthy of protection anyway, I have also found that the site lies within a valued landscape. Paragraph 174(a) of the Framework indicates that such landscapes should be protected and enhanced. The appeal scheme would fail to do so, and this breach of national policy exacerbates the conflict with the development plan policies.
78. Regardless of whether I am correct to conclude that the site lies within a valued landscape, the harm to the character and appearance of the landscape is significant and carries substantial weight.

Access to services and facilities

79. JCS Policy 31(a) requires gypsy and traveller sites to be closely linked to an existing settlement with an adequate range of services and facilities. The policy does not define "closely linked" or what amounts to an "adequate range of services and facilities." However, I am satisfied that the approach taken by the

⁹ Mr Jupp's appendix 15.

Inspector in a recent appeal Ref APP/L2820/W/20/3247096¹⁰ (the Bowd Field appeal) is reasonable.

80. Accordingly, reference can be made to advice in PPTS. Paragraph 25 says new traveller site development should be very strictly limited in the open countryside, away from existing settlements or outside areas allocated in the development plan. Paragraph 13 seeks to promote access to health services and schools and the provision of settled bases to reduce the need for long-distance travel.
81. The appellant contends paragraph 25 is aimed more at limiting encroachment into the open countryside but, like the Inspector in the Bowd Field appeal, I see no reason why it cannot also concern access to services and facilities. Although paragraph 13 is in the plan making section of PPTS, it follows from paragraph 4 in the general introductory section, which sets out the Government's aims in respect of traveller sites. These include enabling the provision of suitable accommodation from which travellers can access education, health, welfare, and employment infrastructure. It is appropriate to consider both the spatial and functional relationship with settlements.
82. Policy 31(a) does not explicitly say that for a site to be closely linked to a settlement, there must be access via sustainable transport modes. However, if access can only realistically be gained through private car journeys, that has a bearing on how close the link is in practice.
83. Furthermore, paragraph 105 of the Framework says significant development should be focussed on locations which are or can be made sustainable through limiting the need to travel and offering a genuine choice of transport modes. Mr Brown accepted in cross-examination that whether development is significant in this context is a matter of planning judgment. Given the number of pitches and the likely number of residents, this is a significant development in this rural location. That said, paragraph 105 acknowledges that opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be considered in both plan-making and decision-making.
84. The village boundary of Loddington is only about 350m north of the appeal site. However, Cransley Road is subject to the national, 60mph speed limit, and has no footways or lighting. From my own observations, conditions do not make walking an attractive proposition, particularly with young children, for example to get to school, and/or in poor light or weather. Pedestrians are highly likely to encounter cars and, having regard to the highway evidence, 85th percentile speeds are above 40mph. Less confident cyclists may also find this route into the village unattractive. The bridleway offers an alternative walking route but is longer and the surface will be muddy in wet weather. None of the site residents indicated that they use it to walk into Loddington.
85. In any event, Mr Brown accepted in cross-examination that it is the close links to services which count, rather than just the settlement boundary. Loddington offers only a limited range of services, namely a primary school, 1.05km away; a pub at 1.03km; a church, 1.3km away; a children's playground at 1.4km and

¹⁰ Mr Jupp's appendix 15 and Mr Brown's appendix 9.

a village hall, 1.1km away. A post office is run from the village hall for 2 hours on a Monday.¹¹

86. Mr Brown's proof indicated that, in the emerging Kettering Site Allocations Part 2 Local Plan, Loddington was among the "Category A" villages, which he described as being the most sustainable locations for small scale development. I am not aware that this categorisation changed when the plan was adopted, but the Local Plan Inspector's report, appended to Mr Brown's evidence, indicated that only infill sites would normally be permitted within the settlement boundaries of Category A villages.
87. Even if the appeal site could be said to be closely linked to Loddington, it is not within the settlement boundary and that village does not provide an adequate range of services and facilities sufficient to satisfy JCS Policy 31(a). The written evidence refers to a bus service and there is a bus stop/shelter in Loddington. However, oral evidence satisfied me the service was discontinued some years ago and I saw no indicators of an active service at the bus stop. There appears to be no bus service to Great Cransley either.
88. The written evidence was that there was a pub at Great Cransley, to the south of the site. However, I was told this has closed, and there are no facilities in Great Cransley, aside from a village hall.
89. Broughton has a primary school, convenience retail, hot food takeaway, village hall and public house. It is also a Category A village but, although it lacks a GP surgery, it might be said to provide an adequate range of services and facilities. Nevertheless, it is 2.9km by road from the site, being separated from it by fields and open countryside, Great Cransley and the A43. It is not a comfortable walk from the appeal site, either in terms of distance or the walking environment along much of the route. Although one site resident said his children cycle to the shops by road, there is no evidence that site residents often do so, and less confident cyclists may also find this route into Broughton unattractive. Other residents told me that they use their cars for shopping, and Mr Brown indicated cars are likely to be used for most journeys.
90. Broughton is not closely linked to the appeal site in spatial terms and access to it is likely to be by private car. Rothwell is categorised as a market town and has a wider range of services and facilities, including a GP surgery. However, it is further from the appeal site, and at 5km, Kettering Town centre is more distant still.
91. I note the Inspector's comments in the 2013 appeal Ref APP/J0405/C/13/2193601¹² (the Willows Park appeal). This concerned a site 800m from the nearest hamlet, 1.5km from the nearest village of Slapton, and 5km from facilities and services essential for day-to-day living. Albeit that the site was served by school buses, the Inspector found that the occupiers would rely on the private car and travel moderate distances to access shops and services. In the context of the Framework and PPTS at the time and, having regard to the fact that gypsies have a travelling way of life, the Inspector concluded that site would not be unacceptably unsustainable. It would be no less sustainable than

¹¹ Both the Council and R.6 party provide measurements. Where they differ, I have used the shortest measurement.

¹² Mr Brown's appendix 2.

a small housing scheme that the local plan would permit on the edge of Slapton.

92. However, the Willows Park decision concerned an extension to an existing site and was made in a different development plan context and specifically not against the background of any policy like JCS Policy 31(a). Furthermore, whilst the version of PPTS current at the time of the Willows Park appeal decision provided that local planning authorities should “strictly limit new traveller site development in open countryside”, the word “very” has now been added. Mr Brown accepted in cross examination that the purpose of this must have been to “beef up” the limitation.
93. By contrast, appeal Ref APP/L2820/W/15/3131916¹³ (The Braybrooke appeal) concerned a gypsy site at Braybrooke in this district, and the application of JCS Policy 31. The nearest settlement with an adequate range of services was the town of Desborough, some 3.5km away and the Inspector found that most journeys would be made by private car. In this case, the appellant says Rothwell provides a similar range of services to Desborough and, at 3.4km, it is a very similar distance from the appeal site.
94. However, in the Braybrooke appeal, several children from the site had attended school in Desborough for many years; the appellants were registered with doctors and dentists there; and some of the occupiers were employed in the town. The Inspector concluded that whilst the appeal site maybe physically detached, there were strong established economic and social links between the use of that site for gypsy and traveller purposes and the existing settlement. As a result of the existing patterns of travel and usage, the Inspector considered that the site would satisfy the requirements of Policy 31.
95. Although one resident said his children had made friends with others in the village, there is no evidence to show similar existing patterns and functional links in this case to enable me to identify a close link, in terms of Policy 31(a). Some residents keep horses 8 miles away and others keep them near Leicester, visiting once or twice per week. Some site occupants also make the 70 mile round trip to Leicester to attend their chosen church, 3 times per week. Other spend 4- 5 months of each year in Canada.
96. As a matter of judgment in this case and having regard to the most recent Bowd Field appeal decision, I conclude the appeal site is not closely linked, either spatially or functionally, to an existing settlement with an adequate range of services and facilities. There is therefore conflict in this case with JCS Policy 31(a) and PPTS paragraph 25.
97. I acknowledge that adequate services and facilities can be accessed through relatively short car journeys and sustainable transport solutions are inevitably more limited in rural areas. Nevertheless, there will be rural sites which, notwithstanding their spatial separation, have better access to services and facilities on foot or by other sustainable modes of transport.
98. I also acknowledge that the provision of a settled base could limit journeys for work, as well as to find places to stay, whilst also enabling access to health and education services in line with PPTS 4 and 13. These are material considerations, notwithstanding the conflict with JCS Policy 31(a), paragraph

¹³ Mr Brown’s appendix 6.

105 of the Framework, and PPTS paragraph 25 and I therefore attach limited weight to the harm arising from the lack of close links to services and facilities.

Highway safety

99. JCS Policy 31(e) and (f) together require, among other things, that gypsy and traveller sites should have satisfactory and safe access. JCS Policy 8(b) similarly seeks to ensure satisfactory access and avoid prejudice to highway safety. These policies are consistent with paragraph 111 of the Framework, which provides that development should be prevented where there would be an unacceptable impact on highway safety.
100. Cransley Road is an unclassified rural distributor road, and in the vicinity of the appeal site, it is subject to the national speed limit of 60mph. There is a slow bend to the south of the site access. In front of the site and to the north, the road is straight, but it rises, creating a crest. That crest restricts visibility to the north, whilst hedges limit it to the south.
101. The key difference between the parties is whether visibility splays should be provided in accordance with the Design Manual for Roads and Bridges (DMRB) or Manual for Streets (MfS or MfS1) and MfS2. I heard a great deal of evidence concerning this question.
102. The appellant's broad starting proposition is that the advice in DMRB is aimed at maintaining constant speed and indeed TD 41/95 said the aim was to ensure emerging traffic did not influence speeds on major roads. However, TD 41/95 has been superseded by CD123 & CD185 and there is no longer any reference to that purpose. I respect Mr Brown's extensive experience as a professional planner but am not persuaded that this fundamental statement of purpose was removed purely to "reduce verbiage", as he suggested. Both expert highway witnesses, namely those for the Council and R.6 party, expressed the view that DMRB advice concerning visibility splays is also aimed at ensuring vehicles can stop safely and that is probably correct.
103. The 'Status and application' section of MfS says:
- "MfS focuses on lightly-trafficked residential streets, but many of its key principles may be applicable to other types of street, for example high streets and lightly-trafficked lanes in rural areas. It is the responsibility of users of MfS to ensure that its application to the design of streets not specifically covered is appropriate. MfS does not apply to the trunk road network. The design requirements for trunk roads are set out in ...DMRB."
104. MfS indicates that "streets" are highways which have "important public realm functions beyond the movement of traffic." They should have "a sense of place" and they also provide direct access to the buildings and spaces that line them. In these terms, Cransley Road is not a street and MfS focuses on residential streets. However, as indicated, it also applies to lightly-trafficked lanes in rural areas.
105. An automated traffic count (ATC) commissioned by the Highway Authority in June 2020 indicated 886 daily vehicle movements. For the appellant, Mr Brown drew attention to paragraph 7.9.3 of MfS which refers to "a relatively low limit on traffic flow (300 vehicles per peak hour or some 3,000 vehicles per day)." However, that relates to decisions about whether direct access is appropriate.

Mr Brown accepted it does not provide a definition of lightly trafficked for the purposes of MfS and I do not consider those figures directly relevant.

106. The expert highway witnesses did not consider Cransley Road to be a lightly trafficked rural lane and cautioned that the ATC was conducted during a period of Covid-19 restrictions. Travel restrictions were in place and working from home was encouraged¹⁴. Accordingly, the ATC will have revealed uncharacteristically low vehicle movements. This was accepted by Mr Brown who, in oral evidence, indicated that a more recent survey had revealed some 1,500 vehicle movements per day.¹⁵
107. In any event, Cransley Road is a rural distributor road which links Loddington to Great Cransley, Broughton and the A43. Notwithstanding the rural setting and having regard to my own observations and the evidence of a neighbouring resident, I see no reason to disagree with the view of the expert highway witnesses that it is not a lightly trafficked rural lane, in terms of MfS.
108. The 'Status and application' section of MfS2 says:
- "MfS2 builds on the guidance contained in MfS1, exploring in greater detail how and where its key principles can be applied to busier streets and non-trunk roads, thus helping to fill the perceived gap in design guidance between MfS1 and...DMRB.
- DMRB is the design standard for Trunk Roads and Motorways ... The strict application of DMRB to non-trunk routes is rarely appropriate for highway design in built up areas, regardless of traffic volume."
109. The appeal site is not in a built up area, but para 1.3.2 of MfS2 says MfS should be the designer's starting point for any scheme affecting non-trunk roads. Paragraph 1.3.1 and table 1.1 indicate that key areas of advice, derived from principles contained in MfS can be applied, based on speed limits. Those areas of advice include stopping sight distance (SSD) but where, as here, the speed limit exceeds 40 mph, this is subject to local context.
110. Having regard to the evidence in this appeal, the local context is that there are no public realm features, or significant 'friction' associated with people crossing, children appearing from behind parked cars, or vehicles exiting from side roads. Paragraph 1.3.7 of MfS2 acknowledges that many parts of the highway network in rural areas are subject to the national speed limit but have traffic speeds significantly below 60mph. It provides that, in these situations MfS SSD parameters are recommended.
111. However, the appellant commissioned handheld radar speed surveys at one location to the north of the appeal site access and 1 to the south. These recorded average 85th percentile speeds of 40mph northbound, 41mph southbound and up to 42mph past the site. The Council's ATC survey was conducted at one point 100m to the north of the site access. That survey recorded 85th percentile speeds of 46.2mph southbound and 45.4mph northbound. The Council suggests the ATC results are more reliable as handheld radar guns can affect driver behaviour. There is logic in that position

¹⁴ ID20.

¹⁵ I have not seen that survey, because it was part of expert highway evidence which the appellant had attempted to introduce very late in the proceedings, shortly before resumption in May 2022. Having sought and considered written representations from the parties, I refused to accept that evidence.

and whilst, within DMRB, CA 185 indicates that handheld radar surveys are acceptable, it acknowledges that potential effect.

112. There was extensive debate about whether, when calculating SSDs under MfS it is necessary or appropriate to apply a wet-weather reduction to speeds ascertained through surveys undertaken in dry weather. Whatever the correct position in that context, I see no reason to make such an adjustment when taking account of actual speeds as part of my judgment of whether MfS or DMRB is appropriate.
113. Taken together, the survey evidence indicates that speeds on this section of Cransley Road exceed 40mph. In these circumstances, having regard to MfS2 paragraph 1.3.1 and table 1.1, and given the overall local context described, as a matter of judgement, I am not persuaded that the guidance in MfS is appropriate. I will look instead to DMRB. When applying DMRB, both highway experts confirmed there is no requirement to make a wet-weather adjustment to speeds recorded in dry weather; CA 185 only requires an adjustment from wet to dry.
114. In CD 109 and CD 123, DMRB indicates that visibility splays should be measured using a set back from the carriageway edge ('X distance') of 2m, a driver's eye height of 1.05m and an object height of 0.26m. By contrast, the object height specified in MfS and MfS2 is 0.6m. There was lengthy debate about the reasoning behind that 0.26m object height. Mr Brown said it would represent no more than a person lying in the road and Mr Dudley contended that it could cover a recumbent bike. I favour Mr Brazier's explanation that 0.26m is just a point at which you can see a vehicle travelling along the road; you can see part of a vehicle as it emerges over the crest of a hill. In any event, 0.26m is the height specified in DMRB.
115. For the appellant, Mr Brown only calculated visibility splays in accordance with MfS. For the Council and R.6, Mr Draper and Mr Brazier calculated them in accordance with DMRB. Their approaches differed in that Mr Draper used both the ATC and radar speed survey results. He also extracted different figures from the appellant's survey, which was conducted at two locations; one to the north of the appeal site access and one to the south. It was also conducted for 1 hour in the morning and 1 hour in the afternoon at each location and this enabled Mr Draper to determine both maximum and average 85th percentile figures from those results. To be more generous to the appellant, Mr Brazier relied entirely on the appellant's speed survey results.
116. Mr Draper's proof indicated that, under DMRB, the required visibility splay to the north would be 128-132m, based on the 45-46 mph ATC survey result; or 110m, based on 42mph, being the maximum 85th percentile radar survey speed southbound. He also provided a figure based on the 85th percentile speed in both directions north of the access. However, the relevant speed is that of southbound vehicles, towards the site access.
117. Mr Brazier's proof indicated that the required visibility splay to the north would be 103.2m. This is based on 40mph, being the average of the 85th percentile southbound vehicle speeds, as measured in the morning and afternoon radar surveys.
118. Turning to the required visibility splay to the south, Mr Draper's proof did not cover this, but Mr Brazier's indicated that it should be 108m, based on 41mph,

this being the average of the 85th percentile northbound vehicle speeds, as measured in the morning and afternoon radar surveys. The evidence regarding required visibility splays under DMRB was not challenged by the appellant, who relied on his contention that they should be determined in accordance with MfS, a contention which I have rejected.

119. Various figures were given for achievable splays in written and oral evidence, but it was agreed that these should be assessed on site. Those attending the site visit included Mr Brown for the appellant and Mr Draper for the Council. With their agreement, various measurements were taken and agreed using a measuring wheel. These included those based on the 2m X distance, 1.05m driver's eye height, and the 0.26m object height specified in DMRB.
120. On that basis, the agreed available visibility splay to the north is 81.2m. This is significantly short of even the lower requirement figure of 103.2m, suggested by Mr Brazier, based on the appellant's radar survey.
121. The agreed available visibility splay to the south is 69.9m. This is even further short of the 108m splay requirement identified by Mr Brazier, using the appellant's speed survey results.
122. I note that, leaving aside the possible detrimental impact on character and appearance, visibility to the south could be improved by cutting back the hedge. Furthermore, the 69.9m was measured to the nearside carriageway edge. Whilst there is nothing to stop vehicles crossing the centre line, it is only overtaking vehicles which are likely to be in that carriageway approaching the site access. Visibility of vehicles approaching in the far side carriageway is much better, until the road bends to the right beyond the southern extremity of the site. That said, even under MfS, the appellant's evidence is that a visibility splay of 79.2m would be required to the south. Bearing in mind that MfS recommends an X distance of 2.4m, the available splay measured on site was only 50m to the nearside carriageway edge.
123. I am mindful of the fact that there have been no recorded personal injury accidents on this stretch of road in the past 5 years. However, the current use of the site commenced less than 3 years ago. Before that, use of the site access would have been very limited. Moreover, for much of the time since the appellant's use commenced, traffic on Cransley Road will have been significantly reduced by Covid-19 restrictions. The lack of recorded accidents therefore provides insufficient reassurance.
124. I conclude on the evidence that, because of restricted visibility, there would not be satisfactory and safe access to the site, and there would be an unacceptable impact on highway safety. This concern is exacerbated by the likely frequent need for vehicles to enter and exit the site towing caravans. The possible scope for cutting back vegetation to the south would not overcome this, whilst potentially adding to the harm to character and appearance. For the reasons given, the development would conflict with JCS Policies 31(e) and (f) and 8(b), and with paragraph 111 of the Framework and I attach significant weight to that harm.

Whether the development will result in contaminated runoff impacting on the Cransley Reservoir Local Wildlife Site

125. This issue was considered at an RTS, in which the main participants were Ms Burnham and Mr Jupp for the Council, Mr Brown for the appellant and Mr Hughes for the R.6 party. Ms Burnham is the Senior Flood Water and Water Officer for West Northamptonshire Council, which currently provides Lead Local Flood Authority services to the Council. She was the only witness to give expert evidence on the drainage issue and the R.6 party adopted the Council's position. Comment in Mr Brown's proof was limited to a statement that the site is not located within an area shown on the Environment Agency's flood maps as being at high risk from flooding.
126. Ms Burnham confirmed there are no concerns regarding flooding on the site itself, but there is a risk of flooding from increased runoff from it. Surface vegetation has been removed and hardcore has been deposited across the central and southern parts, formed into terraces, to reduce the natural gradient.
127. Though not covered in their written evidence, two of the site residents said hardcore, comprising large stones, was deposited on site to a depth of about 1m. However, Mr Jupp said he went on site during construction and saw that brick rubble was being used, but with very small pieces and a lot of fines, rather than large lumps. Given the detail, I consider that the best evidence I have on the nature of the hard surface, below the top layer. I have no excavation survey evidence before me, and Mr Brown did not visit during construction.
128. Nevertheless, although this was not covered in his proof, Mr Brown indicated that the hardcore is permeable and said that, from information on the British Geological Survey (BGS) Website, the underlying geology is a weathered Northamptonshire Sand formation. Accordingly, he contended that surface water could discharge to the ground via infiltration. However, Ms Burnham said in her proof and confirmed at the RTS, BGS data indicates the site is likely to be underlain by Whitby Mudstone, which will have limited infiltration potential. Though gravel and sand layers may be present at shallow depths in the southern part of the site, which could allow some infiltration, she says the proximity of the water course and possible high groundwater levels at this location would likely preclude infiltration as an option for discharge of runoff.
129. Furthermore, Ms Burnham said, as the hard surface includes "MOT type 1" material comprising gravel, sand, and silt, this will compact down very hard to form an almost impermeable surface over time, regardless of the underlying geology. Even though water may pass quickly through upper layers of larger stone, and indeed one site resident says water never lies on the surface, this compaction is likely to greatly reduce permeability.
130. Following the conclusion of the RTS on drainage and indeed only at the end of the next RTS on ecology, both of which were on 19 May 2022, Mr Masters sought to submit a percolation test. When I asked why this had not been tendered before, I was told that it had been "set in motion" in January, but the expert had been ill, instructions had only been given in March and the report had only been received on 17 May. So, this exercise was not considered until 2 months after the November 2021 adjournment, and instructions were not

given until around 5 months after proofs were exchanged and more than 2 years after the refusal of planning permission. Mr Jupp also said, in any event, a percolation test should have been carried out over longer period.

131. I was anxious to ensure the appellant had a proper opportunity to present his appeal. However, this evidence was extremely late, with no satisfactory explanation for this, and the drainage RTS had already been concluded without reference to the percolation test, even though the appellant apparently had the results. The other parties would have needed an opportunity to consider and comment on the evidence, necessitating a further, probably lengthy adjournment, given that the programme was already very tight. As the appeal had already been significantly delayed, I declined to accept the evidence, as to do so would not be fair to all parties or consistent with my responsibility to ensure the efficient progress of the inquiry.
132. Mr Masters suggested during the drainage RTS that I could work on the basis that the surface may not be permeable, but conditions could require a percolation test and Sustainable Drainage System (SuDS). On the balance of probabilities, the development, which would also include buildings, mobile homes, and caravans, as well as hard surfacing, would greatly reduce the permeability of the site and increase the volume and rate of runoff.
133. The Council's concern is the increased rate of runoff downhill towards the Cransley Reservoir Local Wildlife Site (LWS) to the south and that this could carry contaminants to that site. In terms of the quality of the runoff, the main concerns for the impact on the reservoir in this case relate to oils from vehicles, detergents, de-icers etc. In addition, there is a concern about contamination from sewage (nitrate, ammonia, and phosphate), given that connection to a main sewer is not feasible, though this aspect was discussed in more detail at the ecology RTS.
134. Mr Brown accepted there would be the potential for contaminated runoff but argued measures on site could delay the progress of water, so it would not exceed the greenfield runoff rate. Furthermore, he said membranes could be used to intercept pollutants before they reach the watercourse. He considers that water would infiltrate to the ground so that there would be no need for formal consent to discharge to the watercourse.
135. However, without a percolation test in line with BRE 365 methodology, I am not persuaded that infiltration is likely to be the solution. There are no surface water or combined sewers within the vicinity of the site to which it could be connected. Therefore, on the evidence before me, it is probable that discharge would be to the watercourse to the south. However, this is on land in separate ownership and there is no evidence that the owner would consent to the installation of the necessary drainage connection.
136. Having regard to the number of amenity buildings, mobile homes, caravans and hard surfacing, Ms Burman indicated in her proof that around 600m³ of runoff may need to be stored near the southern boundary. Mr Brown advanced a much smaller figure during the RTS. It appears he did not take account of climate change, which undermines his calculation and, more importantly, his reduced figure was based on the view that the hard surface is permeable. I cannot accept that for the reasons already given. As Mr Jupp indicated, even if

the upper surface is permeable, it will not provide storage, as the water will simply run off the impermeable surface below, down towards the watercourse.

137. Ms Burnham's evidence is that 600m³ of storage could not be accommodated on the southern part of the site. Though none was mentioned in his proof, Mr Brown suggested a range of storage solutions, including permeable paving for the access road, with storage tanks below; platforms for caravans with linear drains to the southern edges; additional linear drains, filled with gravel and lined with membranes to intercept water as it passes down the site and to catch pollutants; below ground storage containers within the pitches themselves, with the tanks releasing water at the greenfield rate; and rainwater harvesting.
138. The Council was not satisfied that such a scheme is capable of being designed for this site and Mr Jupp and Mr Hughes said they would have expected a design to be submitted, even if only during the appeal. Mr Hughes said a strategy is normally submitted with an application, at least to address geology and enable decision makers to be safe in imposing conditions. On the best evidence available to me, I am not satisfied that a solution could be presented to store the likely volumes of water prior to infiltration.
139. It is not uncommon in retrospective or part retrospective cases for conditions to be imposed requiring the submission of schemes for approval, with the ultimate sanction of cessation of the use should one not be approved and implemented. However, though Mr Brown only put these various options to Ms Burnham for the first time at the RTS, she had various concerns. She said filter drains are not considered to be standard practise or appropriate in residential areas in the CIRIA SuDS Manual because of sedimentation and the resulting need for constant maintenance. A secondary system would be required to capture sediment solids and space is needed for the tanks and for maintenance.
140. Ms Burnham explained that, even with tanks within pitches, given that discharge to the ground is unlikely to be the solution, the controlled release of water to the watercourse would need to be via a hydro-brake. It is therefore likely that a piped connection to the watercourse would be required, and there is no evidence of owner consent for this.
141. The evidence before me is insufficient to demonstrate that a system along the broad lines proposed by the appellant could manage the likely quantity of runoff. Moreover, I am not persuaded that the imposition of a condition requiring the submission of a scheme involving the very extensive operations outlined by Mr Brown for the first time at the inquiry would be reasonable. This concern would apply with even greater force to a temporary permission. In any event, any effective scheme would probably depend on consent for a connection to the watercourse, and there is no evidence this would be forthcoming.
142. I conclude on this issue that the development will result in contaminated runoff impacting on the Cransley Reservoir Local Wildlife site. This may include contamination from sewage because, as emphasised by the Council in closing, any sewage system would also rely on infiltration to be effective. Rather than carrying separate weight, this conclusion feeds into and informs consideration of the next main issue.

The effect of the development on ecology, including protected species and the Cransley Reservoir Local Wildlife Site

143. The main participants in the RTS on this issue were Ms Webb for the Council, Mr Sibbett for the R.6 party and Mr Brown for the appellant. Mr Jupp and Mr Hughes also contributed, but expert evidence was given by Ms Webb and Mr Sibbett. In giving evidence for the appellant, Mr Brown relied on a Preliminary Ecological Assessment (PEA) prepared by an ecologist in September 2019 and then revised in January 2020, together with a clarification note dated 6 November 2021. A signed copy of that note was submitted during the inquiry.¹⁶
144. The appellant's ecologist produced the PEA and revision following a site survey undertaken on 26 September 2019, shortly before the unauthorised works began. Whilst acknowledging that the site abuts the Cransley Reservoir Local Wildlife Site (LWS) to the south, the updated PEA indicated that, apart from the boundary hedgerows, the site would not contain or abut any Biodiversity Action plan priority habitats or other habitats of particular ecological interest. It found no use of the site by protected species other than some use of the hedgerows by badgers, and concluded the site had moderate potential suitability for foraging/commuting bats, with two trees providing low and moderate bat roost potential.
145. Among other things, the PEA recommended as large a buffer as reasonably possible be retained between the construction footprint and the southern site boundary, adjacent to the LWS. It also recommended that the scheme should incorporate sufficient drainage/sewerage to prevent any contamination of the LWS, including the stream corridor.
146. The appellant's ecologist appears to have been very experienced, but both Ms Webb and Mr Sibbett say his PEA and update were seriously substandard. In short, they maintain the reports: were severely deficient in their understanding of the site's ecological features prior to development; contained unachieved and unachievable mitigation measures; and failed to recognise the harm that has already occurred as a result of the development.
147. Mr Sibbett made an official complaint to the Chartered Institute of Ecology and Environmental Management (CIEEM), as the appellant's ecologist was then a member. The Institute's magazine reported that, following a hearing on 20 May 2020, the appellant's ecologist was formally reprimanded with conditions for "having failed to meet the required standard of ecological survey, assessment and reporting."¹⁷ When Mr Sibbett checked in March and October 2021, the ecologist was no longer listed as a member of the CIEEM.
148. The appellant's ecologist's clarification note of 6 November 2021 suggests any criticism of their September 2019 PEA should be disregarded, as it was superseded by the January 2020 revision. However, Mr Sibbett confirmed what was said in his proof, namely that the complaint was made following the second report and related to both. In any event, the hearing was some 4 months after the second report.
149. In closing, Mr Masters emphasised that the appellant's ecologist was the only ecologist to have seen the site prior to the commencement of works and no

¹⁶ ID22

¹⁷ Mr Sibbett's proof paragraph 4.7 and appendix 2.

criticism is made of the fact that no protected species were identified as being on the site. However, the findings of the CIEEM professional conduct panel included failure to meet the required standard of ecological survey. In addition, I have Ms Webb's and Mr Sibbett's criticisms and neither the author, nor any other ecologist attended to support, or enable testing of the contents of the PEA and update. These factors lead me to attach limited weight to them and the clarification note, where their conclusions differ from those of Ms Webb and Mr Sibbett.

150. Ms Webb and Mr Sibbett were able to substantially agree the ecological baseline for the site, having regard to: post development site visits; Google Earth imagery; historical aerial photography; the LWS citation for Cransley Reservoir; Northants Bat Group data; highway accident data concerning collisions with badgers; the appellant's PEA and update, in so far as they assist; and their own professional expert judgement. I am satisfied on the evidence that the baseline is as follows:

- The site comprised semi-improved tussocky grassland, dating back to at least 1945. That continuity is indicative of quality, along with the variety of plant species listed in the LWS citation, on the "small field adjacent to the north-west corner of the reservoir." Mr Brown and Mr Masters sought to cast doubt on whether this was the appeal site, but 'Target note 1' in the revised PEA assumed it was. There is no significant doubt in my mind, and no basis on which to conclude the plant species referred to were restricted to the small undeveloped area at the southern end of the appeal site.
- The grassland would have provided a high quality habitat for reptiles such as grass snake, slow worm, and common lizard. Mr Sibbett said there was a reasonable likelihood that reptiles had been present on the site prior to development, and it was extremely likely that grass snakes at Cransley Reservoir would have used the appeal site for at least part of the year.
- The grassland would have provided a very good foraging area for bats and their boundary hedge would have been a source of flying insects, as well as a physical feature for bats to fly along. Data from the Northants Bat Group indicated that six different species of bat were known to use the reservoir area. Whilst I acknowledge Mr Brown's point that there will be many other areas suitable for foraging, the appeal site lies on a direct route for commuting and foraging between two habitats of great value to bats, namely Cransley Reservoir and Thorpe Malsor Reservoir, less than 1km away.
- Having regard to mammal tracks seen in aerial imagery, accident data indicating badger activity in the vicinity, and Mr Sibbett's finding of a sett nearby in April 2021, there would have been badger activity on the appeal site.

151. Ms Webb sits on the county Local Sites Panel. She said, "with some certainty", that the appeal site would have been designated as a Local Wildlife Site, had it been surveyed before development had taken place. Mr Masters' submitted in closing that, in contrast to the appellant's ecologist, Ms Webb and Mr Sibbett could only "speculate" on what flora and fauna may have been present on the site. This undervalues their professional judgement, informed by the factors referred to above.

152. Turning to the impact of the development:

- Most of the grassland has gone, together with the species growing within it.
- Most of the foraging habitat for bats on the site has gone and their commuting route between reservoirs has been interrupted. Although there was already an access, one of the site residents, Mr Quinn, acknowledged when cross examined that some hedgerow had been removed around the altered site access. Mitigation for this would require establishing a 5m dark corridor. I am not satisfied that this could be accommodated by the site layout and a lighting condition would not control light spill from caravans, vehicles etc on what was a previously dark site. Furthermore, if the development were permitted, highway visibility to the south would need to be improved, probably necessitating further reduction in hedgerow.
- Reptiles were likely killed or injured during the development works, which have also resulted in a large loss of reptile habitat. In the words of Mr Sibbett, there is “no scope whatsoever to provide meaningful habitat” as part of the development.
- Most of the foraging ground for badgers has now been developed.
- As noted above, even the appellant’s updated PEA recommended the scheme should incorporate sufficient drainage/sewerage to prevent any contamination of the LWS, including the stream corridor. From consideration of the previous main issue, I am not persuaded that it can. The development is therefore likely to result in contaminated water running off into the Cransley Reservoir, and Mr Sibbett said, “this will end up with plants and aquatic life being damaged.”

153. For the avoidance of doubt. Whilst Ms Webb’s proof referred to potential impacts on the Loddington Verge Potential Wildlife Site and Protected Wildflower Verge, this is on the opposite side of Cransley Road. It was agreed at the RTS that there would be no significant impact on that.

154. In closing, Mr Master’s emphasised the point made in the appellant’s ecologist’s clarification note that the landowner could have ploughed, mowed, or intensively grazed the site. This would also have degraded it in terms of biodiversity. On dismissal of the s78 appeal, the enforcement notice would only require the removal of the hard surface, caravans, and vehicles, followed by re-seeding with grass. This would not immediately, and might never, result in restoration of a high quality habitat of, semi-improved grassland. It would nevertheless eliminate other harms, including that of contaminated runoff into Cransley Reservoir and disturbance to bats through unavoidable light spillage.

155. In any event, it was agreed that JCS Policy 4 is the most important policy for this issue. Together with the Biodiversity Supplementary Planning Document for Northamptonshire (SPD), adopted August 2015, and consistent with paragraph 174(d) of the Framework, this seeks a net gain in biodiversity. The SPD and paragraph 3.37 of the supporting text of Policy 4 say “where possible.” However, and in any event, Policy 4, the SPD, and paragraph 180(a) of the Framework say proposals should be refused where significant harm cannot be avoided, mitigated, or as a last resort, compensated. JCS Policy 5 also requires development to protect and improve the quality of the water environment.

156. I am persuaded by Mr Sibbett's assessment of the harm from this development as substantial in relation to grassland of value; moderate to substantial in respect of protected species (reptiles and bats); and moderate to substantial in relation to Cransley Reservoir.
157. In the absence of detailed proposals, I am not persuaded that there is scope for adequate mitigation by providing buffer zones. This is so, even if the area to the north of the s78 appeal site were utilised for landscaping, and regardless of the scope for requiring the provision of bat and bird boxes, as part of an ecological management plan, along with lighting controls. No compensation is proposed, and I conclude that the development would be harmful to ecology, including protected species, and the Cransley Reservoir LWS, contrary to JCS Policies 4 & 5, the SPD, and the Framework. I attach significant weight to this harm, but some of the harm can be undone if permission is refused.

The need for and supply of Gypsy and traveller pitches

158. Notwithstanding the creation of the new unitary authority, the parties accepted that, in this case, need and supply should be assessed in relation to the Kettering Borough Council area, and the RTS proceeded on that basis. The principal participants in that RTS were Mr Jarman and Mr Jupp for the Council, and Mr Brown for the appellant. The R.6 party was content to rely on the Council's evidence. The discussion followed an agreed agenda, though further comments were made by Mr Brown and Mr Jupp when they later gave formal evidence on planning matters.
159. The latest North Northamptonshire Gypsy and Traveller Accommodation Assessment (the GTAA)¹⁸ was produced by Opinion Research Services (ORS) and published in March 2019. This covered 4 Councils in North Northamptonshire, including Kettering.
160. The appellant suggests the GTAA methodology is not robust. The first concern is that it only assesses need for households that meet the definition of gypsies and travellers in PPTS.
161. Paragraph 62 of the Framework says the size, type and tenure of housing needed for different groups, including travellers, should be assessed, and reflected in planning policies. However, footnote 27 says PPTS "sets out how travellers' housing needs should be assessed for those covered by the definition in Annex 1 of that document."
162. Paragraph 74 of the Framework requires local planning authorities to identify and update annually a supply of specific deliverable sites sufficient to provide a minimum of five years' worth of housing against their housing requirement. However, footnote 38 indicates that, "For the avoidance of doubt, a five year supply of deliverable sites for travellers - as defined in Annex 1 to Planning Policy for Traveller Sites - should be assessed separately, in line with the policy in that document."
163. It will still be necessary to assess the needs of those who do not meet the PPTS definition, and they will also require a suitable supply of caravan sites. However, I agree with the conclusion in another appeal¹⁹ where the Inspector said, "for the purposes of considering whether the Council has a 5 year supply

¹⁸ Mr Brown's appendix 8

¹⁹ Appeal Ref APP/P0240/C/18/3213822 (Mr Jarman's appendix 1), at paragraph 31.

- of sites for travellers that meet the PPTS definition... it should be assumed that numbers for 'non-travelling' gypsies will be provided for in other parts of the LP", and that "the criticism of the GTAA in this respect is unfounded."
164. If the Council cannot demonstrate an up-to-date 5 year supply of deliverable sites, PPTS indicates this should be a significant material consideration when assessing an application for temporary planning permission. I am satisfied that it will also be a material consideration in relation to a permanent permission, but I would have to determine the weight.
165. During the RTS there was lengthy discussion of the appellant's various criticisms of the GTAA methodology and assumptions. However, given my later conclusions on the issue of supply, I need not consider that debate in detail.
166. ORS' judgements will not be infallible, and the fact that the GTAA has not been subject to independent scrutiny through a local plan examination in public necessitates caution. However, ORS' general approach has been considered sound by numerous Inspectors²⁰, and I have seen no evidence of systematic defects. In any event, Mr Jarman's evidence, based on the GTAA, constitutes the best available to me about need. Mr Brown did not put forward an alternative number of pitches needed specifically for those who meet the PPTS definition.
167. The JCS had identified a need for 13 pitches in Kettering for the period 2011 – 2022, from figures identified in the 2011 GTA. For the period 2018 – 2033, the 2019 GTAA identified a need for 23 pitches for households that meet the PPTS definition, plus 4 pitches for undetermined households, who may meet the definition.²¹ In his proof, and from the 2019 GTAA, Mr Jarman indicated that, for households that meet the PPTS definition, the Council needs to deliver 15 pitches over the 5-year period 2021/22 – 2025/26, based on a residual current need for 14 pitches and a future need for 1 pitch. During the RTS, he confirmed this had been revised to 16 pitches²², including the 30% allowance for undetermined households.
168. Ultimately, Mr Brown said he would be happy for me to proceed on the basis that the figures in the GTAA represent the minimum level of those who meet the PPTS definition. I shall work on the basis that there is an identified need for 16 pitches over the relevant 5-year period.
169. Turning to supply, there are no new gypsy and traveller sites allocated in the current development plan. This is to be addressed in a separate Gypsy and Traveller Site Allocations Development Plan Document. However, as of 23 March 2022, the Local Development Scheme anticipated early engagement in June 2023; the production of a draft for internal consultation by April 2023; formal public consultation by September 2023; submission to the Secretary of State in February 2024; and adoption by December 2024.
170. For now, Mr Jarman indicated in his proof that the Council has a 5-year deliverable supply of 18 pitches, based on sites which have planning permission, but have not yet been delivered. At footnote 4, PPTS says:

²⁰ See Mr Jarman's appendices 1 – 6.

²¹ In addition, the GTAA identified a need for 21 pitches for households who do not meet the definition.

²² This figure is set out in the SOCG, albeit it was not agreed by the appellant.

“To be considered deliverable, sites should be available now, offer a suitable location for development, and be achievable with a realistic prospect that development will be delivered on the site within five years. Sites with planning permission should be considered deliverable until permission expires, unless there is clear evidence that schemes will not be implemented within five years, for example they will not be viable, there is no longer a demand for the type of units or sites have long term phasing plans.”

171. The first site relied upon is at Land off Stoke Albany Road, where planning permission was granted for 10 pitches on 1 July 2009²³. There was no dispute that this permission is still extant. I will come back to what has happened following the grant of that permission but will first consider the implications of a condition on it. The GTAA deals separately with the needs of those who meet the PPTS definition and those who do not, and I have been persuaded that I must consider whether there is a 5 year supply of sites for those who meet that definition. Condition 2 of the Stoke Albany Road decision states:

“The site shall not be occupied by any persons other than gypsies and travellers as defined in paragraph 15 of ODPM Circular 01/2006.”

As discussed during the RTS, that definition included “...persons who on grounds only of their own or their family’s or dependents’ educational or health needs or old age have ceased to travel temporarily or permanently...” So, any or all the pitches could be occupied by persons who do not meet the PPTS definition, which now excludes people who have ceased to travel permanently. The relevant part of the current PPTS definition of gypsies and travellers is:

“Persons of nomadic habit of life whatever their race or origin, including such persons who on grounds only of their own or their family’s or dependants’ educational or health needs or old age have ceased to travel temporarily...”

I cannot therefore be satisfied of the site’s deliverability as one for gypsies and travellers as defined in PPTS.

172. In addition to the fundamental problem posed by condition 2, the history of the Stoke Albany Road permission is problematic. The site owner made no progress with the development and the Council understood the owner did not intend to bring the site forward for development themselves.²⁴ So, in September 2020, the Kettering Borough Council authorised, ‘in principle’, the use of its compulsory purchase order (CPO) powers. Local government reorganisation paused the CPO process, as the new unitary authority would have had to resolve to proceed. New dialogue then started with the landowner in April 2021.

173. In May 2021, the Bowd Field appeal decision, referred to above, was issued following a site visit in April. In that case, the Inspector said:

“39... The Stoke Albany Road site was approved in July 2009 and the permission is apparently live because a lawful commencement has taken place... but, in this instance, implementation has stalled. The site is still not operational over a decade after being granted permission. It would also seem that a Compulsory Purchase Order is likely to be required to deliver

²³ Planning permission Ref KET/2009/0155 at Mr Jupp’s appendix 21 and ID19(e).

²⁴ Mr Jupp’s appendix 22.

this site. If CPO proceedings have commenced, they would be at the very early stages and the outcome cannot be assumed.

40. The fact that the site is not operational more than ten years after being granted permission is clear evidence that the site should not currently be treated as being deliverable. I stress that this is a finding based on the evidence available to me. Moreover, as things stand, I do not consider the site can be considered deliverable until the CPO proceedings have concluded in the Council's favour...."

174. Things have moved on in that, whilst the Council has taken no further steps towards a CPO, Mr Jupp indicated that the landowner has now agreed, in principle, to sell. However, he said they are still at the negotiation stage; contracts have not been exchanged and it would appear no price has been agreed. Mr Jupp said the Council was getting a valuation and suggested it might be possible to provide a letter confirming the position before the inquiry closed. No such letter was forthcoming, and I have seen nothing from the landowner.

175. Although, in terms of PPTS footnote 4, there may not be clear evidence that this 10 pitch scheme will not be implemented within five years, there remains considerable doubt. It is hard to be confident that a CPO will not be required. The position is not so very different to that facing the Bowd Field Inspector, and this adds to the fundamental problem posed by condition 2. In all the circumstances, but primarily because of the terms of condition 2, the Stoke Albany Road site cannot count towards the 5-year supply of deliverable sites for those who meet the PPTS definition.

176. The Council also relies on a site at Woodside, for which they say planning permission was granted for 8 pitches. There are in fact 2 permissions, one granted on 23 January 2015²⁵, and the other on 20 December 2018.²⁶ The 2015 permission was in fact for 5 pitches and a single dwelling to replace a mobile home. Condition 5 of that permission states:

"The site shall not be occupied by any persons other than gypsies and travellers defined in paragraph 15 of ODPM Circular 01/2006; the single dwelling hereby approved should not be occupied by any persons other than by gypsies and travellers for the purpose of managing the site."

177. Though this permission is 7 years old, and no pitches have been made available under it, I am told that the concrete base for the dwelling has been laid and I have no reason to believe the permission is not extant. The Council suggested the dwelling was for a household which formed part of the need identified in the GTAA, so it would reduce the need element. However, as the dwelling was to replace a mobile home, and there is no indication this was not lawfully sited and occupied, the occupiers would not previously have been in need. I accept Mr Brown's analysis that the 2015 Woodside permission results in a net gain of just 4 pitches.

178. In any event, condition 5 of the 2015 permission presents the same problem as condition 2 on the Stoke Albany Road permission. I cannot accept that even the 4 new pitches, can be counted as part of the supply of deliverable sites for

²⁵ Permission Ref KET/2014/0532 (ID19(g)).

²⁶ Permission Ref KET/2018/0531 (ID19(k)).

those who meet the PPTS definition; any or all of them could be occupied by people who do not meet that definition.

179. Condition 3 of the 2018 permission for Woodside limits occupation to those who meet the definition of gypsies and travellers in the August 2015 PPTS, "or its equivalent replacement in national policy." There appears to be no dispute that the planning permission is extant, and it would be for persons who meet the PPTS definition. However, condition 4 restricts the development to no more than 1 family pitch and no more than 2 traveller caravans.

180. For the reasons given, the Stoke Albany Road and 2015 Woodside permissions cannot be considered to contribute to the 5-year supply of pitches for gypsies and travellers who meet the PPTS definition. The 2018 Woodside permission can contribute to the supply, but it is only for 1 pitch. Even if all these permissions could be counted, they would together only represent 14 pitches against the Council's identified need for 16.

181. The Council contended that I could also take account of 5 pitches at The Old Willows and 9 at The Old Northampton Road, as these are occupied by people who do not meet the PPTS definition and enforcement action could be taken to make them available.²⁷ Mr Jarman said he believed the pitches were rented to non-travellers and that, on the morning of the RTS, he had discussed with Council staff the service of a Planning Contravention Notice (PCN) to identify those who do not meet the PPTS definition and enable enforcement action. However, I note this issue is addressed in Mr Jupp's proof²⁸ and despite an Executive Committee resolution in September 2020 to "...support on-going work to identify pitches with non-defined Gypsy and Traveller residents...", no action had been taken by the time of my inquiry.

182. Whether successful enforcement action can be taken to make additional pitches at The Old Willows and The Old Northampton Road available to people who meet the PPTS definition depends on a range of factors, including:

- the terms of the conditions attached to the planning permissions;
- the status of the occupiers;
- whether any breaches of condition have become immune from enforcement action;
- whether it would be expedient to take enforcement action;
- whether planning permission to use the land without complying with the relevant conditions might be forthcoming in any appeals against enforcement action;
- whether the service of a breach of condition notice would secure compliance; and
- whether the court would grant an injunction.

Clearly, I cannot formally determine any of those questions, but I must nevertheless consider some of the issues arising from the first bullet point above.

²⁷ Mr Jarman's proof, paragraph 59.

²⁸ Paragraph 5.108 and 5.109 and appendix 24 and 25.

183. Mr Jupp began his evidence in chief on planning matters at the start of 25 May 2022. Immediately before that, Mr Masters said he needed copies of the planning permissions concerning The Old Willows and The Old Northampton Road to cross-examine Mr Jupp. I confirmed I wished to see those permissions. In the event, the Council provided them at the end of 25 May, after Mr Jupp had given his evidence, and the day before Mr Brown gave his planning evidence.
184. Mr Jupp was cross examined on those planning permissions, even though copies were not available to me at the time. I had indicated it might be possible to deal with any further matters arising through submissions, once hard copies of the permissions were available but, if not, I would allow the Council to recall Mr Jupp. The Council did not cross-examine Mr Brown on his evidence relating to those permissions and did not seek to recall Mr Jupp.
185. In closing for the Council, Mr Lintott reiterated the view that enforcement action could be taken in respect of The Old Willows and The Old Northampton Road to make those pitches available to travellers as defined in PPTS. When pressed by me, he said the condition imposed in the past was more onerous and the occupiers do not meet it. Furthermore, he said there is no evidence that any occupiers will have gained immunity, so there is nothing to displace the presumption in footnote 4 of PPTS that sites with planning permission are deliverable.
186. The position is a little confusing because of the different site descriptions used in the various permissions but, regarding the site at The Old Willows, temporary planning permission was initially granted on appeal on 11 July 1994²⁹. Condition 2 stated that it would be "restricted to use by no more than 7 families who are gypsies as defined in section 16 of the Caravan Sites Act 1968." Mr Brown explained in evidence that this included persons of a nomadic habit of life but, unlike the current PPTS definition, it did not include people who had ceased to travel temporarily.
187. On 11 March 1997, permanent planning permission³⁰ was then granted for that site. Condition 2 said that the permission was for "...the provision of a total of 9 units of residential accommodation on the site (in the form of residential caravans or mobile homes)..." and condition 7 also allowed for up to 9 touring caravans. Accordingly, 9 pitches were permitted. Condition 3 said, "The occupation of the residential caravan/mobile home shall be limited to persons defined as gypsies by Section 80 of the Criminal Justice and Public Order Act 1994. Again, that definition included persons of a nomadic habit of life but did not include people who had ceased to travel temporarily. Mr Brown explained people were found not to be gypsies if they ceased to travel for any reason.
188. That condition on the 1997 Old Willows permission was therefore more onerous than a condition linked to the current PPTS definition. Anyone who satisfies that 1997 condition will meet the PPTS definition. On the face of things, 5 of those 9 pitches, which the Council believes are not occupied by people who meet the PPTS definition, could count towards the supply of sites for those who do.

²⁹ Appeal Ref T/APP/L280/A/93/231264/P2 (ID19(c)).

³⁰ Permission Ref KE/97/0068 (ID19(d)).

189. I take Mr Brown's point that the onerous nature of this condition makes it more likely that it has been breached during the 25 years since it was imposed. However, I simply cannot tell, and have no jurisdiction to determine in this appeal whether any breach has become immune from enforcement action.
190. Turning to The Old Northampton Road site, which was an extension of The Old Willows site, planning permission was granted for 3 pitches on 20 June 2012³¹. On 3 July 2015, permission was then granted³² for a total of 6 pitches on that same site. Conditions 1 and 2 on the 2012 and 2015 permissions respectively said, "The site shall not be occupied by persons other than Gypsies and Travellers as defined in Annex 1 of Planning Policy for Traveller Sites (CLG March 2012)." Like the definition in Circular 01/2006, that definition included "...persons who on grounds only of their own or their family's or dependents' educational or health needs or old age have ceased to travel temporarily or permanently..."
191. However, a new permission was then granted for The Old Northampton Road site on 13 April 2018³³. This was for a total of 8 pitches, namely the 6 previously authorised, plus 2 for named households, subject to a personal condition. All 8 pitches were subject to condition 1, which restricted occupation to persons who meet the current PPTS definition of gypsies and travellers. On the face of things therefore, 6 pitches on The Old Northampton Road could be available to accommodate any persons who meet the current PPTS definition of gypsies and travellers.
192. If the 5 pitches at The Old Willows, alleged to be occupied by people who do not meet the PPTS definition, and the 6 pitches at the Old Northampton Road were added to the 1 pitch I have found available under the 2018 Woodside permission, then the supply would be just 12 pitches against the identified need for 16 pitches.
193. Moreover, leaving aside the terms of the conditions, I cannot form a view on any of the other factors bulleted at paragraph 182 above. Most significantly, that includes the question of the status of the current occupiers; namely whether they meet the current PPTS definition of gypsies and travellers or not. Notwithstanding the confidence of Mr Jarman and Mr Jupp on this point, the Council apparently intends to serve PCNs to clarify the position, which may have changed since they reached that view.
194. Footnote 4 of PPTS creates a presumption that sites with planning permission are deliverable, rebuttable only on clear evidence, that the permission will not be "implemented within five years." This is not apt to deal with cases where a site not only has planning permission, but the development has been implemented, in the sense of carried out, and the pitches are occupied.
195. I cannot pre-empt the outcome of any enforcement proceedings. Even *if* all the current occupiers of the Old Willows and The Old Northampton Road site do not meet the PPTS definition, my experience of planning enforcement proceedings over many years does not leave me confident on the balance of probability that all, or even most of those pitches can be made available to

³¹ Permission Ref KE/2011/0363 (ID19(f)).

³² Permission Ref KE/2014/00695 (ID19(h)).

³³ Permission Ref KET/2017/0980 (ID19(j)).

people who do meet the PPTS definition within 5 years. It is significant that no action had been taken by the time of the inquiry.

196. In all the circumstances and for all the reasons given, I am not satisfied on the balance of probability that the Council can demonstrate it has a five year supply of deliverable sites for travellers, as defined in Annex 1 to PPTS and there has been a failure of policy. In May 2021, the Inspector in the Bowd Field appeal attributed moderate weight to the lack of a five year supply, increasing this from the small amount of weight found in a 2017 appeal, and having regard to the on-going policy failure. In the circumstances of this case, and in view of the further passage of time and on-going policy failure, I attach significant weight to this factor. Like Mr Hughes, I consider significant weight appropriate whether in the context of considering permanent or temporary permission.

The impact of the development on a potential non-designated heritage asset, namely potential below ground archaeology

197. This matter was raised by the R.6 party, not the Council, and Mr Brown did not address it in his proof. Dr Dawson was the only witness to give expert evidence on this subject.

198. JCS Pol 2(d) says: "Proposals should demonstrate an appreciation and understanding of the impact of development on heritage assets and their setting in order to minimise harm to these assets and their setting. Where loss of historic features or archaeological remains is unavoidable and justified, provision should be made for recording and the production of a suitable archive and report."

199. Paragraph 194 of the Framework says: "Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation."

200. Dr Dawson's evidence was that, having regard to the fact that the East Midlands is rich in archaeological remains of the first Millennium BC; the geology and topography of the site and surrounding area; and, most importantly, aerial photographs showing crop marks very near the site and in the surrounding area, the appeal site has the potential to include heritage assets with archaeological interest. Indeed, in answer to questions from me, Dr Dawson said it was more likely than not that the site contained such assets. That evidence was compelling and unchallenged, and I accept it.

201. The planning application was not submitted until after development had commenced and the reasons for refusal did not refer to archaeology. Neither did the reasons for issuing the enforcement notice. I cannot be sure what the Council would have required if this had not been a retrospective case. When cross examined by Mr Masters, Dr Dawson said he would have expected an archaeological investigation in relation to works at nearby Nus Hill Lodge, but it was put to him that one had been required.

202. However, I note that in September 2020, the Northamptonshire County Council Archaeological Advisor³⁴ said, had this been an application in advance

³⁴ Dr Dawson's appendix 4.

which included proposals for terracing, they would “definitely have expected some assessment up front and probably trial trenching pre-determination.” In retrospective cases where, had there been the opportunity, they would have wanted archaeological work done in advance, they said:

“I usually ask for some trenching around the area affected to clarify the ground conditions and try to pick up anything which may survive, but obviously that depends on the extent of the works - if a large area has been terraced then it's entirely possible there is nothing left.”

203. Whilst Dr Dawson indicated the terracing is likely to have destroyed most of any archaeological assets, he was confident that some fragments will have survived, and it would be possible to carry out investigations to recover the vestiges. If the appeal were allowed, conditions could be imposed to achieve this. It would complicate drainage works, which the appellant suggests would involve further trenches and the installation of underground tanks, but I have already concluded that conditions requiring such works would not be appropriate anyway.
204. Having regard to paragraphs 203 and 205 of the Framework, it is impossible to judge the significance of what would have been discovered. I cannot therefore know what measures would have been appropriate, had an investigation been carried out before development commenced. It might even be that planning permission would have been refused, because of unjustified harm to heritage assets. The carrying out of the works in advance of obtaining permission removed the opportunity for any such assessment.
205. Accepting it was more likely than not that the site contained heritage assets with archaeological interest, JCS Policy 2(d) has been breached. If I find the issue of “intentional unauthorised development” to be material in this appeal, this will influence the weight to be attached to that consideration.

Whether the development constitutes intentional unauthorised development and, if so, the weight to be attached to that.

206. On 31 August 2015 the Chief Planner at the Department for Communities and Local Government wrote to all Chief Planning Officers enclosing a planning policy statement which included the following:

“The government is concerned about the harm that is caused where the development of land has been undertaken in advance of obtaining planning permission. In such cases, there is no opportunity to appropriately limit or mitigate the harm that has already taken place. Such cases can involve local planning authorities having to take expensive and time consuming enforcement action.

For these reasons, this statement introduces a planning policy to make intentional unauthorised development a material consideration that would be weighed in the determination of planning applications and appeals. This policy applies to all new planning applications and appeals received from 31 August 2015.

The government is particularly concerned about harm that is caused by intentional unauthorised development in the Green Belt.

...

After six months we will review the situation to see whether it is delivering our objective of protecting land from intentional unauthorised development.”

207. This was repeated in a Written Ministerial Statement (WMS) on 17 December 2015. Although this issue was not addressed in Mr Brown’s proof, or Mr Masters’ opening submissions, the SOCG recorded agreement that this development constitutes intentional unauthorised development (IUD).
208. It was nevertheless put to Mr Jupp and Mr Hughes in cross-examination that no weight could be given to the WMS, as the situation had not been reviewed after 6 months and no policy on IUD has been included in the Framework, even though it has been revised since 2015. Mr Jupp had no warning of this point and was unable to comment. In his evidence in chief, Mr Hughes said the WMS has not been withdrawn or amended and Inspectors have continued to treat it as a material consideration, including in a recent gypsy and traveller appeal where Mr Brown acted for the appellant.
209. In his oral evidence, Mr Brown said there was “some doubt” over whether the WMS still applies and that the 1990 Act allows for retrospective applications. He said the WMS was primarily aimed at development in the Green Belt. Moreover, even if it still applies, I must take account of other factors in attributing weight, for example that the alternative was for the site occupants to be on the roadside. When cross-examined, he acknowledged IUD has been treated as a material consideration in recent appeal decisions and it is likely that it still is material.
210. Nonetheless, whilst noting that a further announcement was made through a member’s question in the House of Commons in 2019 that the WMS still applied, Mr Masters pressed his point that, as matter of law, it should not be treated as material consideration. In any event he said if it is material, it should carry limited weight.
211. Although the situation should have been reviewed after 6 months and it appears it was not, the WMS was not expressed as applying for 6 months only. It has not been withdrawn and has continued to be treated as material. I am satisfied that it is a material consideration and, whilst there was particular concern about the Green Belt, IUD is relevant in areas outside the Green Belt.
212. The occupiers purchased the site in April 2019. Mr Brown says he was instructed sometime after that, probably in the summer. In August, he advised that a speed survey and PEA were needed to support a planning application. These were done in the last week of September 2019. The planning application was dated 10 October 2019 and marked received on 14 October.
213. The occupation began over the weekend of 12 October 2019. An excavator was delivered to the site on Friday 11 October and, from around 0700 on the Saturday, lorries were delivering large quantities of hardcore. Indeed, a local resident described “hundreds of lorry movements to and from the site, removing earth and delivering hardcore and other materials” and the work continued until later that afternoon, with Cransley Road being awash with mud from the site.³⁵ By 0900 on the Saturday, several caravans had arrived.
214. The timing of the incursion at the weekend was no doubt intended to make it harder for the Council to react quickly, but a temporary Stop Notice was issued

³⁵ ID24.

on Saturday 12 October and served on 13 October 2019. This related to the formation of hardstanding and engineering works to level and regrade the land. The Enforcement Notice and Stop Notices were then issued on 15 October. The Stop Notice required cessation of human habitation, removal of all caravans etc and cessation of all works for the formation of hardstanding and excavation.

215. Habitation continued. In addition, by reference to photographs in Mr Hughes' proof, Mr Brown accepted in cross-examination, that excavation and works to form the hardstanding continued into the summer of 2020, notwithstanding the refusal of the planning application on 26 February 2020.
216. Clearly, the appellant knew planning permission was required and this is not a case of a few caravans moving onto a vacant site. Substantial works have been carried out over a significant area to facilitate the occupation, and arguably went well beyond what was necessary to establish a temporary home pending determination of a planning application and appeal. A temporary Stop Notice and subsequent Stop Notice have been ignored. The occupation was planned and executed very quickly over a weekend.
217. Whilst it is true that retrospective planning applications are lawful, and the appellant submitted one, the primary reason for the WMS is the lack of opportunity to appropriately limit or mitigate the harm that has already taken place. I have found that some harm in relation to ecology and archaeology is irreversible. Other harms, though reversible, have endured for some considerable time.
218. I accept that the WMS has not been incorporated into the Framework, but it remains a material consideration. In all the circumstances, including the implications for archaeology, and notwithstanding that the site is not within the Green Belt, I conclude that the fact this was IUD should carry significant weight against the appeal. The lack of alternative accommodation and the likelihood of having to resort to the roadside would carry weight in favour of the appeal on their own account, but I am not convinced this should also reduce the weight attached to IUD, as that would represent double counting.
219. I note that only moderate harm was attributed to IUD in the Bowd Field appeal but, in this case, there is clear harm in relation to ecology and archaeology. Furthermore, "great weight" was attached to a finding of IUD in another recent appeal, to which I was referred.³⁶

The availability of alternative accommodation and other personal circumstances of the occupiers, including the best interests of any children, all in the context of Human Rights considerations and the Public Sector Equality Duty (PSED)

220. It is agreed in the SOCG that the site residents fall within the definition of gypsies and travellers in PPTS. There is no evidence that any other suitable sites are available to the occupants or that they could live in bricks and mortar housing. Mr Jupp accepted in evidence that, if evicted, the residents are likely to have to live at the roadside.
221. I heard in evidence that the site residents are a group of close family members. They may "do their own thing" in the summer, but like to stay together in the winter, and it is hard to find a site big enough for all the family.

³⁶ ID7, at paragraph 48.

They wish to have a site for themselves as a group, so they can provide mutual care and support to each other. They have lived in the area for many years but have never had a settled base.

222. However, I also heard that there are more households on the site than can be accommodated by the permission sought. Mr Brown confirmed that, although the proposed 8 pitches, would still be enough, several would need to accommodate more than 1 household. There could be a need for 12 mobile homes, and 8 tourers, rather than 8 of each, as envisaged in both the application and the conditions suggested during the appeal.
223. All the evidence, for example in relation to landscape and visual impact and drainage³⁷, was based on the application proposal and the amendment would be too substantial to make by condition.³⁸ Mr Brown acknowledged that this would need to be the subject of further applications. This reduces the extent to which the appeal proposal would meet the needs of the site residents and the degree to which the personal circumstances of all the existing residents are relevant. Accordingly, the weight carried by those factors is diminished.
224. Article 8 of the European Convention on Human Rights (ECHR) is incorporated into UK law through the Human Rights Act 1998 and provides that everyone has the right to respect for their private and family life, home, and correspondence. The duty to facilitate the gypsy way of life is part of that, and Article 8 must also be considered in the context of Article 3(1) of the United Nations Convention on the Rights of the Child. This states that the best interests of the child shall be a primary consideration. Whilst those interests can be outweighed by other factors, no other consideration can be inherently more important.
225. Dismissing the appeal would give rise to an interference with the occupants' Article 8 rights. Any such interference must be in accordance with the law, necessary in a democratic society in the interests of national security, public safety, or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.
226. As Irish travellers, the site occupants are in an ethnic minority and have a protected characteristic under the Equality Act 2010. The PSED means I must have due regard to the aims of eliminating discrimination and other prohibited acts; advancing equality of opportunity; and fostering good relations between persons who share a relevant protected characteristic and those who do not. Furthermore, by virtue of Article 14, ECHR rights, including under Article 8, shall be secured without discrimination.
227. There are 21 children on the site, including at least 9 under the age of 5, and I heard that at least one resident is pregnant. None of the children is in school, though that is what the residents would like. Two of the children were previously living with their mother in Leicestershire in a caravan on her grandfather's driveway. They attended school there but, since their parents reunited, they have moved onto the appeal site and no longer go to school.

³⁷ See in particular Ms Burnham's proof, paragraph 6.15, and appendix B.

³⁸ Having regard to *Bernard Wheatcroft Ltd v SSE* [1982] JPL 37, to which I referred during the conditions session of the inquiry.

Several of the children were taken to Canada during part of the last academic year.

228. Covid-19 disrupted children's education generally for some time, but schools have been open for the whole of the last academic year and for some time before that. I heard evidence from the residents that school places have not been available locally and that finding places for the children has been made more difficult by the fact that they would like them to be kept together, in the same school. A written statement from one resident says one child with learning difficulties, who was 3 when the statement was submitted in October 2021, has had a place at a local nursery school. That resident's statement said the authorities were helping to find a place for their child at a special school. However, they were unable to attend to give oral evidence, so I am not aware of any success on that score, and the child's time at nursery school is likely to come to an end in the next year or so.
229. Having a settled base would increase the chances of eventually getting the children into school. That would clearly be in their best interests, along with avoiding the general hardships and perils of a roadside existence and reinforcing their cultural traditions within an extended family group. However, having to leave this site would not disrupt any child's education by forcing them to leave a school in which they are settled. Over the years the children have had some home tutoring, and this could continue.
230. Several of the site residents have health problems which, in some cases are quite serious and probably give rise to a protected characteristic under the Equality Act. They have been able to register with local doctors whilst living at the site and a roadside existence would make access to healthcare more difficult for everyone on the site, including the children. However, there is no evidence that a particular medical facility or specialist close to the site is essential to the health of any of the site occupiers.
231. In all the circumstances, I nevertheless attach substantial weight to the fact that no other accommodation is available to the site residents, together with all their other personal circumstances, including the best interests of the children.

Other matters

232. The appellant suggested two fallback positions, namely use of the appeal site for grazing or keeping horses and use as a caravan site in accordance with permitted development (PD) rights. As far as grazing is concerned, there would be a realistic prospect of this, but its impact would not be remotely comparable to the proposed development. In terms of keeping horses, several of the site residents said that if planning permission is refused, they may wish to keep their horses on the site. However, given its size, this would only apply to a small number of horses. There have been stables there in the past but, even if permitted, they would be small-scale, and the impact would not be comparable to the appeal scheme. I attach very little weight to this fallback position.
233. There are PD rights for the use of land as a caravan site for up to 5 caravans, if it is supervised by an exempted organisation, and for meetings organised by exempted organisations and lasting no more than 5 days.³⁹ However, none of the site residents mentioned this as a possibility and it would

³⁹ ID21.

conflict with the stated intention of several to keep or graze their horses on the land. I am not persuaded that this is anything more than a theoretical possibility and, even if it were to happen, the impact would be far less than that of the proposal; as I pointed out during the inquiry, the PD rights do not extend to operational development. I attach no significant weight to this fallback position. Indeed, neither fallback position was mentioned by Mr Masters in closing for the appellants.

Planning balance

234. In weighting the various factors, I adopt Mr Hughes' hierarchy, namely substantial, significant, moderate, and limited/little.
235. I find harm in relation to landscape character and appearance to which I attach substantial weight. I identified harm in terms of highway safety, which carries significant weight. The harm caused to ecology also carries significant weight and I attribute significant weight to the fact that this is intentional unauthorised development. This last factor is exacerbated by those elements of harm to ecology and archaeology which are irreversible. I also attach limited weight to the harm arising from the lack of close links to services and facilities. I am not persuaded that these harms could be adequately addressed by any reasonable conditions.
236. As a result of the above, I find the development to be in breach of JCS Policies 2(d), 3, 4, 5, 8(b), 31(a), (e) and (f) and conclude that it conflicts with the development plan as a whole. It also conflicts with the Biodiversity SPD, paragraphs 105, 111 and 174 of the Framework, paragraph 25 of PPTS and the WMS on intentional unauthorised development.
237. Against this, I have determined that the Council cannot demonstrate a five year supply of deliverable sites for travellers, as defined in Annex 1 to PPTS and there has been a failure of policy. Together, these factors this carry significant weight in favour of the appeal, whether in the context of considering permanent or temporary permission.
238. I have found that it would be in the best interests of the children on the site to allow the appeal and this factor carries substantial weight. To this I add the significant weight attached to the site residents' overall personal circumstances and the lack of alternative accommodation, all in the context of human rights considerations and the PSED. On the other hand, I have attached no significant weight to any fallback position.
239. In relation to Article 8 of the ECHR, safeguarding the environment, the countryside and its appearance are relevant to both the economic well-being of the country and the rights and freedoms of others. Under the PSED, eliminating discrimination and advancing equality of opportunity, in terms of providing decent places to live, may often necessitate treating gypsies and travellers more favourably than the settled community. However, the harms associated with the occupation of this site and the objections raised by the Parish Council mean its continued occupation would be unlikely to foster good relations. Human rights and PSED considerations will nevertheless be relevant to my consideration of ground (g) in the enforcement appeal.
240. I conclude that material considerations do not indicate planning permission should be granted, despite the conflict with the development plan and dismissal

of the appeal is a proportionate response, subject to my consideration of ground (g). (For the avoidance of doubt, if a percolation test demonstrated scope for infiltration, this would reduce the harm to ecology from significant to moderate, but that would not change the overall balance).

241. The appellant seeks a permanent permission but, failing that a temporary one. Mr Brown suggested 3 ½ years but, in closing, Mr Masters said for 4 years would be more appropriate.
242. The Planning Practice Guidance indicates that circumstances in which a temporary permission may be appropriate include where a trial run is needed to assess the effect of the development on the area or where it is expected that the planning circumstances will change in a particular way at the end of that period. This is not a case where a trial run is needed, but circumstances are expected to change with the adoption of a Traveller Site Allocations Development Plan Document, currently not anticipated until December 2024.
243. Given slippage in the past, I cannot be confident that there will not be further delays in the timetable for adoption. It could also take some time for any allocated site to become available thereafter. On this basis, the appellant's suggestion of 3 ½ to 4 years is not unrealistic.
244. However, in this case in addition to the continuing harm to landscape character and appearance, I have found significant risk to highway safety and ongoing ecological harm. In these circumstances, it would not be appropriate or proportionate to sanction the continuation of that harm for a period of years added to the harm and risk which has already existed since October 2019. Even if conditions could be applied, for example in relation to drainage measures, they would be even more unduly onerous in connection with a temporary permission.
245. I conclude that temporary planning permission should not be granted.

Conclusion on appeal B

246. For the reasons given above, I conclude that the appeal should not succeed.

APPEAL A

Ground (g)

247. This is the only ground of appeal, and it is that the period allowed for compliance with the enforcement notice is unreasonably short. In summary, from the time the notice takes effect, namely the date of this decision, the notice allows 7 days for cessation of the use for human habitation, removal of the caravans and other items and hard standing and 14 days for restoration by re-seeding with grass.
248. Mr Brown suggested a period of 12 months would be appropriate. The Council acknowledges that the periods specified in the notice are too short. In his proof, Mr Jupp merely suggested adding 7 days to the periods for compliance with each requirement except cessation of the use, which he contended should remain at 7 days.⁴⁰ However, having reflected on the matter, he said in chief that, where people are settled on a site, a period of 6 months is

⁴⁰ Mr Jupp's proof, paragraph 8.4, bearing in mind requirement 4 of the notice is not to be amended.

normally allowed. In his oral evidence, Mr Hughes suggested 3 months for the occupants to leave, with a further 2 months for the remedial works.

249. I acknowledge that the incursion and much of the hard surfacing work occurred very quickly, albeit that it may have been some months in the planning and organising. I also acknowledge that the site has been unlawfully occupied for more than 2 ½ years and I have had due regard to points made by the local resident who gave evidence on their own account.
250. However, the public interest in resolving this matter quickly must be balanced against the interests of the site residents, including 21 children. Though the children are not in school, having to leave a site which has been their home base for so long will involve significant disruption, even for those used to a travelling lifestyle. Whilst the site residents say they have nowhere to go anyway, Mr Brown said a period of 12 months would give them a better chance to make arrangements.
251. Balancing the personal circumstances of the site residents against the public interest in putting an end to on-going harms, requiring the cessation of occupation within 6 months and the completion of remedial works within a further 2 months would be a proportionate response. This has regard to rights under Art 8 of the ECHR, the best interests of the children on the site and the PSED.
252. I will therefore vary the periods for compliance in the notice. Ground (g) succeeds to that extent, but the notice will be upheld.

J A Murray

INSPECTOR

Appendix 1
List of those who have appealed

Reference	Case Reference	Appellant
Appeal A	APP/L2820/C/19/3240989	Mr James Delaney
Appeal B	APP/L2820/W/20/3249281	Mr James Delaney

APPEARANCES

FOR THE APPELLANT: Alan Masters of counsel

He called:

Philip Brown BA(Hons)
Patrick Quinn
Alex White
Michael Collins
Michael White
John White
James Quinn

FOR THE LOCAL PLANNING AUTHORITY: David Lintott of counsel

He called:

Ian Dudley BSc(Hons), MICFor, CEnv, CMLI
Martin Draper BEng(Hons)
Heather Webb BSc(Hons), CEnv Conservation, MSc, MCIEEM
Ruth Burnham MCIWEM C.WEM
Steve Jarman BSc, DipTP, PGCert Sust Leadership
Stephen Jupp BA, LLM, MRTPI

FOR THE LODDINGTON PARISH COUNCIL as RULE 6 PARTY: Edward Grant of counsel

He called:

Michelle Bolger CMLI, Dip.LA, BA, PGCE, BA (Landscape & visual)
Ian Brazier BEng(Hons,) CEng, MICE (Highways)
Nick Sibbett BSc, MSc, CEng, MCIEEM, CMLI, CEnv
Dr Michael Dawson DPhil, MPhil, BA(Hons), BA (Heritage)
Philip Hughes BA(Hons), MRTPI, FRGS, Dip Man, MCMI (Planning)

INTERESTED PARTIES:

Hannah Reneerkens

DOCUMENTS SUBMITTED DURING THE INQUIRY

1	Guidelines for Landscape & Visual Impact Assessment 3rd Ed (up to page 68)
2	Preliminary Ecological Appraisal – revised January 2020
3	Council’s opening submissions
4	R.6 party’s opening submissions
5	Pages 69 – 118 of Guidelines for Landscape & Visual Impact Assessment 3rd Ed
6	Saved Local Plan Policy 10 & extract from Proposals Map & key (clearer copy of map substituted on day 2)
7	Appeal Decision APP/J1915/W/19/3234671 re Land at Chapel Lane, Letty Green
8	<i>Nixon & E Herts DC v SSHCLG & Mahoney</i> [2020] EWHC 3036 (Admin)
9	Council’s suggested conditions
10	Statement of Common Ground dated 11 May 2022
11	Extracts from Manual for Streets 1 & 2
12	Agendas for: (a) Drainage; and (b) Ecology Round Table Sessions
13	Local Highway Authority Standing Advice for Planning Authorities (Domestic Vehicle Accesses Serving 1 to 5 Dwellings) June 2016
14	Extract from TD 42/95
15	Extract from CD 123 Version 2.1.0
16	Photographs 1 – 4 taken by Philip Brown at the site access November 2021
17	Unsigned clarification note in the name of Dr Peter Webb dated 6 November 2021
18	Email from Philip Brown dated 4 November 2021 commenting on his November 2021 photographs (ID 16)
19	<p>Bundle of planning decision notices comprising:</p> <p>(a) KE/91/0526 dated 17 September 1991 Field No 6578, Broughton</p> <p>(b) KE/93/0217 dated 25 March 1993 Land adjacent Northampton Rd/A43, Broughton</p> <p>(c) Appeal decision T/APP/L2820/A/93/231264/P2 dated 11 July 1994 re application KE/93/0217 dated 25 March 1993 Land adjacent Northampton Rd/A43, Broughton</p> <p>(d) KE/97/0068 dated 7 February 1997 The old caravan site, Broughton</p>

	<p>(e) KET/2009/0155 dated 1 July 2009 Land at Stoke Albany Rd, Desborough</p> <p>(f) KET/2011/0363 dated 20 June 2012 The Old Willows, Unit 10, Old Northampton Rd, Broughton</p> <p>(g) KET/2014/0532 dated 23 January 2015 Woodside (NE of) Stoke Albany Rd, Desborough</p> <p>(h) KET/2014/0695 dated 3 July 2015 The Old Willows, 10 Old Northampton Rd, Broughton</p> <p>(i) KET/2016/0847 dated 24 July 2017 The Old Willows, 10 Northampton Rd, Broughton</p> <p>(j) KET/2017/0980 dated 13 April 2018 The Old Willows, 10 Northampton Rd, Broughton</p> <p>(k) KET/2018/0531 dated 20 December 2018 Land adjacent to Woodside, Stoke Albany Rd, Desborough</p> <p>(l) KET/2020/0318 dated 17 February 2021 The Old Willows, 10 Northampton Rd, Broughton</p>
20	Agreed summary of restrictions on travel as of 23 June 2020
21	Mr Brown's note regarding permitted development rights, agreed by all parties (save that the Council indicated it did not fully agree the final paragraph)
22	The appellant's ecologist's clarification note (ID17) as signed by him on 26 May 2022
23	Extracts from the North Northamptonshire Joint Core Strategy 2011 - 2031 including paragraph 3.37 of the supporting text
24	Statement of Hannah Reneerkens
25	Additional suggested conditions
26	R.6 Closing submissions
27	Council's closing submissions
28	Appellant's closing submissions
29	<i>Smith v FSS & Mid-Bedfordshire DC</i> [2005] EWCA 859 ⁴¹

⁴¹ This was submitted by the appellant by email at 10:45 on 30 May 2022, after the close of the inquiry, by agreement with the Council and R.6 party.

APPENDIX 8 Submission by Mr Hermann

THATCHED HOUSE FARM
DUNSFOLD ROAD
LOXHILL
GODALMING
SURREY
GU8 4BW

6th March 2023

Dear Sir,

WA/2023/00470

**Plot 3, Site 1, LAND NORTH OF LYDIA PARK CENTRED COORDINATES 502149
137873, Stovold's Hill, Cranleigh, Surrey.**

Applicant: Matthew Doherty (Smith)

Description: Change of use to use as a residential caravan site for 1 gypsy/traveller family, comprising 1 no. Static Mobile Home (Caravan) and a 1 no. Touring Caravan, 1 no. Day Room, hardstanding to provide parking (part retrospective).

On 15 October 2021 I submitted a neutral comment, in respect of WA/2021/02307 which lies adjacent to this application.

If you are minded to grant planning consent to WA/2023/00470, I would request that you address the same points as those that I raised previously, but with particular emphasis on the following matters:

- 1 There is no separation between the area upon which hardcore has been deposited and Thatched House Farm's land. Adequate land drainage should therefore be undertaken, to prevent surface water run-off from the hardstanding onto our fields, which we farm organically and use for the rearing of rare-breed pigs and sheep.
- 2 Close-board fencing and/or bunding should be erected in order to prevent domestic materials from entering the fields, which could endanger livestock.
- 3 Thatched House Farm has three ponds which are fed by springs, surface and sub-surface run-off water from Loxhill, Hascombe Hill and High Loxley.

Water flows into the ponds and then, via a sluice, into a watercourse, which runs from Thatched House Farm, along the side of the concrete track (which gives access to the Applicant's site), and eventually through a conduit under Stovolds Hill, before finally discharging into the River Wey.

However, the application refers to this long-established water course as '*nothing more than a ditch*'. It also states that '*The surface water is confined to land outside the application site and therefore is not applicable to the application.*'

This is incorrect. The water-course conveys a high volume of water, particularly during times of heavy rainfall.

As I pointed out in my previous comments relating to WA/2021/02307, the watercourse has been filled-in at the entrance of the Applicants' land, presumably to provide access to the site.

Although I have received assurances by the various owners of the plots, of which WA/2023/00470 forms part, that a conduit was, or will be, installed into the watercourse, water is currently not running smoothly.

This poses a risk of flooding not only to the applicants of WA/2023/00470 but also to dwellings upstream, to the west of the Applicant's site, including dwellings at Lydia Park, "Weeping Willows" and Thatched House Farm. Indeed, there is already an increasing amount of standing water in Thatched House Farm's woodland at the boundary with "Weeping Willows".

As this is a direct result of the filling-in of the watercourse, the application does affect land outside the site and therefore conditions should be imposed to ensure the restoration and patency of the watercourse, regardless of whether or not consent is granted.

(See attached photographs and plans).

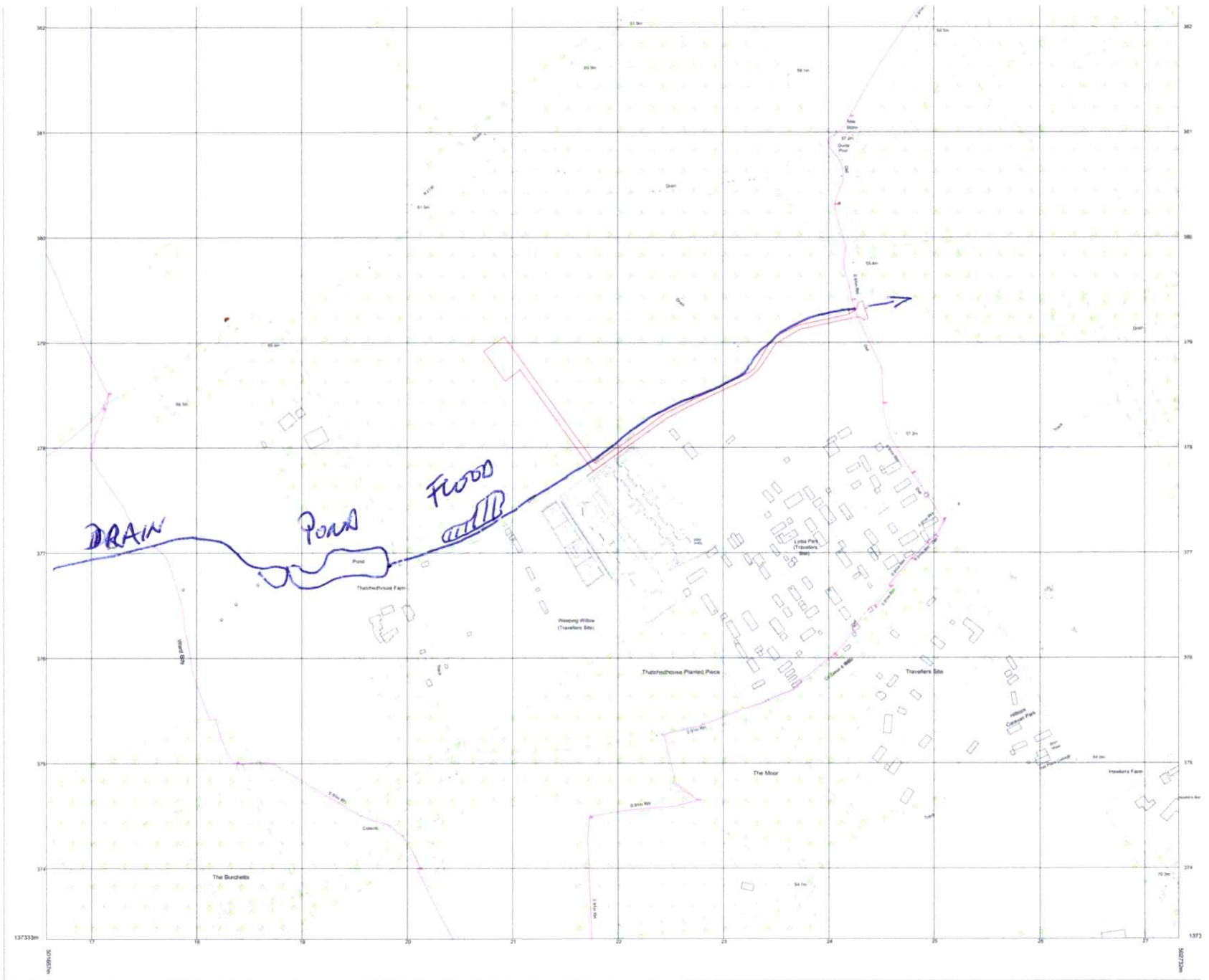
- 4 The fields and woodland surrounding the applicant's plot, provide important wildlife habitat and should be subjected to the same ecological assessments as we have had to undertake, in relation to recent planning applications at Thatched House Farm. These included arboriculture, habitat, bat, reptile and butterfly surveys, some of which necessitated remedial measures.
- 5 The caravans that are currently on the site are visually intrusive on the AGLV and AONB, and therefore, should consent be granted, conditions should be imposed requiring sympathetic building materials, adequate screening and a prohibition on floodlighting.

Yours sincerely,

ASHLEY HERMAN







LOCATION PLAN @1:1250
 OS ID: OI1571016



00371



- proposed parking space /touring caravan space
- static caravan
- dayroom
- shared dayroom
- post and rail fence
- proposed hedge to provide screening
- previous approved site for 9 pitches
- vegetation (land outside ownership)
- previous approved site for 5 pitches

20 0 20 40
Metres

Track
BLOCK PLAN @1:500
OS ID: OI1571016

Proposed block plan
Proposed change of use of agricultural land to residential gypsy and traveller site
Land at Stavok's Hill, Dunstold, Cranleigh, GU6 8TB
Scale 1:500
Date: January 2023
Drawing Number: GP/02/23 Rev
Image Design Ltd
La Camera, Marumville, Boulevard Normandie, France 27260
Tel: 0033 23241 2899 email: image@designltd@live.co.uk

Thatchedhouse Planted Piece

Travellers Site

APPENDIX 9 Butterfly Conservation factsheet on Wood White

Habitat management for the Wood White

Woodland rides

Aim to maintain a continuity of open sunny rides, with grass or scrub margins that are lightly shaded by surrounding trees and have abundant vetches.

Ride Management

Rotational cutting of clearings and rides is most beneficial. The time of year and frequency of cutting plays a key role in determining the composition and structure of ride vegetation, but this is also affected by soil type so the effect will vary between sites. Cutting at any time of year, whatever method is used to cut and remove material, is very likely to affect or destroy some life stages so it is important to only cut part of the verge in any one year and to monitor the impact. Length of rotation will depend on the individual site, but edges can be mown every 2 to 4 years and scrub margins cut every 4 to 8 years. Cutting in autumn and winter months is preferable.

Periodic cutting of scrub margins is beneficial to keep rides as sunny as possible and to provide suitable conditions for the growth of larval foodplants and nectar plants. Connectivity between existing breeding habitat can be improved by widening overgrown, shaded rides. Scallops and box junctions can also be created to make the breeding habitat more open and to create refuge habitat away from the verge edges. Management should be planned in sections to avoid disrupting large areas at any time.

Combining Conservation Management with Forestry Operations

Forestry operations may have significant impacts on breeding areas along rides. The road/verge edge tends to receive regular disturbance as all operational forest roads undergo periodic maintenance (grading) during which this zone is scraped back to bare ground. This ground disturbance eventually

creates good breeding habitat but will destroy it in the short term. Wherever possible, grading should be carried out in sections or on one ride margin at a time.

Features such as turning circles and loading bays can also provide good breeding habitat, but again this habitat will be damaged or destroyed at intervals. This is also the case for most roadside ditches, created to take the run-off from the surfaced roads. These ditches, their banks and associated vegetation provide habitat for Wood White, but they will be regularly re-dug, with spoil removed to the ditch banks or verge edge.

Other activities such as timber removal will affect the verge habitats. Vehicles, including forestry machinery, will often need to use the verge and timber is regularly stacked on ride edges for considerable periods of time.

A range of possible solutions include: -

- Ensuring that the entire ride network is not managed uniformly in any one year.
- Providing refuge breeding areas.
- Monitoring key breeding areas so that potential problems can be avoided or mitigated.
- Putting in place temporary protection of some habitats (such as temporary fencing around a particularly sensitive patch during forestry work)

High Forest Rotation and Coppicing

Suitable conditions can be provided by ensuring a sequence of felling and replanting to create an uneven-aged forest, combined with the maintenance of a network of sunny rides and glades. Re-introduction of coppicing can also improve woodland structure and provide suitable semi-shaded habitat. As with other woodlands, a wide ride network is also needed in coppiced woods.

Hedgerows and grass/scrub mosaics

Maintain open but sheltered habitat containing abundant vetches in and around scrub patches and along adjacent hedgerows.

Grazing

Heavy grazing by either sheep or cattle is generally unsuitable as this removes the tall grass/scrub margins to field edges. Extensive cattle grazing is probably the most suitable regime, but should be combined with periodic cutting of scrub/hedge margins or rotational scrub or hedge management (c. 10 to 20 years). Domestic livestock grazing regimes should also take account of deer and rabbit populations which can have a significant deleterious impact.

Cutting

On sites with no grazing, periodic grass cutting can be beneficial, although this should be done on a long rotation without cutting all suitable areas in any one year. As with grazing, scrub/hedge margins should be cut periodically, preferably on rotation, to create abundant young scrub where vetches and grass can grow through.

On coastal undercliffs, the optimum balance of scrub/grass interface with abundant vetches is largely maintained by continual cliff falls and soil slippage. However, periodic scrub clearance may also be beneficial at these sites if it is safe to do so.



Greater Bird's-foot-trefoil on ride edge



Breeding habitat in woodland with differently mown ride edges



Butterfly Conservation

Saving butterflies, moths and our environment

Head Office Manor Yard, East Lulworth, Wareham, Dorset, BH20 5QP
Telephone: 01929 400209 Email: info@butterfly-conservation.org

www.butterfly-conservation.org

Butterfly Conservation is registered charity and non-profit making company, limited by guarantee.

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Original design by cellcreative 01942 681648



Original compiled by Morag McCracken & Martin Warren
Revised and updated by David Green & Susan Clarke
Photographs by David Green
March 2015

APPENDIX 10 Submission by Mr Hermann

THATCHED HOUSE FARM
DUNSFOLD ROAD
LOXHILL
GODALMING
SURREY
GU8 4BW



15 October 2021

Dear Sir,

WA/2021/02307

CHANGE OF USE TO USE AS A RESIDENTIAL CARAVAN SITE FOR 4 GYPSY /TRAVELLER FAMILIES EACH WITH TWO CARAVANS TOGETHER WITH LAYING OF HARDSTANDING AND ERECTION OF 4 No. AMENITY BUILDINGS.

This application is, in part, retrospective because it applies to work and activities that have already taken place on the site, without planning permission.

These works have had an adverse impact on the landscape, biodiversity, trees, screening, drainage, watercourses and may result in land contamination.

LOCATION OF THE PROPOSED SITE

The site is adjacent to land owned by Thatched House Farm. It situated on unspoiled agricultural land, situated within an Area of Great Landscape Value, which provides a protective buffer to the Area of Outstanding Natural Beauty, commencing 135 metres to the North of the proposed site.

The site is exposed to the AGLV and AONB, to the North and will be especially noticeable in the Winter and Spring, when foliage on the verges of Dunsfold Road falls.

UNAUTHORISED WORKS

Over the period of the May bank holiday, from 29th to 31st May 2021, works were undertaken, without planning permission, to deposit hardcore to create hardstanding over the Applicant's site.

Furthermore, several mature specimen oak trees were felled, along with other plants and trees, which screened Lydia Park, immediately to the South of the application site.

This action has now exposed a proportion of Lydia Park to the AGLV and AONB, whereas, beforehand, it was well screened.

The oak trees were effective at draining the land as well as enhancing the beauty of the landscape. Their loss is irreparable.

ENFORCEMENT ACTION AND INJUNCTION

The unauthorised works resulted in an immediate enforcement action by the Borough Council, resulting in a blanket Tree Preservation Order, encompassing not only the Applicant's site but also all neighbouring land, including some of Thatched House Farm's land.

Waverley Borough Council then obtained an injunction, granted by the High Court, (QB-2021-002721) preventing further unlawful activity by the Applicants and others.

APPLICATION FORM

There are several anomalies / inconsistencies in the form as follows:

Para 5 The work commenced on 29 May 2021, not 4th June 2021.

Para 6 The site was vacant agricultural land at the date of the commencement of the work in May. The Injunction maintains vacancy within its provisions.

It is reasonable to suppose that, had Planning Permission been granted, the works would have been governed by conditions ensuring that appropriate measures were taken to comply with Borough Council, County Council and Environment Agency regulations and that these would have included - but not have been limited - to:

- The hardcore deposited on the site being licensed and certified to be inert
- Adequate land drainage works
- Preventative measures to avoid the leaching of contaminants from hardcore, surface water and domestic drainage into topsoil and sub-strata of the neighbouring fields, including land owned and farmed by Thatched House Farm.
- A Management plan for safeguarding the patency of the watercourse running through the site
- The adoption of a land and planting management plan, to mitigate the loss of mature trees and screening.
- Protection of biodiversity

To the best of my knowledge, none of the above points were addressed when the work was undertaken without planning consent.

RETROSPECTIVE INSPECTION AND MITIGATION

The composition of the top and sub-soil of the application site and neighbouring land, comprises a thin layer of loam, over Wealden Clay. In times of rainfall, during the Spring, Autumn and Winter, the land is liable to be waterlogged and "boggy", unless land-drains

have been installed. It is reasonable to suppose that no land drains were installed when the hardcore was deposited on the proposed site.

Thatched House Farm's farming activities are organic. No chemicals or pesticides are used on the land. We rear livestock in the fields next to the Applicant's site which are now susceptible to contaminants leaching from, or running off, the hardcore. This would be extremely damaging to the land, the environment and to our reputation.

Therefore, it is vital for an inspection and examination of the hardcore materials deposited on the proposed site, to be undertaken and for the methodology employed investigated to ensure that adequate drainage, leaching prevention and flood risks have been mitigated.

DESIGN

Para 7 The proposed designs and materials of the buildings are not in keeping with Surrey Vernacular, particularly within the AGLV.

SCREENING

Para 8 Two metre high, close-boarded fencing is incongruous in the countryside, nor will it adequately screen the site, especially when viewed from the AGLV and AONB.

Para 9 The removal of the trees and screening to the south of the application site was in contravention of the *Wildlife and Countryside Act 1981*, in which it is a specific offence to undertake such work between March and August.

Furthermore, the tree felling should have been subject to a Forestry Commission felling licence.

A plan for the replacement of the trees and screening should be implemented, regardless of the outcome of this Application.

WATERCOURSE

The Application form fails to acknowledge the existence of a watercourse running through the proposed site.

Thatched House Farm's ponds and streams collect water from underground springs, surface and sub-surface run-off from Loxhill, Hascombe Hill and High Loxley.

Overflow water from the ponds is conducted into the long-established watercourse, which runs from Thatched House Farm, through the Applicant's site, and eventually to a conduit under Stovolds Hill, before finally discharging into the River Wey.

It is a matter of considerable concern that the watercourse was filled with hardcore and trunks of the felled trees during the recent activities, in order to provide a permanent access to the Applicant's site.

The [Flood and Water Management Act 2010](#), requires that Surrey County Council (as the Lead Local Flood Authority) should be the consenting authority for any proposed structures

and obstructions within a watercourse, which require consent under section 23 of the Land Drainage Act 1991.

To the best of my knowledge, no such consent has been granted.

Although the Applicant has stated to my agent that a conduit was installed when the water course was filled in, a significant degree of standing water has been observed throughout the summer, which gives cause for concern as to the long-term patency of the watercourse and its ability to conduct water, now that it has been filled.

As a result, properties upstream and to the West of the Applicant's site, including dwellings at Lydia Park, "Weeping Willows" and Thatched House Farm, are now at risk of flooding.

This matter must be inspected urgently by the Borough and County Council and remedied, if necessary.

BIODIVERSITY

Para 12 The omission of noting the existence of the watercourse in the Application also demonstrates disregard for the significant biodiversity hosted by it.

Within 30 metres to the West of the proposed site, the watercourse broadens out into marshy wetland which provides important habitat.

The felling of the trees removed significant habitat for (possible nesting) domiciled and migratory birds and at least two species of bat, (as is reflected in a habitat survey undertaken for a recent planning application at Thatched House Farm).

ENDANGERED SPECIES: *WOOD WHITE BUTTERFLY*

Thatched House Farm's land, adjacent to the site, is host to the endangered Wood White butterfly, one of the UK's rarest and most threatened species. It is reasonable to assume that the proposed site would also have provided such habitat, prior to the depositing of hardcore.

In Southeast England, there is just one surviving colony of the Wood White butterfly, which inhabits the woodland, edges and verges between Chiddingfold, Dunsfold and Plaistow

The application site falls within this designation, which forms a "key area" and is home to 20% of the Wood White's entire UK distribution.

At Thatched House Farm, we are currently involved with the Butterfly Conservancy in a project to introduce further suitable habitat for the Wood White and have undertaken specialised planting, in the field adjacent to the proposed site, to encourage and sustain the species.

The proposed site should therefore be subject to a detailed biodiversity and environmental assessment.

OWNERSHIP

Para 25 The Application states that the address of the Owner or Agricultural Tenant of the plot is: Plot 12, Lydia Park but no name is provided. I am acquainted with the owner/resident of 12 Lydia Park, who denies being the owner or tenant of the Application site. Furthermore, he has no knowledge of having received a notice of the application.

This may cast doubt on the validity of the application.

LIGHT POLLUTION

The imposition of inevitably bright security lighting of the proposed dwellings would result in light pollution, not only incongruous to the countryside but also damaging to nocturnal species, including the bats, owls, nightingales, moths and butterflies that inhabit the site and its environs.

SUSTAINABILITY

The proposed siting of accommodation for four families, on such a relatively restricted plot, would result in over-crowded living conditions and a significant loss of green space and biodiversity. It constitutes unsustainable development within the countryside and AGLV and does not comply with the Local Plan.

CONDITIONS

In the light of the Local Plan, consideration should be given as to the establishment of precedent but, should the Council be minded to grant planning consent, I would request that conditions, governing not only future activities on the proposed site but also covering the retrospective works be applied.

These conditions should especially govern:

- Inspection and certification of the composition of the hard core used to create the hardstanding
- Protecting Thatched House Farm's land as a result of the development.
- Surface water and land drainage
- Blocking of the water course
- Loss of habitat
- Screening
- Tree planting

- Light pollution
- Housing density.

Yours sincerely,



ASHLEY HERMAN

APPENDIX 11 'Saving the Wood White' project report

Saving the Wood White Butterfly

Project Report

Paul Cawsey



**Butterfly
Conservation**

Saving butterflies, moths and our environment



Made possible with

**Heritage
Fund**

Contents

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Aims and Scope	p.7
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Recommendations and future work	p.21
References	p.22
Appendix 1. List of sites in project area	p.23

Citation: Cawsey, P. (2023) Saving the Wood White Butterfly, Project Report.
Butterfly Conservation, Manor Yard, Wareham, Dorset.

Executive summary

The 'Saving the Wood White Project' was initially a three-year project, funded by the HLF and focused around the area of Chiddingfold in Surrey, one of the last strongholds of the Wood White in the UK. The decline in the species has been due to removal of its habitat through development, expansion of forestry and intensive agriculture. The main aims of the project centred around creating 3km of new Wood White habitat across the project area and in doing so to engage with existing volunteers and recruit new volunteers to become involved in habitat management work and monitoring of the species and other wildlife.

The project created 2.42 km of new habitat across the project area and engaged with 98 volunteers. Comparing pre- and post- project distribution records, it has been observed that new records of the Wood White are now occurring in areas where new habitat was created or habitat management was undertaken, especially around the village of Chiddingfold. This is encouraging as it shows that new areas of habitat can act as steppingstones for the species to disperse from the main Chiddingfold Forest complex. The records on the outlying edges of the project area give an indication that the species may be more widespread than previously thought, however more concentrated recording is required in these areas.

Results from analysing the pre- and post- project Wood White records indicate a general increase in numbers across all transects apart from Oaken Wood West and Chiddingfold forest South. Both these transects did not have a regular transect walker until 2017 in the former and 2021 in the latter.

Volunteer engagement increased throughout the project through a series of public events and training days. As project legacy, the continued involvement of these volunteers is crucial to the next step of the work to save the Wood White.

Covid had a severe impact on the project, i.e. with reducing the transect walking and engagement with volunteers and this was a major factor in not creating the anticipated 3km of new habitat.

However, through the creation of new habitat and appropriate management of existing habitat, this project has shown that it is possible to both expand the distribution of the species and develop a better understanding of the trends in Wood White numbers through appropriate management and an increase in survey effort.

Saving the Wood White butterfly (*Leptidia sinapsis*)

Introduction

Conservation status and ecology

The Wood White is a delicate slow-flying butterfly associated with sheltered rides in woodland and scrub edges. The butterfly is categorised as endangered in the UK, is currently on the Butterfly Conservation Red List and is one of the UK's most threatened species, being a species of conservation priority. In the UK it is thought to be at the northern limit of its European range (Eeles, 2019). This small, delicate, and charismatic butterfly has suffered major declines in distribution and abundance over the past few decades. Historic declines have been primarily due to a reduction in the available habitat for the species, both through loss of land to development and intensive agriculture and a shift in land management practices. This has led to a fragmented population in the project area with Chiddingfold Forest being the main colony stronghold. Our historic data shows it has suffered declines nationally both in distribution (89%) and abundance (88%) (1976-2014, source: Butterflies for the New Millennium Database). The small and isolated Southeast England population is still currently declining and hence the need for this project. The Chiddingfold forest complex in Surrey holds around 20% of the national UK population and was the target area for the restoration of existing habitat and creation of new habitat to aid the recovery of this species.

Conservation Status:

- UK BAP status: Priority Species.
- Section 41 species of principal importance under the NERC Act in England.
- Listed on Section 7 of the Environment (Wales) Act 2016'
- Protected under Schedule 5 of the 1981 Wildlife and Countryside Act (for sale only).
- European Status: Not threatened.

Distinguished by round edges to its forewing, the male also having a black mark towards the edge of the forewing. Usually flying no more than 1 m above the ground and despite its delicate appearance, this species can undertake prolonged flying and the male can fly up to 2 km in search of a female.

In the UK, adults typically emerge in early May, though in some colonies this has been shown to occur as early as the end of April depending on weather conditions. Adults from the first brood are seen until late June. Depending on colony location, there may be a second brood that emerges from Mid-July until the end of August / early September. After mating the female will lay eggs on suitable foodplants, the most common being:

- Meadow Vetchling *Lathyrus pratensis*.
- Greater Bird's-foot-trefoil *Lotus pedunculatus*.
- Bird's-foot-trefoil *Lotus corniculatus*.
- Tufted Vetch *Vicia cracca*.
- Bitter Vetch *Lathyrus linifolius*.

At final instar, the larva leaves the food plants and may travel for several days until they reach a suitable site for pupation. This tends to be on taller vegetation such as grasses, sedges, and various wild roses but not the host food plant. Pupae are difficult to spot in the wild.

Project area

One of the last remaining strongholds for the butterfly in the South East is the Chiddingfold forest complex, situated just outside of the village of Chiddingfold in Surrey, the project boundaries are shown in (Figure 1.) and forms part of the wider West Weald landscape.

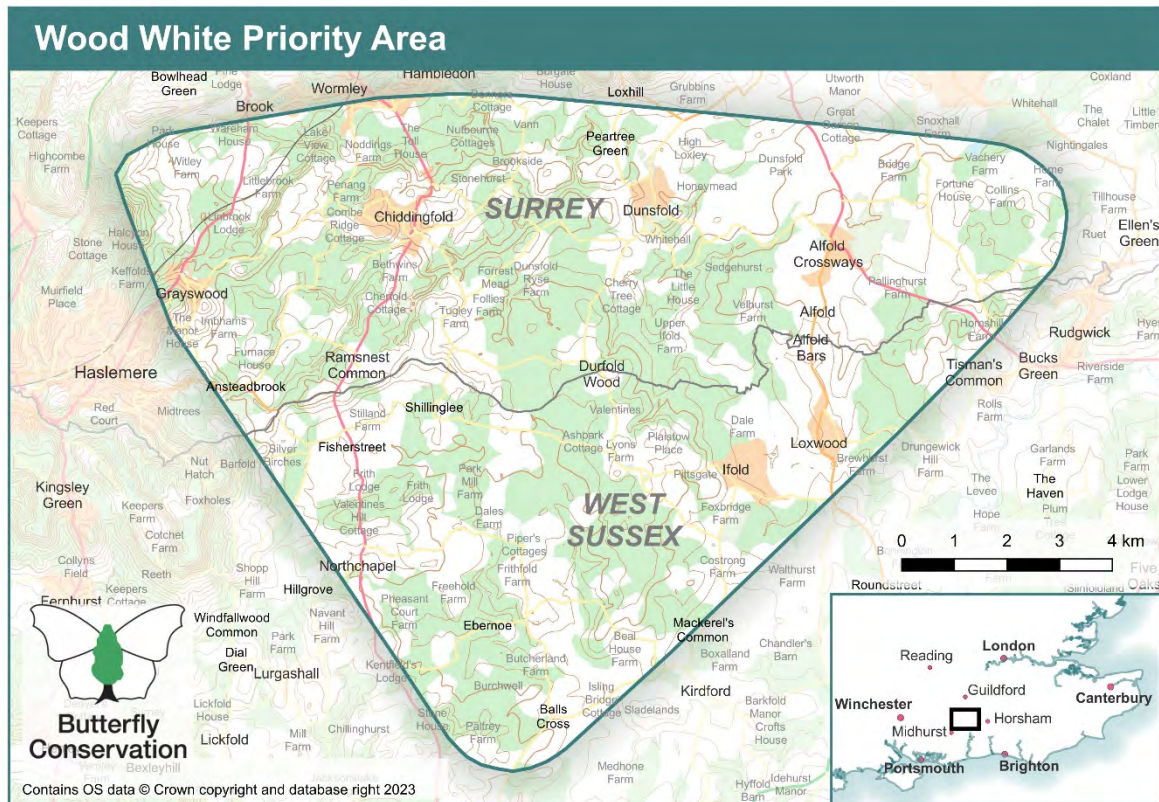


Figure 1 Saving the Wood White project area boundary.

Aims and scope

The aims and scope of the project were to:

- Create improved and better-connected habitat quality for the Wood White.
- To develop and use improved management practices to gain better understanding of how to manage habitats for biodiversity.
- To gather better evidence of the impact on species numbers.
- To increase in volunteer engagement and support for Butterfly Conservation.
- To develop improved skills, wellbeing and ownership amongst volunteers and the wider community.
- To attract more visitors to Chiddingfold Forest and an increase in appreciation of the importance of the Wood White and nature conservation in general.
- To enable a greater range and diversity of people engaging in nature.
- To encourage more people to value nature/wildlife and become inspired to take action.

Project approach

1. Habitat improvement and creation

The project aimed to create a minimum of 3km of habitat suitable for the Wood White and associated species in the West Weald area utilising experienced Butterfly Conservation staff, and external experts and contractors. A specific seed mixture containing both the larval food plants and nectar sources for adult butterflies was supplied from Boston Seeds, along with plug plants sourced from local suppliers and Kew Gardens at Wakehurst Place.

Habitat management was undertaken with volunteer work parties and local contractors.

2. Partners.

At the outset of the project, we engaged with key partners within the project area, these included:

- Forestry England.
- Natural England.
- Surrey Wildlife Trust.
- Sussex Wildlife Trust.
- National Trust.
- South Downs AONB.

3. Demonstration, training & advocacy

Demonstration, training & advocacy was a critical component of the project, with the aim of:

- Recruiting and training 180 volunteers in seed collecting, propagation and sowing, butterfly and bee recording, surveying and monitoring, habitat creation for reptiles and amphibians, and conservation work party leadership.
- Hosting public talks in Chiddingfold, Dunsfold and Plaistow on butterfly and local wildlife conservation, and to share the project's findings.
- Hosting 3 public guided walks to see the Wood White.
- Hosting a guided walk for landowners to see the Wood White.
- Undertaking a seed collection event with Royal Botanic Gardens, Kew.
- Facilitating 3 school visits to promote and engage students in local butterfly and wildlife conservation.
- Creating a film showcasing the project's activities and the local communities' feedback.
- Sharing project learning in wildlife publications, and with project participants.
- Publicising the project in local and social media, and at public events

4. Survey and monitoring

Surveys were undertaken along fixed transects during the butterfly's flight period following standard Butterfly Monitoring Survey (BMS) methodology. Traditional transects (Pollard walks) are walked weekly by volunteers, staff and other interested parties and provide high quality data. The fixed route transects are walked once per week between 1st April and the 29th September. This standard methodology provides robust measurement of changes in butterfly abundance and site level changes in population.

Ad hoc records were also submitted by project staff, volunteers and landowners via iRecord and The Big Butterfly Count.

Impacts and successes

1. Habitat improvement and creation

Partnership working with Forestry England, Sussex Wildlife Trust, volunteers and other local partners has helped to improve habitat quality and connectivity across the project area and has succeeded in creating 2.42km of additional new habitat in 2m wide strips. Figure 2 shows the areas planted with either the Wood White wildflower seed mix and / or plug plants. A full list of sites where habitat has been created is given in appendix 1.

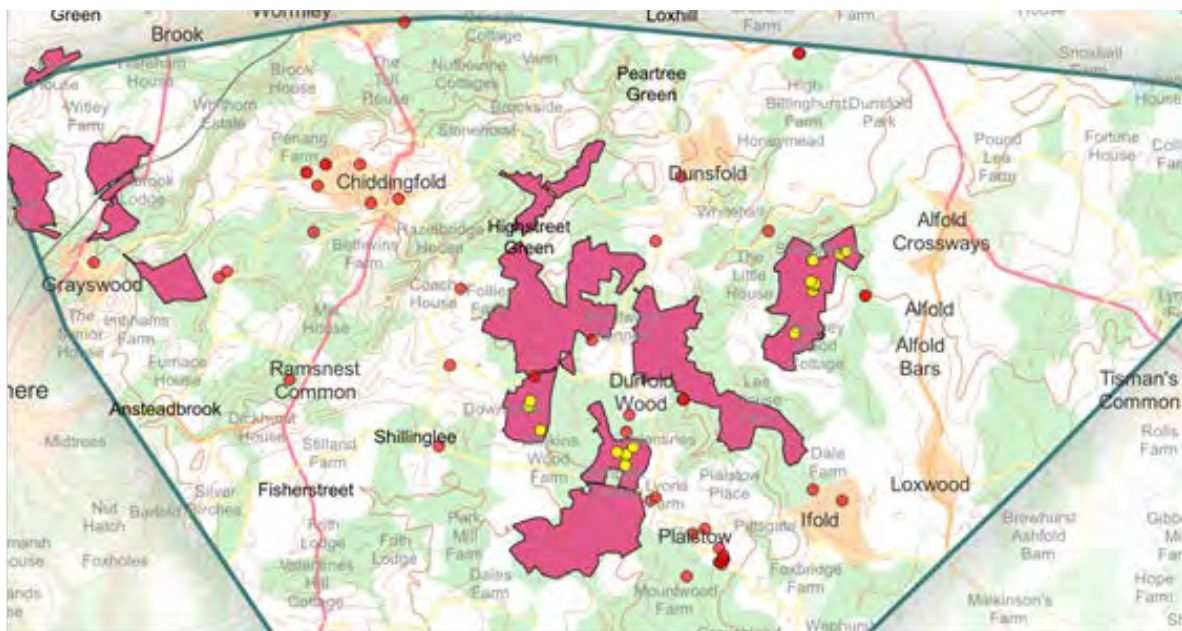


Figure 2 Map showing habitat area created. Yellow dots: new habitat created within Forestry England land boundaries. Pink dots: habitat created outside FE owned land.

With the increase in habitat outside of the main Chiddingfold Forest colony, Wood White butterflies have been recorded in outlying areas including the church yard at Chiddingfold and Grayswood House. This indicates that if suitable habitat is created and monitored, the Wood White will start to colonise new areas.

Similarly, where the project has worked with landowners on the management of areas that already contain the larval food plants, the species has also been recorded outside of the main colony stronghold. These areas include Sydney Wood, Alfold and the Grayswood area, where new records post-2019 have been reported.

This indicates that with a combination of new habitat creation and correct habitat management, the Wood White will occupy these outlying areas.

2. Species response

Figure 3 shows the distribution of the Wood White records pre and post 2019. This indicates that overall there has been a small increase in the spatial distribution of Wood White records beyond the extent of the pre-2019 distribution. This links into the habitat creation and management work that was undertaken, both within the main Chiddingfold forest complex and in outlying areas. These new records can be used to target future survey work, especially in the outlying areas where recording is more on an ad hoc basis rather than by transect walking.

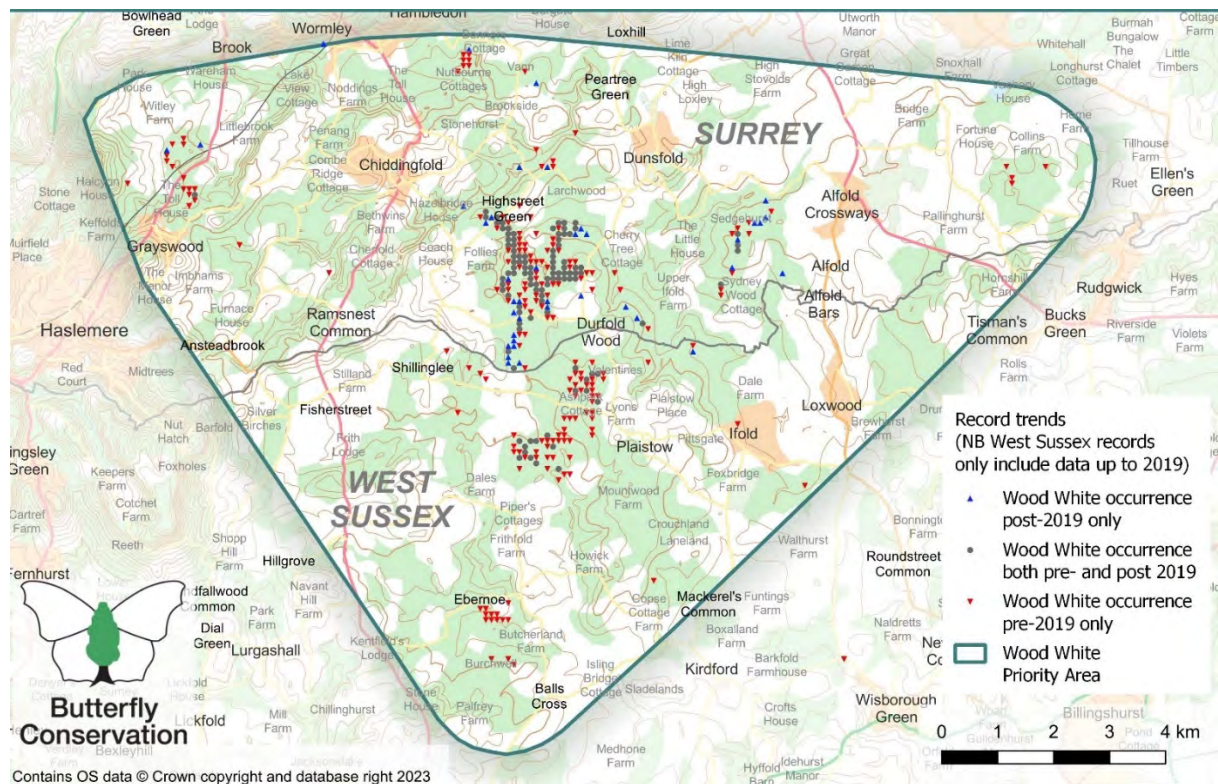


Figure 3 Wood White distribution pre- and post- project initiation in 2019.

Figures 4 to 10 below show the total annual number of Wood White butterflies recorded across each transect walked. The count data is extracted from the UKBMS database and represents the estimated numbers recorded.

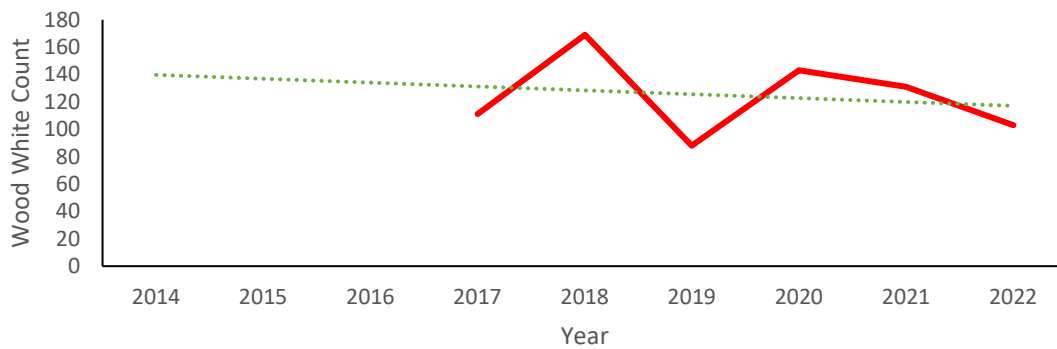


Figure 4 **Annual Wood White transect numbers: Oaken Wood West**

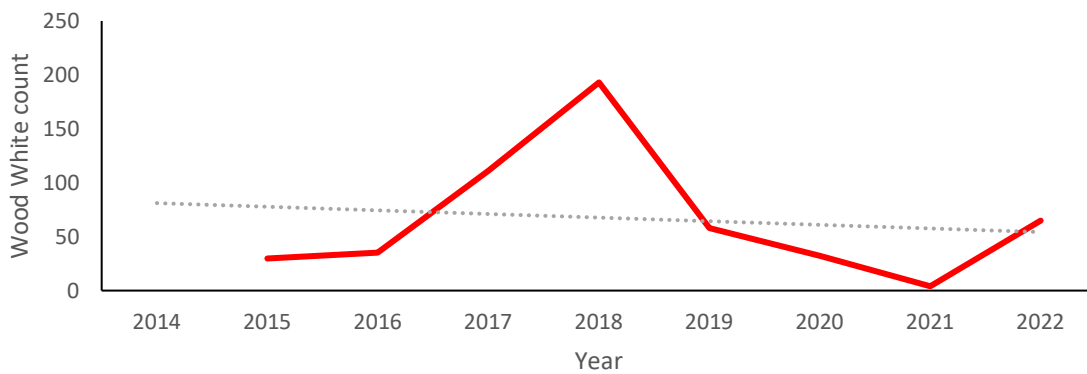


Figure 5 **Annual Wood White transect numbers: Chiddingfold Forest South**

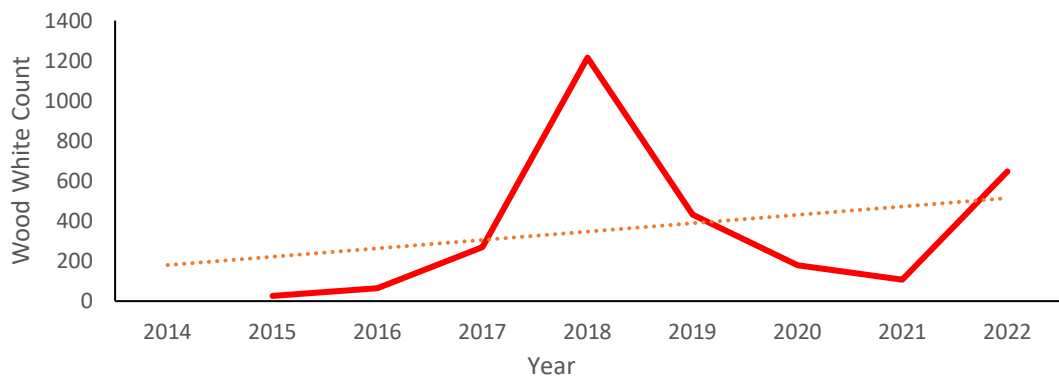


Figure 6 **Annual Wood White transect numbers: Chiddingfold Forest East**

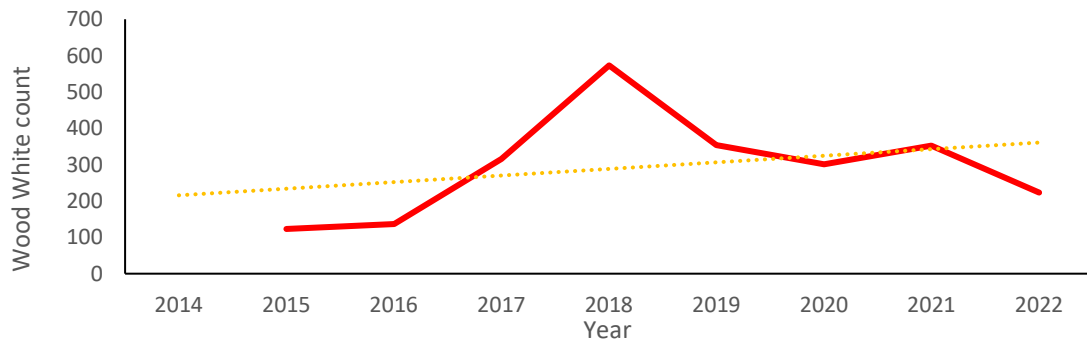


Figure 7 Annual Wood White transect numbers: Chiddingfold Forest West

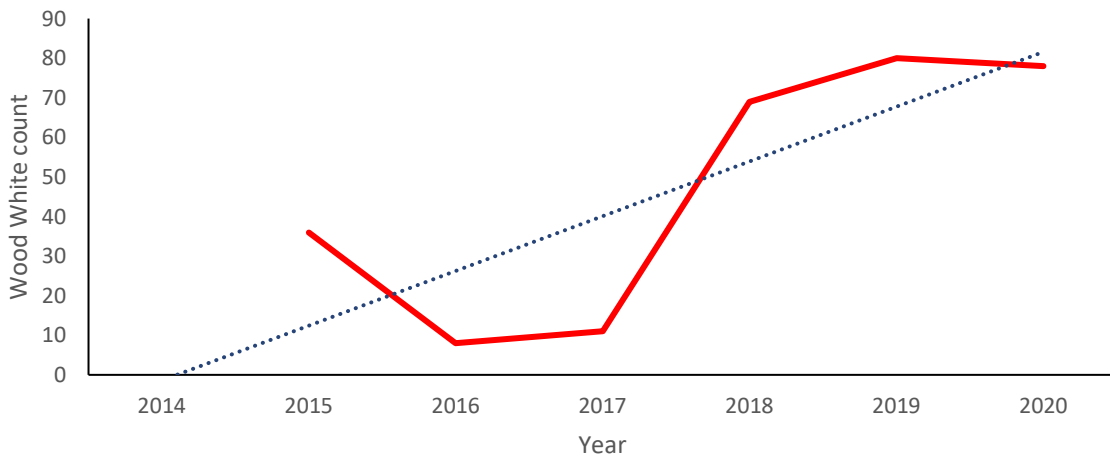


Figure 8 Annual Wood White transect numbers: Oaken Wood Chiddingfold

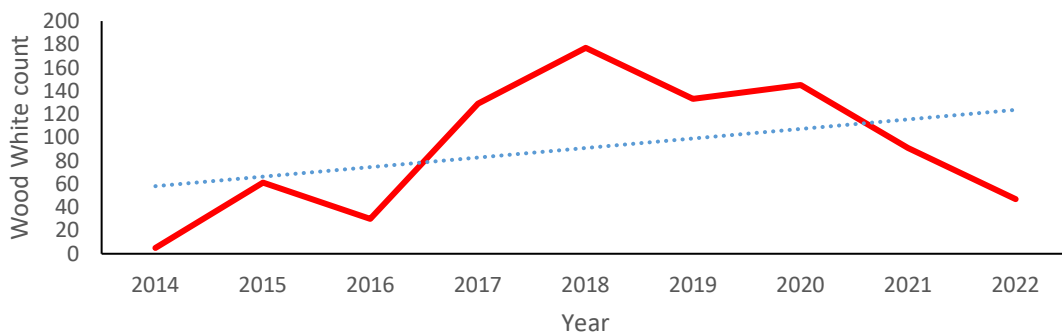


Figure 9 Annual Wood White transect numbers: Kingspark Wood

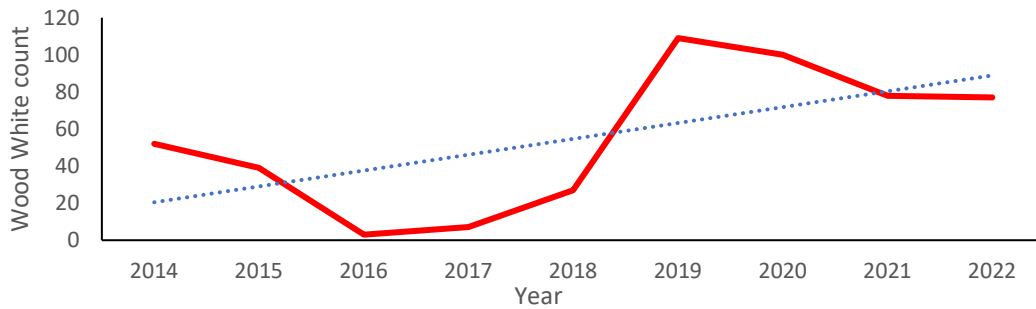


Figure 10 **Annual Wood White transect numbers: Ashpark Wood**

Individually five of seven transects show an upward trend, as indicated by the trend line, in population numbers but with peaks and troughs throughout the time period. The exceptions to this are the transects at Chiddingfold. Oaken Wood West and Chiddingfold forest South, here the trend line indicates a decline in abundance, perhaps indicating the butterfly has been slower to respond to habitat improvements in these areas. Opening of the habitat at Oaken Wood West has enabled a connection with the main Oaken Wood reserve and higher numbers were then recorded from the Oaken Wood West transect once this vital management work was carried out. The decline post 2021 at Oaken Wood West may be due to the butterflies utilising the greater expanse of suitable habitat within the Oaken Wood reserve itself and therefore may be moving from that area.

All graphs show a peak in numbers in 2018, indicating a particularly good year for the butterfly across the Chiddingfold complex, and potentially may be due to FE managing the habitat on a rotational basis which ensures uncut rides persist, providing safe overwintering habitat for Wood White pupae.

Overall, the increase in abundance recorded along the transects may be related to the following factors:

- Habitat management work within the forest complex has increased habitat suitability for the species and this has led to an increase overall in numbers recorded. It is vital that habitat management work continues within these areas and this will require close collaboration with FE
- Opening up habitat stepping-stones within the main forest complex seems to have allowed more connectivity throughout the forest which has led to increased numbers being recorded along transects such as Oaken Wood West initially.

3. Engagement and partnerships

Engagement with key partners at the outset enabled access to land that had previously not been assessed for potential Wood White habitat, especially in the outlying areas of the project. A positive relationship existed with Forestry England which allowed volunteers to walk the transects and carry out practical conservation work.

Engagement with private landowners was essential to the success of the project, enabling the development of habitat outside of the core colony areas. Without this engagement it would have been difficult to access land other than that belonging to FE, AONB, the National Trust and the Wildlife Trusts. By accessing this land, we were able to utilise volunteers from other organisations in both the practical habitat work and engage with these volunteers on our bee walk and ID training sessions.

The partnership formed with Kew Gardens at Wakehurst Place was invaluable in providing volunteers with expert advice on how to collect and store wildflower seed. The knowledge obtained was used in a small public seed collection event in the late summer of 2022. This training not only enabled the volunteers to gain knowledge in seed collection and storage but also in the identification of the larval and adult food plants. All of the seed collected will be used to seed new areas around the village of Chiddingfold: this has the advantage of using local provenance seed rather than buying in a seed mix from external suppliers.

Throughout the project, volunteers were engaged in practical habitat creation and habitat management work parties. These occurred on both Forestry England sites and on privately owned sites across the project area (Appendix 1). Most of the volunteers were established BC volunteers who had been undertaking practical work at Oaken Wood prior to the projects start. New volunteers were recruited via the project's presence at the Chiddingfold and Dunsfold village fetes as well as through direct contact. In total 92 volunteers took part in the training and practical work parties. Recruitment of volunteers was put on hold during the covid pandemic lockdown and this impacted on engaging and recruiting volunteers during this period. Without the volunteers, critical aspects of the project such as habitat creation and transect walking would not happen and therefore the engagement of volunteers has been crucial in achieving the outcomes of the project. Habitat creation could have been given solely to external contractors but this would then reduce the volunteer engagement and subsequently reduce their engagement in the project.

Three public butterfly walks and talks were held. These focused on identification of the Wood White and its habitat requirements. A total of eight people attended the butterfly identification walks. In the summer of 2022, two bee identification walks and talks were held, with a total of 15 people attending these. At the later event we had volunteers from Sussex Wildlife Trust and AONB along with our own project volunteers. The public walks led to two new volunteers becoming involved with transect walking and these people were given extra training in transect monitoring and recording species which led to a development of new skills for the volunteers.

Throughout the project we engaged in other public outreach activities including giving talks to the Women's Institute (WI) group in Dunsfold, talks to Dunsfold and Plaistow

parish councils and The Friends of Dunsfold Common. The latter resulted in permission to seed a large area of the common boundary with the Wood White food plant mix. Up until that point, any progress with persuading the Parish Council to sow a wildflower seed mix had been met with resistance. Good links with St Marys' Primary School were developed and one group of pupils took part in the filming of planting wildflowers plug plants at the Church in Chiddingfold. As part of the school's engagement, seeds were donated for sowing in the school grounds and a talk on butterflies and insects was given to a group of pupils at the school.

As a result of the Wood White talks and workshops we recruited two new transect walkers for the Chiddingfold area. This allowed us to increase the survey effort on two transects that previously were poorly recorded. Although this led to an increase of records, recording was reduced during the covid lock down period.

Along with the public engagement work, three short films about the Wood White were made and these will be distributed to partners and through social media outlets. Articles about the project were also written for the Surrey and Sussex branch newsletters and article published in Butterfly Conservation's member magazine. By using a diverse range of media outlets, the project and its outcomes will reach a greater audience and will encourage other people to engage with nature and conservation projects on a local or national basis.

Overall volunteers contributed immensely to the project outcomes and without them the project would not have achieved its aims. Volunteers not only took part in essential habitat management but also promoted the project throughout their communities.

Lessons learnt.

1. Habitat improvement and creation

Due to the nature of the underlying soil type in the project area, several of the scrapes created became waterlogged due to the underlying soil type being clay. This had an adverse effect on the germination of the seed mix and the survival of the plug plants. To mitigate this the depth of the scrapes was reduced, and a more flexible approach taken to seed sowing / plug planting dates. By creating shallower scrapes, the risk of the seed beds becoming waterlogged was reduced as the height of the seed bed was increased above the water table.

Greater flexibility in when the seed mix was sown allowed the seed mix to be established under the best optimal conditions for germination. As the seed mix contained Yellow Rattle, it is critical to sow the seed when this is still fresh otherwise it will not germinate.

Scrape depth is critical to the germination of the seed mix and we found that initially it was difficult to maintain an even depth whilst using a turf cutter to remove the existing vegetation. The control of depth increased as project volunteers became experienced with the equipment. The use of contractors to create scrapes and bare areas increased the rate these areas were created and also ensured more consistency in depth. If volunteers are to use turf cutting machinery for habitat creation in future, investing more time in more comprehensive training to allow volunteers to gain experience, on non-critical sites, would likely result in better habitat creation outcomes.

2. Species response

Key lessons learnt were:

- Creating habitat outside of the Chiddingfold Forest complex resulted in new records for the Wood White in outlying areas.
- Habitat management within the Chiddingfold Forest complex has resulted in new records for the Wood White in areas where it was previously unrecorded.
- Habitat connectivity seems to be crucial to allow the species to colonise new areas.

3. Engagement and partnerships

Early engagement with landowners and project partners was critical for the project. We found that in some areas where we had a species champion already in place engagement was relatively straight forward, whilst in other areas much more public engagement was undertaken to make people aware of the butterfly and the project. In future, initial meetings should include a wider range of partners and landowners from the start. More time spent at the initial engagement would then provide more time for habitat creation and management. This would also allow greater engagement with partner organisations' volunteers. One crucial potential partner missing from this project was Bug Life as they were creating bee lines within the project area.

The recruitment of additional transect walkers has led to an overall increase in the number of records that were registered on the UKBMS data set and via iRecord. We found that individual volunteer time for walking allocated transects varied, this resulted in some transects having more visits than others and this is reflected in the data obtained. Restrictions placed on

transect walking during the Covid lockdown also had an adverse effect on the data and again is shown in Figures 3 – 9. The number of records in Sussex was lower than in Surrey, primarily as there was only one transect walker and all other records were added on an ad hoc basis.

Buy-in from external organisations and private landowners varied considerably across the project area and this was due to difficulty in initially finding local people from outside of the Chiddingfold area to engage and act as species champions, especially in the Dunsfold area. Along with this, two of the parish councils were very hesitant when discussing creating wildflower areas and residents had previously claimed that these areas look untidy towards the end of the summer. In future, areas which do not initially have a great deal of support should be targeted with a stronger project PR campaign and with the view of developing species / project champions and challenging perceptions and education around the benefit of wildflower areas.

Initially, landowners who participated in the project were asked to sign up to a ten-year voluntary management agreement, however uptake on this was slow and feedback suggested that a shorter timespan would be more acceptable due to the landowner age demographic being a driver of reluctance to sign the management agreements. As a result of this reluctance, the time span on the management agreement was reduced but again this did not encourage landowners to sign. A further reason given for not signing was due to the gap in staffing during the Autumn / Winter of 2022 / 2023: stakeholders felt that the project had been largely abandoned and therefore landowners did not respond to contact. In order to mitigate the reluctance of landowners to commit to voluntary management agreements, even once reduced in length, non-obligatory management advice was provided to all landowners that had taken part in the project in anticipation that they would maintain the habitat for as long as was feasible.

To encourage landowners to sign up to similar agreements in the future there should be earlier engagement and more understanding of the age demographic of landowners from the outset coupled with tailored / bespoke agreements designed in collaboration with the land owners.

Project legacy

The intended project legacy was to establish, empower, and inspire a big volunteer core to ensure the project's outcomes are sustained well beyond the funded period. The legacy of habitat creation and management will allow the Wood White to increase its distribution through connectivity of pre-existing and new habitat across the project area. Lessons learnt through improving management recommendations during the project have been passed onto the volunteers and will be used in future habitat creation projects either locally or on a wider landscape-scale. The lessons learnt through adapting habitat management and habitat creation will be used as a learning tool for future BC staff engaged in similar projects. Volunteers have developed transferable skills which can be of benefit to other sites and organisations.

The legacy of training more people in how to record both the Wood White and other wildlife will lead to a greater number of records being taken which can then be used to further inform management for the Wood White. Ongoing transect walking post project will continue to contribute records to the UKBMS and again be used to identify areas where practical conservation work can be undertaken by volunteers.

A legacy of community action has been achieved through the project. The number of volunteers increased over the project's lifespan and more people from a more diverse demographic have been encouraged to become involved in conservation projects and wildlife watching. A key part of the project's legacy was engaging with primary schools in the area and getting the teachers and pupils enthused by taking part in small conservation activities. Beyond the life of the project, community action will continue via the volunteers already involved in the project and the recruitment of further volunteers. This will enable further habitat creation in the area along with critical habitat management on new and existing sites.

As part of the project's legacy, this report will be distributed to project partners, landowners and will therefore help to influence future management activities for this species across the UK.

All the skills learnt through the project are transferable to other sites and species and will thus also benefit conservation projects across a wider area. Species champions have been encouraged across the project area to enable further survey work and habitat management to be undertaken for the Wood White.

The project has strengthened links with partner organisations including Forestry England, South Downs AONB, National Trust and the Wildlife Trusts, enabling greater protection of the Wood White and its habitat across the project area.

Above all this project has ensured a lasting legacy beyond the funded period by increasing the number of people excited by and committed to practical conservation action, through creating new habitat, undertaking habitat management work, recording the Wood White and other species and passing this knowledge on to others in the local community and further afield.

Recommendations and future work

In the long term, ongoing work should be sustainably managed by the volunteers and other interested groups including partner organisations, parish councils and interested community groups. Local volunteers should be able to draw on the support and expertise offered by the Surrey and Sussex branches of Butterfly Conservation. The volunteers who run the work parties are experienced at undertaking the work required and any future support from Butterfly Conservation staff would be on an ad-hoc basis when more expert knowledge is required.

Ongoing habitat management is essential to support the Wood White both within the core forest area and across the wider project area. Moving forward there is to be an annual Chiddingfold Wood White report which will compile annual data and look at changes in abundance and distribution of the Wood White. This will also provide management advice and will be resourced by the Surrey branch with key input from core BC staff. Any future habitat work needs to be discussed with individual landowners, then tailor-made management plans can be adopted rather than running a 'one size fits all' management plan.

Along with the ongoing management, new areas of habitat will need to be created post project in order to maintain habitat connectivity and increase the number of 'stepping stones' available for the Wood White as it increased its distribution outside of the core forest area. In particular, new habitat needs to be created at the fringes of the current project area, in conjunction with the records of the species in these areas.

Continued monitoring of Wood White populations and distribution is critical and will be carried out by existing volunteers and the ongoing recruitment of new volunteers to walk the transects, contribute ad hoc records and take part in the Big Butterfly Count. There is the potential that Wood White may be found outside of the project boundaries, as we have records from the western and eastern boundary areas. Further survey work in these areas should be encouraged.

There are ongoing risks to the survival of the Wood White mainly with regards to lack of or poor habitat management in the areas where the species exists. Other risks include development on areas that are potentially suitable for the Wood White, however the new biodiversity net gain legislation should negate this to a certain extent.

Key players for further work include Forestry England, National Trust, and Natural England along with local parish councils. Key to continuing habitat creation are landowners, both those currently engaged and new ones. Larger landowners are key to this as several within the project area have large areas of land that could contain new habitat. Early engagement with landowners is key and needs to be instigated as soon as possible to negate the problems encountered in the current project.

In order to carry on the legacy sustainably, there needs to be constant communication with all stakeholders as we have found that lack of communication can drive potential participants away from the project.

References

Butterfly Conservation. G2: Field guidance notes for butterfly transects
(<https://ukbms.org/sites/default/files/downloads/UKBMS%20G2%20Transect%20field%20guidance%20%20notes.pdf>)

Eeles. P (2019) Life Cycles of British Butterflies. Pisces Publishing

Appendix 1.

Areas of new habitat created.

Site	Area sq.m	Grid reference
Thatched House Fm, Loxhill	55	TQ 01956 37615
Willards Fm, Dunsfold	50	TQ 00284 35860
Bunchfield, Fisher Lane	125	SU 96994 33179
House on Woodside Rd, Chid	6	SU 95230 36032
Combe Farm House, Chiddingfold	60	SU 95110 35737
Rickmans Lane, Plaistow	62	TQ 00825 30380
Rickmans Lane, Plaistow	4	TQ 00888 30422
Rickmans Lane, Plaistow	20	TQ 00876 30483
Rickmans Lane, Plaistow	20	TQ 00819 30583
Mackerels Common, Kirdford	150	TQ 01494 28011
Beetlehook Common	70	TQ 01838 28305
Todhurst Meadow	30	TQ 00453 30783
Lyons Green	12	SU 99914 31303
Weald Barkfold Copse	50	TQ 00312 32696
Shillinglee road, plaistow	100	SU 496834 132024
Apple Tree Cottage, Rickmans Lane, Plaistow	100	TQ 00867 30348
Hill Copse, Chiddingfold	57	SU 99920 34944
Roppeleggs, Frillinghurst	100	SU 493701 134427
Combe Common, Chiddingfold	55	SU 94956 35917
Sidney Wood	30	TQ0263634799
Sidney Wood	30	TQ025347
Sidney Wood	30	TQ0215034673
Sidney Wood	30	TQ0215934675
Sidney Wood	30	TQ0218834340
Sidney Wood	30	TQ0217534318
Sidney Wood	30	TQ0215434246
Sidney Wood	30	TQ01907 33631
Sidney Wood	60	TQ 02133 34366
Ash Park	20	SU9949231757
Ash Park	75	SU9960332011
Ash Park	20	SU9950631915
Ash Park	30	SU9937531937
Fisher Lane Wood	75	SU9814532676
Fisher Lane Wood	25	SU9811732587
Fisher Lane Wood	30	SU9812132581
Fisher Lane Wood	10	SU9828832257
Stroud Wood	120	throughout

Site	estimate of area (sq. m)	Grid ref
Botley House, Chiddingfold	18	SU 96267 35551
House along Fisher Lane	15	SU 98203 33019
Park Copse	30	TQ 02902 34170
Rumbolds Copse	20	TQ 00369 30180
The Croft, Chiddingfold	13	SU 95714 36038
Shortlands Copse	30	SU 99498 32236
Thatched House Fm, Loxhill	40	TQ 01967 37606
Rams Cottage, Dunsfold	30	TQ 01524 35080
Hogwood Road, Ifold	35	TQ 02155 31410
Witts End, Cricket Green, Hambledon	30	SU 963380
Thirdacre, Dursfold Wood	8	SU 99541 32477
Lyons Green Cottages, Plaistow	20	SU 99845 31258
Rickmans Lane, Plaistow	5	TQ 00889 30420
Rickmans Lane, Plaistow	6	TQ 00837 30384
Dursfold Hall	15	SU 99012 33543
Frillinghurst Farm	5	SU 93819 34513
garden at Woodside Rd, Chid	5	SU 95235 36027
Weald Barkfold Copse	10	TQ 00324 32684
West View, Chalk Road, Ifold	20	TQ 02569 31262
Private estate	150	TQ 01621 53266
Private estate	100	
Private estate	100	SU 95050 35071
Ramsnest cottage	50	SU 94708 32983
Private estate	20	
Coombe green - chiddingfold PC	60	SU 94956 35917
Pickhurst / Highstreet Green, Chiddingfold	30	SU 97145 34275
Chidd church with school group	50	SU 95881 35494
Grayswood House	75	SU 91933 34644
Park copse (further extension to planting)	100	TQ 02902 34170
Plaistow PC green project	150	TQ 00622 30858
Small scale planting throughout Chiddingfold gardens	732	Not given
Plug plants from Wakehurst place – small scale planting	360	

**APPENDIX 12 'Selection criteria for Sites of
Nature Conservation Importance in Surrey'
by Surrey Wildlife Trust.**

Guidance for the Selection of Sites of Nature Conservation Importance (SNCIs) in Surrey



May 2008

Edited by Claire Gibbs MSc, BSc, MIEEM



Surrey Wildlife Trust, School Lane, Pirbright, Woking, Surrey GU24 0JN



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*(Photos on front page from top left clockwise: Chertsey Meads, Cucknells Wood,
Nower Wood x2)*

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Part A: Introduction

Introduction

This document lays out guidance for the selection of Sites of Nature Conservation Importance (SNCIs) within Surrey. SNCIs in Surrey correspond to what DEFRA refer to as Local Wildlife Sites. The guidance has been produced following consultation with local experts, local authorities and conservation organisations.

These guidelines will be reviewed regularly in order to reflect increased scientific knowledge and the changing status of habitats and species in Surrey and the UK. We will aim to review this guidance at least every 5 years.

The selection of SNCIs in no way diminishes the importance of other areas of semi-natural habitat in Surrey, and it is recognised that all semi-natural habitat is important for wildlife and community value.

Acknowledgements

The production of these guidelines has involved a huge amount of help and advice from local conservation groups and experts. These include; members of the Surrey Nature Conservation Liaison Group particularly Claire Gibbs (Surrey Wildlife Trust), John Edwards (Surrey County Council), Isobel Girvan (Surrey Wildlife Trust), Jill Barton (Surrey Wildlife Trust), Simon Newell (Surrey Wildlife Trust), Sue Webber (Surrey Biodiversity Partnership) and Alistair Kirk (Surrey Biological Records Centre); members of the Surrey Habitat Action Plan groups including Wood Pasture & Parkland, Heathland, Woodland, Meadows and Wetlands, particularly Simon Elson (Surrey County Council), and Debbie Cousins and Dave Webb of the Environment Agency who were instrumental in revising the guidelines for rivers, open water and wetland habitats. In addition, the following groups and individuals have been instrumental in the production of the species guidelines; Surrey Amphibian and Reptile Group (particularly Gareth Matthes, Julia Wycherley & Richard Anstis), Surrey Bat Group (particularly Ross Baker and Lynn Whitfield), Surrey Bird Club (particularly Dave Smith), Butterfly Conservation (particularly Dan Hoare, Gail Jeffcoate and Tony Davis), Surrey Botanical Society (particularly Ann Sankey), Graham French (Natural England), David Baldock (aculeate expert), Dave Williams and Chris Matcham (Surrey Wildlife Trust).

Background

Surrey is a county rich in a wide variety of habitats supporting an impressive range of biodiversity. The lowland heathland of the London Basin, the ancient woodland of the Low Weald and the chalk grassland of the North Downs are just a few examples.

Unfortunately much of Surrey's semi-natural habitat is under threat. Surrey is a county under immense pressure from development. Changes to agricultural practices, pollution, lack of management and the spread of invasive species also represent



significant threats to Surrey's wildlife. Surrey's internationally important sites are recognised and protected by European legislation in the form of Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar Sites under the Ramsar Convention. Sites of Special Scientific Interest (SSSIs) protect the nationally important sites. Surrey's SNCIs protect those sites of county, regional or national importance for wildlife that are not covered by these statutory designations.

Although not a statutory designation, SNCIs are protected through the planning process.

Section 40 of the Natural Environment and Rural Communities Act 2006 states that, *"Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity."* The SNCI network already greatly contributes to and has the potential to contribute further towards the targets within the UK and Surrey Biodiversity Action Plan.

Planning Policy Statement 9, Biodiversity and Geological Conservation (Office of the Deputy Prime Minister, 2005) states that *"Local sites, have a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community; and in supporting research and education"*. It also states that local development plans should include proposals for any development affecting such sites.

The Surrey Structure Plan (2004) states that there should be a presumption against development which directly affects SNCIs and that Local Development Frameworks should include policies to protect land of nature conservation value including SNCIs. All Local Development Frameworks should therefore include a policy to protect SNCIs.

In addition to protection through the planning process, the selection of a site as an SNCI is also beneficial in that it opens up the opportunity for positive conservation management advice to be given to the landowner.

Surrey Wildlife Trust was first commissioned by Surrey County Council to identify important sites for wildlife in Surrey for the Surrey Structure Plan in 1975. This led to the identification of Areas of High Ecological Quality (AHEQs). The project to compile a list of SNCIs for Surrey began in 1992 as a joint initiative between a number of organisations including Surrey County Council (SCC), Local Authorities, English Nature (EN), Environment Agency (EA), Farming and Wildlife Advisory Group (FWAG), Royal Society for the Protection of Birds (RSPB), the Surrey Biological Records Centre and Surrey Wildlife Trust (SWT). These organisations together make up the Surrey Nature Conservation Liaison Group (SNCLG), a sub-group of the Surrey Biodiversity Partnership. Other organisations such as Butterfly Conservation, Surrey Bird Club and Surrey Botanical Society as well as local experts are also consulted on a regular basis.

The Surrey Nature Conservation Liaison Group works with relevant Boroughs and Districts to identify sites of SNCI quality and recommend them to the local authority

for inclusion in the local plan, now local development framework. The SNCLG does not select SNCIs, but through the recommendation and inclusion in the development plan process they become selected when the relevant development plan is adopted.

Since 1992, 20,233 ha have been surveyed and 13,774 ha selected as SNCIs within Surrey.

Why revise the guidance?

The guidance described in this document replace those outlined in “Criteria for SNCI selection in Surrey” which was last updated in July 1997. The need to update the previous guidance was highlighted in a report reviewing the SNCI project in Surrey (Leech, 2003) and has become necessary due to a number of developments which are outlined below;

- Increases in our knowledge of species and habitats both locally and nationally.
- The development of national and local biodiversity action plans identifying species and habitats of priority for conservation.
- Increased appreciation of the need for habitat corridors due to concern about fragmentation of the countryside and the effects of global warming.
- Advice within the National Wildlife Sites Handbook (Hawkswell, 1997) and from DEFRA Guidance on Local Sites (DEFRA, 2006).
- The publication of Planning Policy Statement 9.

This document aims to provide a consistent rationale for the evaluation and selection of SNCIs in Surrey. It recognises the need for the selection procedure to be consistent, robust and defensible. This is particularly important in Surrey where development threats are high. This document is also intended to be a public statement on the selection process for all interested parties.

As our knowledge of and the status of species and habitats within the UK and Surrey are constantly changing, this guidance will need to be under constant revision.

Procedure for selection of SNCIs

Sites can be identified as possible SNCIs using a number of information sources including aerial photographs, phase 1 habitat survey maps, the English Nature Ancient Woodland Inventory, local knowledge, in-house survey information and information received from other organisations and experts.

Following the identification of a possible SNCI, a survey will normally be undertaken. Prior to the survey of any site as part of the SNCI project, the landowner will be contacted and asked for permission to survey and for the site to be considered as an SNCI.

If permission is granted by the landowner, an ecological survey of the site will be carried out by an appropriately experienced person and a report written which will include the following;

- A general site description.
- Target notes and accompanying map describing the different habitat communities on the site.
- A description of the NVC communities thought to be present on the site (a full NVC survey is not normally undertaken due to lack of time).
- A summary of the past, current (if known) and suggested future management for the site.
- A summary of the nature conservation interest of the site.
- A botanical species list with abundances described using the DAFOR scale.
- A selection of digital photographs.

Where permission is refused, no survey will take place. In such cases, if there is enough information to suggest that a site could be of county importance for wildlife then the SNCLG may decide to select the site as a potential SNCI (pSNCI).

Often information may be obtained about a site from local experts such as Surrey Bird Club or Surrey Botanical Society or through other sources such as the Biological Records Centre. In such cases the information will only be used if it is in the public domain, for example as a result of a planning application, or if the landowner has agreed to the use of the information. Reasonable effort will be made to locate the landowner and inform them of the selection and the reasons behind it.

In most cases, a site already designated as a SSSI will not be considered for selection as an SNCI. In exceptional cases a SSSI will also be considered for selection as an SNCI but only if the reason for selection as an SNCI differs from that stated in the SSSI citation. For example, a SSSI designated for its geological importance may be selected as an SNCI for its wildlife value. Wherever possible where a SSSI supports features of particular value locally which have not been recognised by the SSSI citation, Natural England will be informed of these features so that they can be included as part of the management advice for the SSSI.

The recommended selection of SNCIs will be agreed by a panel of experts including the Surrey Nature Conservation Liaison Group and other organisations such as Butterfly Conservation, Surrey Bird Club and Surrey Botanical Society as well as local experts and the relevant District or Borough Council. Any area of land or water which satisfies this guidance is eligible for selection as an SNCI. It should be noted that the ecological value of a site is determined by many variables and there will always be the need for 'best professional judgement' in site selection. Selection should be based on reliable, up to date information.

SNCIs selected under the past guidance, "Criteria for SNCI selection in Surrey, July 1997" remain as SNCIs and will be reviewed against this new guidance only if they are re-surveyed. New sites will be selected and reviewed against this new guidance.

The assessment and selection of SNCIs is a continual process and new sites will be identified as scientific knowledge of individual sites and species increases.

The SNCLG will pass the recommended SNCIs to the Local Authorities for formal selection within the Local Development Framework. Adoption into the Local Development Framework will be subject to a consultation process which will enable landowners to comment on the selection of their land as SNCIs.

Wherever possible, the selection of new SNCIs will not occur on an adhoc basis, but will be undertaken as each borough undertakes its review process.

Determining Site Boundaries

Once a site has been assessed as being of SNCI quality, careful consideration will need to be given to the boundary of the selected area. The following aspects should be considered;

- Wherever possible the boundaries of an SNCI should follow clear physical boundaries on the ground for example a field or woodland edge. It is essential to define boundaries that can be located both on the ground and on maps to avoid confusion about the exact location and to assist later surveys.
- Care should be taken not to include significant areas of land which do not meet the selection guidelines, however it may be necessary for the future viability of the site to include some habitat that is of lesser value.
- For wetland sites it may be necessary to include an appropriate buffer zone or hydrologically linked habitats in order to maintain its ecological interest.
- Where sites are selected for the presence of a species, appropriate regard should be given to the habitat requirements of the species concerned throughout its life cycle. All the habitats required by a species throughout its lifecycle should be included if they are adjacent or in close proximity to each other.
- The justification for the definition of the boundary should be clearly recorded within the reasons for selection of the site.

Monitoring

Continual monitoring of the SNCI network is essential for the reasons outlined below;

- In order to assess the success of the SNCI project at protecting and maintaining sites.
- In order to pick up deterioration at an early stage so that advice can be given to landowners in an effort to halt it.
- In order to extend the depth of knowledge of a site's flora and fauna.
- In order to relate changes and losses in Wildlife Sites to wider factors, such as economic, political and social issues.
- In order to maintain the integrity of the SNCI system by removing sites which no longer meet the guidance and adding new sites which may have been missed at previous stages.

The monitoring of a site should involve the following;

- A re-survey of the site by an appropriately experienced person to check that the qualifying habitat or species are still present.
- Any decline in the quality of the habitat or population of relevant species should be noted.
- The boundaries of the SSCI should be checked during the monitoring procedure to ensure that the SSCI boundaries are the most appropriate.
- Ideally stable habitats such as woodland should be monitored every 10 years. Less stable habitats such as grassland and heathland should be monitored every 5 years.

Following the monitoring procedure, sites will be discussed by the SNCLG and relevant local experts. The SSCI boundary of each site will then be either confirmed or modified. In extreme cases where the SSCI has lost the interest for which it was selected the panel will need to consider the de-selection of the SSCI. The panel is unlikely do this where there is a reasonable chance that the interest of the site may be restored within a reasonable timescale.

Part B: Guidance for the selection of Sites of Nature Conservation Importance

SNCIs should be identified on account of their habitats or species, which are of county or regional wildlife value. The DEFRA guidance (DEFRA, 2006) states that local sites should select all areas of substantive nature conservation value.

The Ratcliffe Criteria is a long established and widely accepted method for determining the nature conservation value of a site (Ratcliffe, 1977). The criteria give general principles and factors to be taken into account when considering the nature conservation value of a site.

The general guidelines below are based upon the Ratcliffe Criteria and include those within the standard set of criteria recommended by DEFRA for consideration when defining Local Site criteria (DEFRA, 2006).

These guidelines should be used in conjunction with the more specific habitat and species guidance later in this document in order to assess the value of a site. Each of the guidelines below should not be used in isolation, but in conjunction with others. Knowledge, understanding and agreement amongst a panel of experts is required in order to make valid conclusions on the value of a site.

Sites which are close to, but do not quite meet the detailed habitat and species guidelines later in the report may be considered for selection where they are judged as important using the general guidelines below.

Section 1 General Guidelines for assessing the conservation value of a site

Rarity

- The presence of a rare or scarce habitat type or species should be a key factor in determining the selection of an SNCI. This should be considered in an international, national and local context. The selection should take into account cases where Surrey is a national stronghold for a species or habitat. Further specific details regarding the selection of SNCIs for rare species and habitats are given later in the document.

Diversity

- Sites of high diversity are generally considered to be more important than sites of lower diversity. However with regard to species diversity, some habitats are naturally more diverse than others. For example acid grasslands are intrinsically species poor where as chalk grasslands tend to be species rich. Therefore species diversity should be assessed in relation to the expected diversity for the habitat. Sites including a large number of locally native species will be considered for SNCI selection.

- Sites containing a mosaic of different habitats tend to be very important for wildlife. Diversity may be due to a range of habitat communities present on a site or to a range of microclimates such as varying vegetation height, areas of scrub, slopes and bare ground. There may be cases where none of the individual habitats on the site fully meet the guidance for selection as SSSI, but where the combined value may be sufficient to warrant selection.

Site Size

- As a general rule, larger areas of habitat are of greater value to biodiversity than smaller areas. In many cases this is due to larger areas having a greater diversity of habitats. Large areas are also more able to resist change. It is difficult to select a minimum size for SSSI selection. Some very small sites will support populations of very rare species. The minimum or optimal size of a site will vary according to habitat and will also vary according to the abundance of the habitat on a local, regional and national scale. The lower limit should be determined by the viability of the habitat unit. It is particularly important that this factor is considered in conjunction with other factors.

Naturalness

- In general, it could be argued that the nearer to being natural a site is, the higher the value that should be placed on it. However in Surrey there are very few habitats that have not been affected by people. Many of the important habitats within Surrey have been created and are maintained by man and are considered as semi-natural.
- Factors which would reduce the value of a site include the following;
 - Agricultural improvement.
 - Heavy modification of water courses.
 - The presence of non-native, particularly invasive species.
- However it must be noted that in some cases artificial habitats may be of high value for wildlife. For example, rare plants within arable land, bat hibernaculum within a man-made structure and rare invertebrate species on brownfield sites. In such cases artificial habitats may be selected if they qualify under other guidance.

Typicalness

- In addition to protecting rare and vulnerable habitats and species it is also important that the SSSI network includes good examples of habitats typical of an area and helps to maintain viable populations of species typical of an area.
- Natural Area Profiles as developed by English Nature can be used to determine what habitats are typical in an area. Relevant Natural Areas within Surrey include London Basin, North Downs, Wealden Greensand, Low Weald and High Weald.

- Representative examples of typical and more commonplace habitats, e.g. ancient woodland which is relatively common in The Weald but is rare nationally should therefore be included.

Fragility

- Fragility can relate to the current extent and rarity of a habitat or species or to how vulnerable a site is to change or damage. For example woodlands are relatively stable where as grasslands are vulnerable to changes in management and wetlands to changes in water supply.
- The Wildlife Sites Handbook (Hawkswell, 1997) advises that “*Wildlife Sites should not be selected because of the degree of threat to a particular site. Nor should sites be excluded because there is considerable threat and the site is likely to be lost.*”
- It is important to consider the fragility of a habitat when deciding the boundary of an SNCI. A buffer may be required to protect vulnerable habitats. It is also an important factor to consider when considering the direction of management resources and funds in the future.

Replacability

- Certain habitats cannot be replaced once they have been destroyed. The emphasis on site selection should be to protect these sites in preference to those which can be readily replaced.

Position in Ecological Unit / Connectivity within the Landscape

- Sites should not be looked at in isolation but their value should be considered as part of the wider landscape. The countryside has become increasingly fragmented and in a world with an unpredictable and changing climate, the presence of corridors and stepping stones linking habitats is particularly important.
- Planning Policy Statement 9 states that “Local Authorities should aim to maintain networks by avoiding or repairing the fragmentation and isolation of natural habitats”.
- Sites linking other habitats or acting as stepping stones for example, hedgerows, rivers, canals, railway embankments and road verges are particularly important. These sites may not meet other guidance, but are important in their linking capacity.
- Sites adjacent to other important sites such as SNCIs or SSSIs which may act as protective buffers or join several otherwise isolated sites together are particularly important and should be considered for selection.

- Additional weight will be given to sites which form part of the proposed South East Ecological Network as described in “A Living Landscape for the South East, 2007”.
- Sites which are linked to other sites through green corridors or mosaics are of greater value than similar isolated sites.

Educational Value & Value for the Appreciation of Nature

- The value of a site in providing an opportunity for contact with and enjoyment of nature and as a resource for learning about the natural world or for research into natural features and processes should not be underestimated. Sites which demonstrate a significant role in providing these functions should be considered for selection in combination with other guidance.

Potential Value

- When considering the value of a site, the potential value of the area can be taken into account.
- Sites should be considered for selection only if they have the potential to be of SNCI value, e.g. by a change of management or the cessation of damaging activities. This must be practically possible within a reasonable timescale (e.g. 5-10 years).

Recorded History and Cultural Associations

- Many sites have a long history of ecological recording and this can increase the importance of the site. Such records can be proof that a habitat is long established on the site and can yield useful scientific data about habitats, species or the effects of site management. Recorded history and cultural associations is particularly important for sites used for education and research.
- The recorded history and/or the cultural associations of a site can provide supplementary justification for selecting a site where it meets other guidance described in this document.

Butterflies

Criteria

- b. Sites supporting a butterfly species within list A in table 7.
- c. Sites supporting a locally notable population of four or more of the species within list B in table 7.

Table 7 – Butterfly species of importance within Surrey

List A. Habitat Specialists	List B. Other spp. of interest
Silver-spotted Skipper (<i>Hesperia comma</i>)	Brown Hairstreak (<i>Thecla betulae</i>) (5)
Dingy Skipper (<i>Erynnis tages</i>)	White-letter Hairstreak (<i>Satyrium w-album</i>) (10)
Grizzled Skipper (<i>Pyrgus malvae</i>)	Small Copper (<i>Lycaena phlaeas</i>) (10)
Wood White (<i>Leptidea sinapsis</i>)	Brown Argus (<i>Aricia agestis</i>) (10)
Green Hairstreak (<i>Callophrys rubi</i>)	Common Blue (<i>Polyommatus icarus</i>) (20)
Small Blue (<i>Cupido minimus</i>)	Wall (<i>Lasiommata megera</i>) (any – v rapidly declining)
Silver-studded Blue (<i>Plebeius argus</i>)	Marbled White (<i>Melanargia galathea</i>) (40)
Chalkhill Blue (<i>Polyommatus coridon</i>)	Small Heath (<i>Coenonympha pamphilus</i>) (20)
Adonis Blue (<i>Polyommatus bellargus</i>)	
White Admiral (<i>Limenitis camilla</i>)	
Purple Emperor (<i>Apatura iris</i>)	
Small Pearl-bordered Fritillary (<i>Boloria selene</i>)	
Pearl-bordered Fritillary (<i>Boloria euphrosyne</i>)	
Dark Green Fritillary (<i>Argynnis aglaja</i>)	
Silver-washed Fritillary (<i>Argynnis paphia</i>)	
Grayling (<i>Hipparchia semele</i>)	

Application

The numbers in brackets should be used to determine whether a locally notable population is present. This should be the maximum number seen on a single visit.

Justification

These criteria have been developed by Butterfly Conservation. The presence of a breeding population of a butterfly species from list A, would indicate a good quality habitat worthy of SSCI selection. The presence of a notable population of four or more species within list B would indicate that the site has value as a lepidoptera site and could for example indicate that it has potential for habitat restoration.

APPENDIX 13 House of Commons Select Committee report



House of Commons
Science, Innovation and
Technology Committee

Insect decline and UK food security

Second Report of Session 2023–24

*Report, together with formal minutes relating
to the report*

*Ordered by the House of Commons
to be printed 28 February 2024*

Science, Innovation and Technology Committee

The Science, Innovation and Technology Select Committee is appointed by the House of Commons to examine the expenditure, administration and policy of the Department for Science, Innovation and Technology, and associated public bodies. It also exists to ensure that Government policies and decision-making across departments are based on solid scientific evidence and advice.

Current membership

[Greg Clark MP](#) (*Conservative, Tunbridge Wells*) (Chair)

[Dawn Butler MP](#) (*Labour, Brent Central*)

[Chris Clarkson MP](#) (*Conservative, Heywood and Middleton*)

[Tracey Crouch MP](#) (*Conservative, Chatham and Aylesford*)

[Dr James Davies MP](#) (*Conservative, Vale of Clwyd*)

[Katherine Fletcher MP](#) (*Conservative, South Ribble*)

[Rebecca Long-Bailey MP](#) (*Labour, Salford and Eccles*)

[Stephen Metcalfe MP](#) (*Conservative, South Basildon and East Thurrock*)

[Carol Monaghan MP](#) (*Scottish National Party, Glasgow North West*)

[Graham Stringer MP](#) (*Labour, Blackley and Broughton*)

[Christian Wakeford MP](#) (*Labour, Bury South*)

The following Members served on the Committee during this inquiry: [Aaron Bell MP](#) (*Conservative, Newcastle-under-Lyme*).

Powers

The Committee is one of the departmental select committees, the powers of which are set out in House of Commons Standing Orders, principally in SO. No. 152. These are available on the internet via www.parliament.uk.

Publication

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Committee staff

The current staff of the Committee are: Jessica Bridges-Palmer (Senior Select Committee Media Officer), Ian Cruse (Second Clerk), Stella-Maria Gabriel (Committee Operations Manager), Arvind Gunnoo (Committee Operations Officer), Dr Claire Housley (Committee Specialist), Dr Claire Kanja (Committee Specialist), Dr Faten Hussein (Committee Team Leader (Clerk)), Dr Joshua Pike (Committee Specialist), and Ben Shave (Committee Specialist)

The following staff also worked for the Committee during this inquiry: Gina Degtyareva (Former Senior Select Committee Media Officer) and Hafsa Saeed (Former Committee Operations Manager)

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Summary

Insects contribute to food production through pollination services, managing crop pests, maintaining soil health and recycling nutrients from waste. However, there is a concerning trend of decreasing insect abundance, changes in distribution and reduction in the diversity of insect species in the UK. While there is variation among species and groups, overall, there is a downward trend and the consensus among experts is that in the UK insects are in decline.

It is challenging to quantify insect decline as there is little evidence available for many insect groups about population changes over long periods of time. This Inquiry heard from experts running some of the long-term insect monitoring studies, for example the Rothamsted Insect Survey which has been running since 1964. These long-term studies are vital to further our understanding, monitor population changes, and should be supported with assured long-term commitments from funding bodies over a period of decades rather than years.

Pollinators play a crucial role in ensuring UK food security, but it is important to recognise that insects and invertebrates play more than this one role in supporting food production. Diverse species of insects and other invertebrates are essential for the health of both our natural and agricultural environments, and their populations require careful nurturing and maintenance to support sustainable and resilient food production. There is scope to build on the success of the National Pollinator Strategy by creating a complementary ‘National Invertebrate Strategy’ that would include provisions for invertebrates that carry out other important ecological roles. As seen in the creation of the National Pollinator Strategy, a National Invertebrate Strategy should include the publication of an implementation plan, containing targets against which progress can be measured and accountability ensured.

The statutory targets to halt and reverse species extinctions and decline in abundance by 2042, in accordance with the Environment Act 2021, are ambitious and welcome. However, the exclusion of numerous invertebrate species and in some cases entire groups, particularly those vital for UK food security such as predatory beetles, from the baseline measures used to monitor progress in achieving the aims, is concerning. As well as the ‘Red List’ of particular species at a specified risk of extinction, we recommend that a ‘Baseline List’ should be established, consisting of a wider range of insects and other invertebrates. This would allow a wider view of progress against biodiversity targets during the years ahead and would aid an understanding of trends in biodiversity beyond those species currently endangered.

Public interest in insects often focuses on what scientists term “charismatic” groups like bees and butterflies, but less known, harder-to-identify, and, to many people, unappealing insect species play vital ecological roles and require equal attention. We heard evidence that naturalist skills are declining in the UK. Much knowledge of smaller, lesser-known insect groups lies, as it always has done, with amateurs rather than professional academics. Interest in all insects should be nurtured from a young age, requiring access to nature and the fostering of ecological knowledge and interest,

something the anticipated Natural History GCSE aims to address. Access to this GCSE, once available, is important and welcome, as it can go some way to nurture a passion for entomology in younger generations.

In the UK, 70% of land is farmed, so agricultural practices have a major influence on insect populations. Pesticides used to target pest species such as aphids can have off-target effects on beneficial insects. The impact of pesticides and other chemical inputs on insect species that are not pollinators remains too little understood due to the lack of data on pesticide accumulation in terrestrial environments. The UK has made international commitments to reducing the overall risk caused by pesticides by at least half by 2030. However, the National Action Plan for Sustainable Pesticide Use, a crucial policy to address both knowledge gaps and encourage reductions in pesticide usage, has been delayed by six-years.

The new Environmental Land Management Schemes (ELMS) support land managers in providing environmental goods and services alongside food production. The impact of ELMS on the natural environment, including insect species, should be monitored and adapted as needed throughout its implementation. ELMS must show that it delivers better environmental outcomes than previous agri-environmental schemes. This will require close monitoring, coupled with feedback from farmers and land managers, to give a more comprehensive overview of the individual and collective effects of ELMS implementation on our natural environment.

In agricultural use, most witnesses to our Inquiry did not see the prospect of insecticides being phased out entirely. But in domestic gardens, questions of food security do not arise. The Royal Horticultural Society plans for its garden at Wisley to be 100% pesticide-free by 2025, with the exception of use for specific cases of invasive species. We believe that there is an opportunity to work with leading organisations like the RHS to phase down the use of pesticides in domestic horticulture.

1 Introduction

1. It has already been established by other Parliamentary Committees that insects are vital for food security but are also experiencing population declines.¹ Insects provide vital ‘goods and services’ for wildlife, food production and human health. Their roles include pollination, pest and weed regulation, decomposition, nutrient cycling, and provision of food for wildlife.² Insects can also be used as key indicators for monitoring ecosystems. On the other hand, some insects are considered agricultural pests and transmit diseases between people as well as crops or livestock.

2. It is difficult to assess the quantitative value of insects’ role within ecosystems, but evidence submitted to this Inquiry said that internationally, the economic value of pollinators has been estimated as being worth over £134 billion to agricultural markets³ and around £500 million in the UK.⁴ Natural pest control of widespread aphid pests (by ground beetles and parasitoid wasps) has been estimated as being worth up to £2.3 million per year to South East England wheat fields.⁵

3. Over recent years, many international studies, focusing on different insect groups have indicated that there has been a decline in insect abundance, diversity, distribution and biomass.⁶ However, the severity of these negative trends varies and may be over- or underestimated. For example, a well-reported 2019 global review,⁷ which predicted catastrophic declines in populations, has been criticised by many academics, including witnesses to this Inquiry, due to alleged flaws in its methodology.⁸ Uncertainties remain regarding specific insect decline figures and there are variations in trends between insect groups.⁹ However, based on the oral and written evidence submitted to this Inquiry it was clear that, in broad terms, insects can be said to be in decline in the United Kingdom.

Drivers of insect decline

4. Insect decline is driven by various factors, and their effects vary across habitats, species, and time. Key drivers of insect decline include habitat loss and fragmentation, climate change, introduction of new species and diseases, light pollution, pesticides and

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- 1 Environment, Food and Rural Affairs Committee, First Report of Session 2023–24, Soil Health, [HC245](#); Environmental Audit Committee, Second Report of Session 2023–24, Environmental change and food security, [HC312](#); Environment Audit Committee, Seventh Report of Session 2012–13, “Pollinators and Pesticides, [HC668](#)
 - 2 Buglife ([INS0038](#)); The Wildlife Trusts ([INS0027](#)); CropLife UK ([INS0035](#))
 - 3 Dr James Hodge (Associate Professor at University of Bristol); Dr Kiah Tasman (Lecturer at University of Bristol) ([INS0007](#))
 - 4 Department for Food, Environment and Rural Affairs, [Public urged to help bees, butterflies and other pollinators](#), 23 May 2022
 - 5 UK insect declines and extinctions, [POSTnote 619](#), Parliamentary Office for Science and Technology, March 2020
 - 6 In a defined group and/or area, abundance is the numerical total of individuals, biomass is their total weight, biodiversity is the number of extant species, and distribution is their incidence across specified location(s). See [Q38](#), Butterfly Conservation ([INS0018](#)); Rothamsted Research: Rothamsted Insect Survey ([INS0020](#)); UK Centre for Ecology & Hydrology ([INS0022](#)); Game & Wildlife Conservation Trust ([INS0026](#)); The Wildlife Trusts ([INS0027](#)); Biological Conservation [Volume 232, April 2019, pp8–27](#)
 - 7 Sánchez-Bayo, Francisco, and Kris AG Wyckhuys. “Worldwide decline of the entomofauna: A review of its drivers.” *Biological conservation* 232 (2019): pp8–27
 - 8 [Q68](#); Komonen A, Halme P, Kotiaho JS (2019) [Alarmist by bad design: Strongly popularized unsubstantiated claims undermine credibility of conservation science](#). *Rethinking Ecology* 4: pp17–19; Mupepele A C et. al, [Insect decline and its drivers: Unsupported conclusions in a poorly performed meta-analysis on trends—A critique of Sánchez-Bayo and Wyckhuys \(2019\)](#), *Basic and Applied Ecology*, 2019, Volume 37, pp20–23
 - 9 [Q40](#)

other aspects of agricultural intensification.¹⁰ It is difficult to attribute specific drivers to individual declines in insect species. However, land use change and habitat loss are considered by witnesses to be most likely the main contributors to insect decline within the UK.¹¹

5. The complexities in driver attribution stem from interactions among the various factors impacting insects. For example, exposure to pesticides and warmer temperatures combined could make bees more vulnerable to parasites.¹²

Government policies

6. Several government strategies and initiatives have been launched in the past decade which include objectives to address wildlife loss and food security. These policies will be addressed later in Chapter 3. They include: the National Pollinator Strategy, Agriculture Act 2020, Environment Act 2021, Green Recovery Challenge Fund, 25 Year Environment Plan, Healthy Bees Plan 2030, Environment Land Management Scheme, and the National Action Plan for Sustainable Pesticide Use. In his speech at the National Farmers' Union conference the Prime Minister announced a new UK-wide Food Security Index to capture and present the key data to monitor food security.¹³ Contributors to this Inquiry have said that the effectiveness and feasibility of these policy initiatives require continual assessment and subsequent adjustments if required, as without such attention there were concerns that current schemes are insufficient to address insect decline.¹⁴

Our Inquiry

Origins

7. We launched an inquiry to examine how recorded and predicted changes in insect populations impact UK food security and how agri-environmental policies are addressing these trends. We sought views on the current evidence base for insect decline statistics and the gaps in our knowledge; the extent to which biodiversity initiatives are addressing insect decline; how crop protection strategies are impacting agriculturally beneficial insect species; and whether there is sufficient co-ordination within government and the UK food system to mitigate insect decline.

8. We have published 48 written submissions to the Inquiry's call for evidence and took oral evidence from 20 witnesses, including academics, individuals from insect and environmental charities, the President of the National Farmers' Union, active farmers, prominent figures in public conservation and the Minister for Nature, Rebecca Pow MP. We visited Rothamsted Research to see the long-running insect monitoring study, the Rothamsted Insect Survey. We also heard from researchers on how their work on both destructive and beneficial insect species for agriculture can have real-world applications for UK farming.

10 Buglife ([INS0038](#)); Game & Wildlife Conservation Trust ([INS0026](#)); Royal Entomological Society ([INS0025](#)); Butterfly Conservation ([INS0018](#)); Natural England ([INS0037](#))

11 National Farmers' Union of England and Wales (NFU) ([INS0024](#)); [Q50](#)

12 Understanding insect decline: data and drivers, [POSTbrief 36](#), Parliamentary Office for Science and Technology, March 2020, p18

13 Government underlines commitment to British farmers, [press release](#), 20 February 2024

14 Natural England ([INS0037](#)); Dr James Hodge (Associate Professor at University of Bristol); Dr Kiah Tasman (Lecturer at University of Bristol) ([INS0007](#)); Game & Wildlife Conservation Trust ([INS0026](#))

2 Insect population trends

9. In the United Kingdom, the broad conclusion of the evidence that we have taken in this Inquiry is that the insect population in the UK has been in decline - measured by the abundance of insects (the number of individual insects found in a place), the diversity of insects (how many different species are present in a place) and the distribution of insects (number of places that an insect can be found).

10. However, the data that supports this assessment is not perfect. Comprehensive long term data sets are few, and decline is not uniform: some species have increased in abundance while some have dwindled. But more have decreased than have increased.

11. Declining abundance, diversity and distribution has been seen in bees and hoverflies, butterflies and moths, beetles, and freshwater insects since structured monitoring began in the 1970s.¹⁵ The written evidence submitted to this Inquiry includes many references to these dimensions of decline in various insect groups. Examples include:

- In the UK 80% of butterfly species have decreased in abundance or diversity, or both since the 1970s. On average, UK butterflies have lost 6% of their total abundance at monitored sites;¹⁶
- long-term abundance trends were calculated for 427 species of moth between 1968–2017. 41% (175 species) had decreased and only 10% (42 species) increased, with the remaining 49% (210 species) having trends that did not show statistically significant change;¹⁷ and
- the Sussex Study, run by the Game and Wildlife Trust found that overall invertebrate abundance had declined by 37% from 1970 to 2019.¹⁸

12. However, many contributors highlight the knowledge gaps in insect decline data, especially for lesser-known insect groups such as springtails.¹⁹ Even for well-studied groups such as bees, there is a lack of evidence and data on the abundance of many species. The International Union for Conservation of Nature (IUCN²⁰) Red List of European Bees concluded that over half of Europe’s estimated 2000 species of bees were “data deficient”; meaning that there was too little or no information available on the abundance and distribution of these species to assess their conservation status (i.e. Vulnerable, Threatened or Least Concern).²¹ Although there was not total agreement between witnesses and in the written evidence regarding the *extent* of insect decline, Professor Goulson of the University of Sussex reflected a general consensus within the scientific community that insect population numbers are globally trending downward.²²

15 UK Insect Decline and Extinctions, [POSTnote 619](#), Parliamentary Office for Science and Technology, March 2020

16 Butterfly Conservation ([INS0018](#))

17 Butterfly Conservation ([INS0018](#))

18 Game & Wildlife Conservation Trust ([INS0026](#))

19 Collembola, omnivorous, free-living organisms, forming the largest of three groups of hexapods sometimes grouped together and called Entognatha. See also Rothamsted Research: Rothamsted Insect Survey ([INS0020](#)); UK Centre for Ecology & Hydrology ([INS0022](#)); The Wildlife Trusts ([INS0027](#))

20 The IUCN is the acknowledged global authority on the status of the natural world and the measures needed to safeguard it.

21 Nieto, A., [European Red List of bees](#), IUCN: International Union for Conservation of Nature. European Commission, IUCN European Union Representative Office, IUCN Species Survival Commission (SSC), IUCN Species Survival Commission (SSC), Bumblebee Specialist Group, 2014

22 [Q73](#)

Drivers of insect decline

13. Fully understanding the data on the drivers of insect decline is challenging as there is limited evidence on how drivers influence each other, and which drivers are having the greatest impact.²³

14. Particular drivers, such as climate change, may benefit some insects but be detrimental to others. For example, researchers at Imperial College London told us in their evidence that some UK butterfly and bumblebee species are experiencing geographic expansion whereas related species are experiencing contraction in their range.²⁴

15. In 2020, the Parliamentary Office for Science and Technology produced a detailed brief outlining the data limitations behind recent work on understanding the drivers of insect decline. It reported that much of the research was conducted in controlled laboratory environments, focused on individual organisms, or was undertaken over short time periods (1–2 years) that are not relevant for long-term population-level processes.²⁵

Current research into insect decline

16. In the UK the main insect monitoring projects led by university researchers are:

The Rothamsted Insect Survey (RIS)

17. The Rothamsted Insect Survey (RIS) has been running both suction and light-trap networks since 1964 and during this Inquiry was led by Dr James Bell. The suction-trap network currently comprises 16 traps 12.2 meters high (12 in England, 4 in Scotland) which count aphids, and 80 light traps in the UK and Ireland which count moths. Its long-term data provides information on aphids, larger moths and many other migrating insects to scientists, growers, conservation organisations, individuals and policy makers.²⁶ The long-term data from the Rothamsted Insect survey has shown that the total abundance of larger moths caught in the RIS light-trap network in Britain has decreased by 33% over 50 years (1968–2017). Losses were greater in the southern half of Britain (39% decrease) than in the northern half (22%).²⁷ The survey has also found that agricultural pest abundance, such as aphids and pollen beetles either remain stable or are increasing which may have negative implications for food production.²⁸

UK Pollinator Monitoring Scheme (UK PoMS)

18. The UK Pollinator Monitoring Scheme (PoMS) is part of the Pollinator Monitoring and Research Partnership, a collaborative project funded by the Department for Environment, Food, and Rural Affairs (Defra), the Joint Nature Conservation Committee, devolved governments and charitable organisations such as the Bumblebee Conservation Trust. It is led by Dr Claire Carvell from UK Centre of Ecology and Hydrology. UK

23 [Q50](#)

24 Mr James Heyburn (Policy & Engagement Officer at Imperial Policy Forum); Dr Richard Gill (Senior Lecturer, Department of Life Sciences at Imperial College London) ([INS0012](#))

25 Understanding insect decline: data and drivers, [POSTbrief 36](#), Parliamentary Office for Science and Technology, March 2020, p6

26 Rothamsted Research: Rothamsted Insect Survey ([INS0020](#))

27 Butterfly Conservation ([INS0018](#))

28 Rothamsted Research: Rothamsted Insect Survey ([INS0020](#))

PoMS was established in 2017 and volunteers count how many pollinators visit a flower and for how long over a ten-minute period. Volunteers then submit this data through a dedicated app. In its 2022 Annual report, the UK PoMS results showed that pollinator numbers fluctuated across the five years of the study (2017–2022). However, researchers were cautious at drawing conclusions from this data as five years is too short a time to determine long-term population trends.²⁹

DRUID Study

19. The four-year DRUID (Drivers and Repercussions of UK Insect Decline) project which began in 2021 is led by Professor Kunin of the University of Leeds, with partners from Rothamsted Research, the University of Reading, and the UK Centre for Ecology & Hydrology, and has received £2.3 million in funding. The aim of the project is to provide a definitive answer on whether UK insects are declining overall, and if so, what the main causes of the decline are. In the DRUID project, researchers will be drawing on different types of data—from 30 years of biological records and from high-tech sensors, such as weather radar. As of June 2023, the project has collected data on more than 4000 insect species and developed tools to use weather radar to monitor insects on a broad geographic scale.³⁰ Key findings from this project are expected to be published in 2024.³¹

20. The UK is one of the best monitored countries globally for insects, largely due to the establishment of the Rothamsted Insect Survey in 1964 and the UK Butterfly Monitoring Scheme (UKBMS), which started in 1976.³² However, even this wealth of knowledge is concentrated on a few insect groups, namely, moths, butterflies and aphids. Professor David Goulson of the University of Sussex, told this Committee that: “There are massive knowledge gaps in the sense that the large majority of insect species are not being monitored at all”.³³

21. Another challenge in accurately quantifying the true levels of insect decline, both in the UK and globally, is the disagreement among experts on how insect population data is interpreted.

Bugs matter

22. The Kent Wildlife Trust (in partnership with Buglife and the Royal Society for the Protection of Birds (RSPB)) run Bugs Matter—the national citizen science survey of ‘bug splats’ on vehicle number plates to monitor flying insect abundance. The survey involves participants counting the number of insect splats on their front number plate at the end of a journey, and submitting the count via a mobile app, along with a photograph of the number plate. The report compiled from the data collected up until December 2022 concluded that compared with 2004, in England there was a 67.5% reduction in observed squashed insects, in Scotland a 40.3% reduction, and in Wales a 74.8% reduction.³⁴

29 UK Pollinator Monitoring Scheme (2023) [The UK PoMS Annual report 2022](#). UK Centre for Ecology & Hydrology and Joint Nature Conservation Committee, p18

30 [Q88](#)

31 UK Centre for Ecology & Hydrology ([INS0022](#))

32 Rothamsted Research: Rothamsted Insect Survey ([INS0020](#)); Royal Entomological Society ([INS0025](#))

33 [Q54](#)

34 Kent Wildlife Trust and Buglife, [Bugs Matter Technical report 2022](#), 2023

23. The study has been criticised by the National Farmers' Union (NFU). It warned that from the survey there is no way of knowing what insect species are declining. Further, given that the data was collected only a few feet above a road, it did not adequately reflect the insect abundance in the wider environment.³⁵ Professor Potts of the University of Reading concluded that the technical report of the Bugs Matter survey accurately represented the findings of the study. However, he said that the secondary reporting of the results in the media conflated a change in number of squashed insects on number plates with a dramatic and certain decline in insect populations or “insectageddon”.³⁶

2019 Sanchez-Bayo - Wyckhuys review

24. A 2019 review article published by Sánchez-Bayo and Wyckhuys analysed long-term survey data from 73 studies, mainly from Europe and North America.³⁷ From this analysis the authors concluded that “insects as a whole will go down the path of extinction in a few decades”. The findings of this study were widely reported in the popular press and led, for example, to a *Guardian* headline “Plummeting insect numbers ‘threaten collapse of nature’”.³⁸

25. However, many researchers in the field criticised both the methodology used in the review and the alarmist nature of the coverage it attracted. Scientists from Finland published a rebuttal article which claimed that the study only looked at evidence from a limited number of countries and misinterpreted conservation data which led to an over-estimate in the extent of insect decline globally.³⁹ Whilst disagreeing with the conclusions of the Sánchez-Bayo and Wyckhuys review, Professor Potts said the review’s publication led the scientific community to publicly support more rigorous studies.⁴⁰

Further Ambitions

26. As described by the Minister for Nature, Rebecca Pow MP, UK insect monitoring projects, are ‘envied globally’. However, we heard that the UK Pollinator Monitoring Survey (UK PoMS) budget is a modest £216,000 per year,⁴¹ while the Rothamsted insect survey has had a budget of £2.2 million over five years.⁴²

27. Dr Claire Carvell, leader of UK PoMS, believed that data from UK PoMS could feed into the biodiversity indicators (see [Chapter 4](#)). However, she said that this would require more allocated funding for long-term monitoring projects:

The ecological research is well funded, but the long-term monitoring is difficult. We need timescales of more than five years, and we do not often see grant round proposals coming in for that period.⁴³

35 National Farmers’ Union of England and Wales (NFU) ([INS0024](#))

36 [Q64](#)

37 Sánchez-Bayo, Francisco, and Kris AG Wyckhuys. “Worldwide decline of the entomofauna: A review of its drivers.” *Biological conservation* 232 (2019): pp8–27

38 [Plummeting insect numbers ‘threaten collapse of nature’](#), *The Guardian*, 10 February 2019

39 Atte Komonen, Panu Halme, Janne S. Kotiaho. [Alarmist by bad design: Strongly popularized unsubstantiated claims undermine credibility of conservation science](#). *Rethinking Ecology*, 2019; 4: 17 DOI: 10.3897/rethinkingecology.4.34440

40 [Q68](#)

41 [Q81](#)

42 [Q94](#)

43 [Q83](#)

28. We heard that long-term monitoring of insect populations would require projects to run over a minimum of fifteen years in order to differentiate between yearly or seasonal fluctuations in insect populations and long-term trends.⁴⁴ Professor Kunin explained that:

Ultimately, if you want to have a value in a standardised monitoring programme, you have to maintain it for a long time. There is an awful lot that happens in the same populations in very short timescales. There are big differences from one year to the next.⁴⁵

29. Other witnesses also wanted to extend the studies to include more species. Dr Bell, then Lead of the Rothamsted Insect Survey, said:

If I only had one message, it would be that we should commit to a clone of the insect survey elsewhere doing other things and have the long vision to fund that for not just the usual three or five-year cycle but a decent amount of time to show real evidence that agriculture has changed, for example, or that the carbon capture environments are still supporting insects.⁴⁶

New technologies

30. The Natural History Museum has over 34 million insect specimens, with the earliest dating from 1680.⁴⁷ Advances in genomic sequencing have opened up the potential for mining these vast datasets to comprehend not only how insect populations have changed over the centuries but also to identify the most effective ways of supporting these populations. Dr Erica McAlister, Senior Curator of Diptera (flies) at the Natural History Museum, said:

The specimens themselves are covered in pollen, and their guts have pollen in them. If we started to look properly at what is in the collections, we could find a wealth of information about which insects are associated with which plants and, if we are going to have seed mixes, which are the best for different groups of insects.⁴⁸

31. Some witnesses suggested that new technologies can be used to identify insect species at a large scale, and therefore allow the analysis of large datasets in absence of taxonomy experts. John Holmes, Director of Strategy, Natural England, suggested that DNA or acoustic sampling,⁴⁹ could be used to distinguish between similar looking species.⁵⁰

32. In 2021, the Defra DNA Centre of Excellence and the Joint Nature Conservation Committee (commonly known as JNCC), published “An Action Plan for making progress with using DNA to monitor terrestrial invertebrates”.⁵¹ In her follow up evidence Dr Carvell detailed how DNA sampling could be used to support taxonomic analysis:

44 [Q90](#)

45 [Q89](#)

46 [Q94](#)

47 [Q26](#)

48 [Q26](#)

49 Acoustic sampling is a non-invasive technique where sound recordings are analysed to identify the unique acoustic signatures of insect species.

50 [Q280](#)

51 Joint Nature Conservation Committee, Report 691, [An Action Plan for making progress with using DNA to monitor terrestrial invertebrates](#), October 2021

Combining the traditional taxonomy with high-throughput and non-destructive DNA sequencing could provide a powerful tool for understanding population changes across a vast range of insect groups in the near-future.⁵²

33. Artificial Intelligence (AI) could also be employed for the identification of insect species from images. Several spinout companies have expressed interest in collaborating with insect research groups to establish new AI businesses dedicated to wildlife monitoring.⁵³ Many of these companies are looking ahead to being able to develop and sell services in support of land use initiatives such as the Government's expanded Sustainable Farming Incentive scheme which is expected to require biodiversity monitoring in the agricultural sector.⁵⁴ However, as Professor Kunin explained, there are some limitations to this technology as often species are only distinguished by dissecting genitalia and " ... the best camera in the world is not going to do that".⁵⁵

34. During this Inquiry it has become evident that substantial knowledge gaps persist in our understanding of insect populations. Despite the UK being a leader in this field of research, there remains a scarcity of comprehensive and comparable data which poses a significant challenge in accurately assessing the extent and underlying causes of insect decline.

35. The lack of long-term monitoring programmes for many insect species, and inconsistent data collection methods, hampers the ability to discern trends over time.

36. *The Government and its agencies like UKRI should produce a clear strategy for sustaining long-term insect monitoring research. This involves not only maintaining existing projects but also initiating new studies that can address insect data gaps. Funders should commit to the longer term funding which is needed for insect monitoring projects, extending beyond the usual five-year cycle of research grants and ensure that these studies have clear channels for the incorporation of data collected by amateur groups.*

Communicating insect decline data

37. Communicating uncertainty to the public has always been a challenge for scientists but is an important part of public engagement. However, whilst "science is not an exact science"⁵⁶, witnesses expressed a clear need to accurately communicate insect decline evidence including the gaps in our understanding and the reasons behind disagreements among experts. If not, Professor Potts warned that:

One of the risks is that if it shows that the scientific community—and this is a great parallel with climate change—cannot agree across the board, that can place the question in the public's mind, "If the scientists cannot quite agree on this, who do we believe?"⁵⁷

52 Dr Claire Carvell (Senior Ecologist at UK Centre for Ecology and Hydrology) ([INS0045](#))

53 [Q97](#)

54 [Q97](#)

55 Some insect species are visibly indistinguishable from one another. However, different shaped genitalia means that the insects cannot successfully reproduce. One defining feature of a 'species' used by biologists is the ability to reproduce and create fertile offspring. [Q95](#)

56 [Q69](#)

57 [Q71](#)

38. The National Farmers' Union said in its evidence that the concept of 'insectageddon' was putting unwarranted negative attention on farmers. It said:

... we do not think the evidence justifies insectageddon headlines or insectinction campaigns and the blaming that inevitably accompanies them.⁵⁸

39. Professor Potts said that the use of emotive language when communicating insect decline "was a double-edged sword" and that, whilst raising awareness was good, "there needs to be support for better communication as well".⁵⁹ However, Professor Goulson believed that the terminology was not as important as the message:

Whether you call it an apocalypse, insectageddon or whatever, there is certainly a serious problem with our insect populations declining and that has consequences for all of us.⁶⁰

40. While the concept of 'insectageddon' is arresting, some witnesses believed that, lacking a sense of required action, such talk was unproductive. Chris Packham CBE, naturalist, conservationist and environmental campaigner, said:

From my point of view, we need to move people on. It is not just about grabbing their attention with 'insectageddon'. That is fine, but, unless you go through the process of explaining that in detail and equally empowering them to do something about it at the end, your point is valid, because, basically, you are just terrifying them and leaving them even further incapacitated with perhaps even more eco-anxiety.⁶¹

41. Effective communication of the reality of insect decline needs to be accompanied by communication of actions that can address it. A fatalistic approach risks reducing the chances of changes being made to policy, behaviour and practices that can make a real difference to stopping and reversing insect decline. Empowering both the public and policy makers is a more effective tool for change than implying hopelessness.

42. *The Government and its agencies should consider ways in which to communicate not only the reality of insect decline but also the attainable steps that can be taken to tackle it.*

58 National Farmers' Union of England and Wales (NFU) ([INS0024](#))

59 [Qq71-72](#)

60 [Q73](#)

61 [Q179](#)

3 The importance of insects for UK Food Security

43. Insects play pivotal roles in both the natural ecosystem and in food production that benefit the global population. Dr Erica McAlister, Senior Curator of Diptera (flies) at the Natural History Museum, enthused about the various roles that insects play:

About 80% of described animals are insects—and that is only the species described so far. Their roles are so important. Not only are they important in pollination, but they underlie so many of our ecosystems. When it comes to recycling of nutrients, biological control within those and regulating ecosystems, insects are very important. The amazing thing about insects is that because they go through this change in their life cycle they can get into many different parts of the environment. You name it, insects have got there.⁶²

44. For example, dung beetles play a crucial role in maintaining pasture which livestock feed upon by fertilising and aerating soils and helping to reduce greenhouse gas emissions. Disruptions to their populations have negative impacts on both soil health and the long-term food production of these areas.⁶³ It has been estimated that dung beetles may save the UK cattle industry £367 million per annum through the provision of ecosystem services.⁶⁴

45. Another key role that insects play in food production is natural pest control.⁶⁵ During our visit to Rothamsted Research, we were shown how a newly described parasitoid wasp species which predate on cabbage-stem-flea-beetles could be encouraged as a biocontrol measure against the oil seed rape pest that is developing resistance to chemical pesticides.

Invertebrates

46. Whilst the majority of pollinators in the UK are insects, non-insect invertebrates play pivotal roles in food production. Professor Lynn Dicks, University of Cambridge, described to us how invertebrates more widely were “... involved in making a productive landscape for food production”.⁶⁶ For example:

- Earthworms are essential for soil aeration and nutrient cycling and their activities also help break down organic matter, releasing nutrients that are crucial for plant growth;⁶⁷
- spiders and centipedes serve as natural enemies to crop pests. They prey on insects such as aphids that can damage crops, providing a form of biological pest control which may reduce the need for applying chemical pesticides,⁶⁸ and

62 [Q1](#)

63 [The Wildlife Trusts \(INS0027\)](#)

64 [Buglife \(INS0038\)](#)

65 [Professor Sara Goodacre \(Professor of Evolutionary Biology and Genetics at University of Nottingham\) \(INS0002\)](#); [Mr James Heyburn \(Policy & Engagement Officer at Imperial Policy Forum\)](#); [Dr Richard Gill \(Senior Lecturer, Department of Life Sciences at Imperial College London\) \(INS0012\)](#); [Green Alliance \(INS0017\)](#)

66 [Q122](#)

67 [Sustain the Alliance for Better food and Farming \(INS0019\)](#); [The Wildlife Trusts \(INS0027\)](#)

68 [Professor Sara Goodacre \(Professor of Evolutionary Biology and Genetics at University of Nottingham\) \(INS0002\)](#)

- the presence or absence of specific invertebrate species, such as snails, in aquatic ecosystems can serve as indicators of water quality. Monitoring these species can help assess environmental conditions and potential pollution.⁶⁹

47. Minister for Nature Rebecca Pow MP told us how the Government's work in improving soil health policy for farming would help invertebrates such as earthworms and nematodes.⁷⁰ The Environmental Improvement Plan (EIP) sets out a target to bring at least 40% of England's agricultural soil into sustainable management through farming schemes by 2028, increasing this to 60% by 2030.⁷¹

48. We heard encouraging evidence that freshwater invertebrates were recovering, both in the UK and globally, and there has been documented returns of pollution-sensitive species to UK waterways, largely due to water quality policies and monitoring programmes run by the Environment Agency.⁷² However, terrestrial invertebrate species are declining with studies showing that earthworm abundance has reduced by between 33% and 41% over the last 25 years.⁷³

Pollinators

49. Pollinators play a crucial role in both UK and global food security.⁷⁴ A 2009 study referenced by the World Economic Forum in 2021, found that globally 35% of food production (by mass) comes from pollinator dependant crops and in their absence, crop production would reduce by 5% in higher-income countries and 8% in lower-to-middle-income countries.⁷⁵

50. Food security requires access to the necessary nutritional elements for human health, such as vitamins and minerals. These are provided by fruits and vegetables, many of which require pollination for production. Professor Simon Potts from the University of Reading, described how a shortfall in pollination in the UK could result in poor yields and lower quality produce:

A good example is that for one variety of apple, Gala, in Kent—quite a small area, but important for apple production—the deficit in pollination equates to something like £5 million in lost production. That could be fixed with some very simple interventions to boost pollinators—particularly wild pollinators.⁷⁶

51. Evidence also points to the importance of considering the impact of insect decline outside the United Kingdom. In the UK, cereals account for the majority of total arable crop area in the UK (72%) and they do not require insect pollination.⁷⁷ However, both oral and written evidence highlighted to us that the UK imports around 50% of its food from

69 [Q115](#)

70 [Q313](#)

71 Rebecca Pow MP (Minister for Nature at Department for Environment Food and Rural Affairs) ([INS0049](#))

72 [Q115](#)

73 Buglife ([INS0038](#))

74 CropLife UK ([INS0035](#))

75 Aizen, M. A., Garibaldi, L. A., Cunningham, S. A., & Klein, A. M. (2009). [How much does agriculture depend on pollinators? Lessons from long-term trends in crop production](#). *Annals of botany*, 103(9), 1579–1588

76 [Q41](#)

77 Department for Environment Food and Rural Affairs, [Agricultural Land Use in United Kingdom at 1 June 2022](#), 15 December 2022

overseas, much of which is in the form of pollinated crops, and therefore insect decline experienced in other countries impacts UK food security.⁷⁸ Professor Potts highlighted the challenges that policy makers face in addressing insect decline overseas but also the importance for UK food security.

National Pollinator Strategy

52. The National Pollinator Strategy, introduced in 2014, is scheduled for renewal in 2024.⁷⁹ This strategy outlines a decade-long plan aimed at supporting the survival and flourishing of pollinating insects. A mid-way review of the strategy led to the Pollinator Action Plan for 2021 to 2024.⁸⁰ The strategy's implementation plan, published in November 2015 sets out the Government's approach to executing the actions outlined in the strategy and monitoring its delivery and impact.⁸¹ The National Pollinator Strategy aims to deliver across five key areas:

- i) Supporting pollinators on farmland;
- ii) Supporting pollinators across towns, cities and the countryside;
- iii) Enhancing the response to pest and disease risks;
- iv) Raising awareness of what pollinators need to survive and thrive; and
- v) Improving evidence on the status of pollinators and the service they provide.

53. Professor Phil Stevenson, Head of Trait Diversity and Function at the Royal Botanical Gardens, Kew, who was involved in the strategy's development, praised the National Pollinator Strategy as an “... excellent model for how you can bring together experts and stakeholders to design an action plan to deliver outcomes that benefit pollinators”.⁸² However, Dr McAlister saw a place for a strategy that covered the wider ecological roles of invertebrates:

We need a strategy that focuses more on all the insects. When looking through the pollinator strategy, I saw that it was very much on bees. I feel that it is very much outdated.⁸³

54. The invertebrate charity Buglife went further in its written evidence calling the strategy “no longer fit for purpose” and that it “fails to properly address many pressures pollinators face”.⁸⁴

55. John Holmes, Director of Strategy for Natural England, which is responsible for promoting the aims of the National Pollinator Strategy to farmers, said that the policy

78 [Q41](#); Dr Alexander Waller (Visiting Professor of Environmental Ethics and Science Education at American University of Sovereign Nations) ([INS0005](#))

79 Department for Environment, Food and Rural Affairs, [National Pollinator Strategy: for bees and other pollinators in England](#), 4 November 2014

80 Department for Environment, Food and Rural Affairs, [National Pollinator Strategy: Pollinator Action Plan, 2021 to 2024](#), May 2022

81 Department for Environment, Food and Rural Affairs, [National Pollinator Strategy: Implementation Plan](#), November 2015

82 [Q10](#)

83 [Q10](#)

84 Buglife ([INS0038](#))

was successful at raising awareness and prompting actions, and that it highlighted to the public the importance of pollinators and what role individuals could play in protecting them.⁸⁵

56. The National Pollinator Strategy is due to be updated in 2024. Buglife wrote to us calling for a more comprehensive approach to be followed in the review process, one that considers the impacts of all pollinator species and the threats they face.⁸⁶ Mr Holmes recommended that it should include a “comprehensive monitoring of pesticides in the terrestrial environment”.⁸⁷ In evidence before this Committee, the Minister for Nature, Rebecca Pow MP, sought to assure us that the updated National Pollinator Strategy would aim to expand the variety of pollinators encompassed:

We are now revising that pollinator strategy and looking at what more we need to do and what insects have been left out, because it is not only about bees, of course: it is a much wider range of insects.⁸⁸

57. While pollinators play a crucial role in ensuring UK food security, it is essential to recognise that insects and invertebrates play more than this one role in supporting food production. Diverse species are essential for preserving ecosystems, and their populations require careful nurturing and maintenance to support sustainable and resilient food production.

58. We commend the success of the National Pollinator Strategy and eagerly await the 2025–2035 update that we expect to be published by September 2024. There is scope to build on the work of the strategy by creating a complementary ‘National Invertebrate Strategy’ that would include provisions for invertebrates that carry out other important ecological roles. As seen in the creation of the National Pollinator Strategy, the National Invertebrate Strategy should include the publication of an implementation plan, containing accountability targets, linked to the strategy every five years for non-pollinating, agriculturally beneficial, invertebrates.

59. The United Kingdom relies significantly on the global production of various horticultural crops, including fruits and salad vegetables. These imported foods may be subject to vulnerabilities, such as wars, which can see significant price increases. Approximately 50% of the food consumed in the UK comes from overseas. Therefore, it is integral to UK food security that the issues regarding insect decline and food production are also addressed at an international level. The UK Government should use its position in international forums to advocate for and address the issues highlighted in this report on a global scale. Collaborative efforts are essential to mitigate the challenges posed by insect decline and to secure sustainable and resilient food systems worldwide.

Charismatic insects

60. Certain animal species attract greater public attention than others. In conservation biology, the term ‘charismatic species’ refers to the idea that certain species, often characterised by attractiveness or impressiveness, become the primary focus of public interest and research funding.

85 [Qq269–270](#)

86 Buglife ([INS0038](#))

87 [Q271](#)

88 [Q300](#)

61. Historically, insect monitoring has focused on more charismatic species like bees, butterflies and moths.⁸⁹ Consequently, there is a notable scarcity of data concerning non-charismatic yet agriculturally significant and beneficial insects.⁹⁰ Researchers at Imperial College London highlighted in their written evidence that these preferences have led to heavy biases in data sets: “People tend to gravitate to looking at the more charismatic, larger bodied, easy to identify, accessible, and ‘warm-loving’ insect”.⁹¹ To enhance both awareness and research concerning non-charismatic insect species, some contributors suggested that the Government should intervene by offering support to charities, landowners, and farmers who spearhead significant efforts in addressing insect decline outside of the most charismatic species.⁹²

62. Nature presenter Chris Packham CBE provided us with valuable insights into how to raise the profile of insects that are typically overlooked. Using the example of mosquitoes, Mr Packham outlined the evolutionary process of a story employed in the BBC programme ‘Springwatch’:

In [the mosquito piece], we took, you might argue, a slightly more superficial approach to it in that we showed its intrinsic beauty. The beauty included its extraordinary life cycle and the way it lays its eggs. We also integrated the fact that those eggs and the adult mosquitoes that emerge after the larval stage are implicitly important for those returning swallows when they get back from Africa. Again, we are drawing people’s attention to an animal that they may not like but they want to see because it is beautiful, and then we are trying to build a slightly more sophisticated understanding of why it is beautiful not just in a physical sense but in an ecological sense by explaining that its abundance is necessary to feed those returning swallows.⁹³

63. Some contributors criticised the focus on charismatic species to the detriment of other important insect species.⁹⁴ However, others saw their importance in raising awareness: charismatic species can serve as a valuable gateway into entomology, igniting an interest that may extend to broader aspects of the field. As Dr McAlister explained:

People talk about charismatic versus non-charismatic, but the more you study about any subject the more you get drawn into it.⁹⁵

Urban Beekeeping

64. Whilst there are over 270 native wild bee species in the UK, there is only one honeybee, *Apis mellifera*, which has been domesticated and is used for commercial and

89 The Wildlife Trusts ([INS0027](#))

90 Norwich Research Park, John Innes Centre, The Sainsbury Laboratory, Earlham Institute, University of East Anglia ([INS0023](#))

91 Mr James Heyburn (Policy & Engagement Officer at Imperial Policy Forum); Dr Richard Gill (Senior Lecturer, Department of Life Sciences at Imperial College London) ([INS0012](#))

92 Norwich Research Park, John Innes Centre, The Sainsbury Laboratory, Earlham Institute, University of East Anglia ([INS0023](#))

93 [Q173](#)

94 Mr Steve Garland ([INS0004](#)); Buglife ([INS0038](#))

95 [Q32](#)

amateur beekeeping. One witness to this Inquiry characterised honeybees, together with butterflies, as the more charismatic insect groups in the UK, most likely because we can “see ourselves” in bees and can identify with them.⁹⁶

65. Professor Stevenson said that, although honeybees are a good entry point for amateur entomologists, very high levels of urban beekeeping, especially in London can actually have a determinantal effect on other insect species.⁹⁷ He explained that high levels of domestic beekeeping were impacting the availability of pollen and nectar in the areas around each hive that other insects such as hoverflies and moths feed on.⁹⁸ Whilst high volumes of domestic beekeeping in an urban area is not driving insect decline at the same scale as habitat loss or climate change, people could be encouraged to support bee populations in other ways such as providing nest boxes in urban gardens for wild species.⁹⁹

66. Evidence collected by Kew found that London had enough green spaces to support 7.5 honeybee hives per square kilometre. However, in some areas of the city there are as many as 50 hives per square kilometre and in one specific location there were 400 hives per square kilometre.¹⁰⁰ In follow up evidence, Kew said:

The messaging to save bees - which has been in response to evidence of the decline of some wild bee species - has been oversimplified to encourage people to keep honeybees, even when honeybees are not in decline or at risk.¹⁰¹

67. In a later session, Mr Packham told us how science communicators are responsible for conveying messages to the public which are easily accessible, but this may have led to confusion over which type of bees needed protection:

We try our very best—and it is not always easy—to build that increasing sophistication into our messagingI would say, there, that we as the communicators should have used the entry level and immediately developed [the message] slightly more quickly than we have, and not been left with a legacy whereby everyone thinks that the survival of the human species is dependent on the domesticated honeybee.¹⁰²

68. However, beekeepers often possess extensive knowledge, combined with practical experience, and can demonstrate a deep understanding of the complexities of land use change, agrochemical effects, and the influence of shifts in seasonal changes on insects in local ecosystems.¹⁰³ Paradoxically, despite honeybees serving as crucial commercial crop pollinators, research by Dr Siobhan Maderson at Cardiff University revealed that many beekeepers consider agricultural areas as less appealing habitats for their bees, favouring urban and suburban environments for their hives.¹⁰⁴

96 [Q7](#)

97 [Q7](#)

98 [Q9](#)

99 [Q9](#); [Q43](#)

100 Royal Botanical Gardens, Kew ([INS0044](#))

101 Royal Botanical Gardens, Kew ([INS0044](#))

102 [Q173](#)

103 Dr. Siobhan Maderson (Research Associate at Cardiff University) ([INS0016](#))

104 Dr. Siobhan Maderson (Research Associate at Cardiff University) ([INS0016](#))

The National Bee Unit

69. The National Bee Unit (NBU) is part of the Animal and Plant Health Agency (APHA) and delivers the Bee Health Programmes for domestic and commercial beekeepers on behalf of Defra and the Welsh Government in England & Wales. The role of the National Bee Unit is to provide information for beekeepers, to help keep their domestic colonies healthy and productive. The current team of 80 people comprises laboratory diagnostics, programme support, research personnel and 60 home-based Bee Inspectors who are managed by the National Bee Inspector (NBI).¹⁰⁵ The NBU maintains a voluntary database of active beekeepers called BeeBase, which provides those registered with visits from the National Bee Inspector and advice on how to keep bees healthy.

70. Together with Bee Health stakeholders, the National Bee Unit helped to develop the Healthy Bees Plan 2030. The plan focusses on achieving four key outcomes:

- i) Effective biosecurity and good standards of husbandry, to minimise pest and disease risks and so improve the sustainability of honeybee populations;
- ii) enhanced skills and production capability/capacity of beekeepers and bee farmers;
- iii) sound science and evidence underpinning the actions taken to support bee health; and
- iv) increased opportunities for knowledge exchange and partnership working on bee health and wider pollinator needs.¹⁰⁶

71. While managed bees contribute substantial pollination services, research suggests that the majority of crop pollination in the UK is provided by wild pollinators.¹⁰⁷

72. Charismatic insect species, of which the honeybee is a prime example, serve as invaluable ambassadors for the field of entomology, rendering the subject more accessible to the public and bringing to public attention this often-overlooked animal group. The concentrations of high numbers of hives in a small number of specific geographical areas may have detrimental effects on wild pollinator species due to resource competition. Consequently, there is a need to extend the range of conservation efforts to include the over 270 wild species of bees in the UK, acknowledging the importance of preserving the entire spectrum of biodiversity for a more balanced and resilient ecosystem.

73. Defra should expand the remit of the National Bee Unit, to include a focus on wild bee health. This should include both developing internal expertise and fostering collaboration with entomology experts and producing biennial reports, as part of the National Pollinator Strategy update previously recommended in this report. The Unit should also produce guidance to keepers about the potential impacts of over densification of hives on wild pollinator species.

105 National Bee Unit, [About us](#), accessed 19 December 2023

106 Department for Environment, Food and Rural Affairs, [Healthy Bees Plan 2030](#), 3 November 2020

107 Cambridge Global Food Security Interdisciplinary Research Centre, Wolfson College Interdisciplinary Research Hub on Sustainability & Conservation, and the Cambridge Institute for Sustainability Leadership ([INS0036](#))

Education and Skills

74. When questioned about their attraction to the field of entomology, many experts providing evidence shared stories of their early fascination with nature. Mr Packham described his early encounter with a ladybird from a neighbour's garden,¹⁰⁸ and Dr McAlister, from the Natural History Museum recalled that she was brought up “quite feral” and was free to explore the natural world as a child.¹⁰⁹ These recollections reinforced the significance of early encounters with nature in cultivating interests that may persist into adulthood.

75. Professor Goulson of the University of Sussex observed that, despite most young children loving insects during primary school bug hunting activities, a shift tends to occur as they grow older.¹¹⁰ By their teenage and adult years, many individuals tend to lose this fascination, often responding to insects with aversion and sometimes an instinct to kill them. This change was attributed by Professor Goulson to a lack of familiarity, exposure, and knowledge about insects.¹¹¹

Engaging young people

76. Witnesses to this Inquiry agreed that cultivating an early interest in insects is crucial, not only for the field of entomology but also for broader policymaking and raising public awareness. This was seen as essential for addressing current and future challenges related to insect decline.

77. Researchers from Queen Mary University emphasised the vital role of public awareness in successful insect conservation. They proposed that education programmes and outreach initiatives across schools, communities, and public campaigns could achieve these aims.¹¹²

78. We heard in our Inquiry how both the Royal Botanical Gardens at Kew and the Natural History Museum were heavily involved in educational outreach programmes, as museums are more than just “bones and stone”.¹¹³ For example, in its written evidence, Kew pointed to the number of pupils that were involved in its outreach programmes:

In the last financial year (2022–2023), over 85,000 school pupils visited Kew Gardens on a school trip with over 45,000 participating in a school-led session. Over 7,000 school teachers are subscribed to the online learning platform Endeavour, which has a reach of c.210,000 pupils.¹¹⁴

79. However, Professor Stevenson of the Royal Botanical Gardens, Kew acknowledged that, whilst many schools contact Kew to organise visits, the gardens could do more to engage local communities by themselves contacting schools to let them know what Kew could offer.¹¹⁵ Not all students have access to London, and many other museums, gardens, and nature reserves throughout the country offer valuable opportunities for both

108 [Q168](#)

109 [Q32](#)

110 [Q53](#)

111 [Q53](#); [Q27](#)

112 Queen Mary University of London ([INS0033](#))

113 [Qq27–31](#)

114 Royal Botanical Gardens, Kew ([INS0044](#))

115 [Q28](#)

in-person visits and online resources. Platforms like Kew’s Endeavour,¹¹⁶ or the online entomology demonstrations produced by the National History Museum,¹¹⁷ can enhance access and participation.

80. To both encourage and support this outreach work, Professor Stevenson recommended that the Government should “Provide the schools with the resource they need to get to where they need to go to learn about insects,” whilst Dr McAlister called for more funding for institutions to help them provide this type of outreach.¹¹⁸

Natural History GCSE

81. The Department for Education announced in April 2022 that the GCSE curriculum would contain a qualification in ‘Natural History’ by 2025.¹¹⁹ The aims of the new Natural History GCSE are to enable young people to explore the world by learning about organisms and environments, environmental and sustainability issues, and gain a deeper knowledge of the natural world around them. It also intends to develop the basic skills needed for a career in the natural world, for example observation, description, recording and analysis.¹²⁰

82. Witnesses to this Inquiry were supportive of the new qualification, highlighting how it will allow pupils to learn about the broader ecosystem and the value of insects within it.¹²¹ While the Bumblebee Conservation Trust was concerned that the qualification may not be available to all students, both Professor Stevenson and Dr McAlister agreed that the Natural History GCSE would address the lack of entomology currently covered in the core sciences.¹²²

Higher education and vocational work

83. A 2023 report from the Royal Entomological Society,¹²³ highlighted that one of the so called ‘Grand Challenges’ of the discipline was the need to increase entomological awareness, appreciation, and skills. In its written evidence it went further to say that entomological skills are not adequately prioritised in many university undergraduate and postgraduate courses.¹²⁴ Both the Biotechnology and Biological Sciences Research Council (BBSRC) and the Medical Research Council (MRC) identified entomology as a subject of “concern” in their 2017 review of vulnerable skills.¹²⁵ In her evidence, Dr McAlister told us of the lack of opportunities for training professional entomologists:

116 Royal Botanical Gardens, Kew ([INS0044](#))

117 [Q29](#)

118 [Qq30–31](#)

119 Department for Education, [Sustainability and climate change: a strategy for the education and children’s services systems](#), 22 April 2022

120 Department for Education, The Education Hub, [The new Natural History GCSE and how we’re leading the way in climate and sustainability education – your questions answered](#), 25 April 2022

121 [Q8](#)

122 [Q8; Darryl Cox \(Senior Science and Policy Officer at Bumblebee Conservation Trust\) \(INS0034\)](#)

123 Luke, S.H., Roy, H.E., Thomas, C.D., Tilley, L.A., Ward, S., Watt, A., Carnaghi, M., Jaworski, C.C., Tercel, M.P., Woodrow, C. and Aown, S., 2023. [Grand challenges in entomology: Priorities for action in the coming decades](#). *Insect conservation and diversity*, 16(2), pp173–189

124 Royal Entomological Society ([INS0025](#))

125 Biotechnology and Biological Sciences Research Council and the Medical Research Council, [BBSRC and MRC review of vulnerable skills and capabilities](#), 20 December 2017, p3

There are not enough insect specialists and lecturers to teach a lot of these courses. They can specialise more at Master's level, but the three-year zoology degree is dominated by vertebrates.¹²⁶

84. Professors Potts and Goulson noted the limited enrolment of entomology students at their respective universities but expressed optimism about a reversal in the downward trend, attributing this to growing interest in the best-known pollinator, the bee.¹²⁷

85. In her evidence to us, Minister Pow agreed that studying entomology should be encouraged¹²⁸ and highlighted the need for non-academic routes into jobs in this field. In a letter to this committee, Minister Pow stated that evidence collected by stakeholders, including the Chartered Institute of Ecologists and Environmental Managers (CIEEM), on the skills and workforce issues will form the Green Jobs Plan, scheduled for release in early 2024.¹²⁹ The Minister confirmed that CIEEM, with the support of the Institute of Apprenticeships and Technical Education, will convene employers to investigate possibilities for creating non-degree entry pathways into ecological positions to tackle recognised workforce and skills challenges.¹³⁰

86. Raising awareness of the importance of various insect species must be nurtured early to avoid the aversion that many people have to insects. The scarcity of experts, both professional and amateur, underscores the importance of cultivating a greater public passion for entomology, starting from an early age. The commendable efforts made by institutions such as the Natural History Museum and the Royal Botanical Gardens Kew, demonstrate promising avenues for engaging the public both online and in person.

87. In its response to this report, the Government should set out how it intends to facilitate nationwide access to external teaching resources offered by public bodies. This access, available through online platforms and educational visits, can significantly enhance the educational experience. The Government should also outline details of how it can make it easier to enter specific careers in entomology whether through vocational routes including collaborations with the Chartered Institute of Ecology and Environment Management or through academic streams.

88. The existing biology and core sciences GCSE curriculum inadequately addresses crucial aspects of insect study and focuses on a limited selection of ecological roles. We applaud the introduction of the new Natural History GCSE, which aims to not only encompass scientific knowledge but also lay the foundations of skills necessary for pursuing a career in entomology and other nature-related subjects.

89. The Government should ensure that it promotes access to the new Natural History GCSE when it is launched, with particular focus on schools that may not currently have easy access to the natural environment.

126 [Q14](#)

127 [Qq48–49](#)

128 [Q306](#)

129 Rebecca Pow MP (Minister for Nature at Department for Environment Food and Rural Affairs) ([INS0049](#))

130 Rebecca Pow MP (Minister for Nature at Department for Environment Food and Rural Affairs) ([INS0049](#))

The Importance of amateurs

90. The UK boasts a robust tradition of amateur natural science, providing historical records on insect numbers. The Dipterists Forum, the UK umbrella organisation for all Diptera (flies) recording schemes, highlights that the majority of skills in invertebrate identification are found within the amateur community.¹³¹ The oral evidence indicated a profound respect among the witnesses for the “amateurs” in entomology, recognising them as often the foremost experts in specific insect groups.¹³²

91. As implied by the name, amateur entomologists are unpaid for their work; nevertheless, the insect monitoring records they maintain are used by funded research programmes like the Drivers and Repercussions of UK Insect Decline (DRUID) project ([see chapter 2](#)).¹³³ In its written evidence, the Dipterist Forum recommended that support should be made available for amateurs to attend international conferences, often the preserve of professional academics, to foster collaborations and to disseminate amateur research among the entomology community.¹³⁴ This support could be in the form of opening the application of grant funding provided by learned societies to amateurs who have made substantial contributions to their respective fields.

92. Concerns were raised that the number of highly accomplished amateur naturalists was diminishing in the UK. Mr Packham told us:

When it comes to our formal interest in natural history, whether that is through an educational facility or self-taught, we see fewer people now who have the naturalist’s capabilities of even people of my generation.¹³⁵

Citizen Science

93. Citizen science is a scientific method in which volunteers collect data to help answer research questions. Citizen science has been used to monitor insects for many years, and it is becoming increasingly important as insect populations decline. Examples of citizen science projects for insect monitoring include:

- **Big Butterfly Count:** launched in 2010, over 107,000 citizen scientists took part in 2021, submitting 152,039 counts, using smart phone apps or printed charts, of butterflies and day-flying moths from across the UK;¹³⁶
- **BeeWalk:** volunteers are asked to go to a specific location near to them, identified on the project’s website, and count the number of bees and what species are there during spring and summer;¹³⁷

131 Dipterists Forum ([INS0030](#))

132 [Q33](#)

133 [Qq93–94](#)

134 Dipterists Forum ([INS0030](#))

135 [Q174](#)

136 Big Butterfly Count, [About](#), Accessed 20 December 2023

137 Darryl Cox (Senior Science and Policy Officer at Bumblebee Conservation Trust) ([INS0034](#))

- **UK Pollinator Monitoring Scheme (UK PoMS):** A Defra funded project established in 2017 and is the first scheme in the world to have begun generating systematic data on the abundance of bees, hoverflies and other flower-visiting insects at a national scale;¹³⁸ and
- **Bugs Matter Survey:** volunteers are asked to count the number of ‘splats’ on their car number plates after a registered journey ([see chapter 2](#)).¹³⁹

94. Much of the written evidence detailed the many benefits to using citizen science to monitor insects.¹⁴⁰ This method can be used to collect data over large areas and over long periods of time, with data being reported from volunteers on butterfly numbers since the 1970s.¹⁴¹ Citizen science can also be used to collect data from areas that would be difficult or expensive to access by scientists.

95. However, Professor Stevenson of Royal Botanical Gardens Kew argued that such projects were a necessity due to what he regards as underfunding in entomology research:

Citizen science approaches to data generation have become a thing of necessity, even to the point where it is being funded by UKRI. I think that it is seen as an easy and economical cop-out when actually we need more investment and more people who are paid professionally to undertake this kind of work, because it is so important.¹⁴²

96. Some experts also questioned the quality of the data collected by citizen scientists. We heard that in some cases volunteers, who may lack expertise in insect identification, could introduce errors in data collection, or data can exhibit bias, with volunteers more inclined to collect information on easily visible or interesting insects.¹⁴³ Unlike formal scientific research, negative datasets are rare in citizen science because volunteers are unlikely to submit zero counts, potentially skewing the data.¹⁴⁴

Benefits of citizen science

97. Despite potential limitations in data quality, involving the public in citizen science projects brings community benefits, particularly in raising public awareness, which is essential for addressing the issue of insect decline.¹⁴⁵

98. A key benefit highlighted by witnesses was the wellbeing associated with participation. Dr Claire Carvell, leader of UK Pollinator Monitoring Scheme (UK PoMS) told us:

138 UK Centre for Ecology & Hydrology ([INS0022](#))

139 Buglife ([INS0038](#))

140 Dr Alexander Waller (Visiting Professor of Environmental Ethics and Science Education at American University of Sovereign Nations) ([INS0005](#)); Mr James Heyburn (Policy & Engagement Officer at Imperial Policy Forum); Dr Richard Gill (Senior Lecturer, Department of Life Sciences at Imperial College London) ([INS0012](#)); Butterfly Conservation ([INS0018](#)); Rothamsted Research: Rothamsted Insect Survey ([INS0020](#))

141 Butterfly Conservation ([INS0018](#))

142 [Q16](#)

143 Dipterists Forum ([INS0030](#)); Mr James Heyburn (Policy & Engagement Officer at Imperial Policy Forum); Dr Richard Gill (Senior Lecturer, Department of Life Sciences at Imperial College London) ([INS0012](#)); Norwich Research Park, John Innes Centre, The Sainsbury Laboratory, Earlham Institute, University of East Anglia ([INS0023](#))

144 [Q176](#)

145 Queen Mary University of London ([INS0033](#))

We also know that getting involved in citizen science and getting up close to nature has a significantly positive impact on people’s wellbeing. There is increasing discussion in the sphere of green prescribing to help bring people in.¹⁴⁶

99. Encouraging participation in citizen science, especially among groups not traditionally associated with engaging in or with limited access to nature, can broaden the opportunities for individuals to experience the positive impact that access to nature provides. Broadening participation also has the added benefit of filling data gaps in insect research by collecting data from underrepresented locations such as urban environments or in an arable crop field.¹⁴⁷

Access to Nature

100. Throughout the Inquiry we heard examples from witnesses about the limited experience many children have with the natural environment such as an 8-year-old never having touched soil,¹⁴⁸ or the overzealous use of personal protective equipment when children are exposed to nature.¹⁴⁹

101. During this Inquiry the Government announced the provision of £2.5 million in funding to give more children from under-represented groups, access to nature.¹⁵⁰ This was in response to its own research that found that “18% of children living in the most deprived areas never visit nature at all”.¹⁵¹

102. Whilst clearly beneficial, exposure to the natural world at a young age does not necessarily need to be limited to being outside. Mr Packham drew attention to the many ways that schools can bring nature into the classroom such as piping birdsong into school libraries, using wildlife images as holding slides or using screens to stream online wildlife cameras.¹⁵²

103. We commend the often-overlooked contributions of amateur entomologists, ranging from unpaid species experts to members of the public involved in citizen science initiatives. While the collection of insect monitoring data remains invaluable for entomology, citizen science projects serve a broader purpose. We agree with the perspective of conservation experts, acknowledging that participation in such projects not only aids insect research but also enriches the lives of participants by fostering a deeper connection with the natural world. Citizen science projects allow researchers access to insect data from broad geographic areas that they may not have the resources to sample themselves. However, this type of survey must supplement, not replace, expert-led academic research projects.

104. *Citizen science projects, especially those supported by public funding, should implement strategies to enhance inclusivity, ensuring the involvement of people from*

146 [Q106](#)

147 [Q99](#)

148 [Q8](#)

149 [Q181](#)

150 Department for Environment, Food and Rural Affairs, [Government pledges to boost Britain’s access to nature ahead of COP28](#), 29 November 2023

151 Department for Environment, Food and Rural Affairs, [Landscape Review](#), 21 September 2019, p68

152 [Q181](#)

urban and disadvantaged backgrounds. This broader participation not only facilitates the collection of data from areas such as urban environments but also allows more people to experience the mental health benefits associated with engaging with nature.

4 Pesticides and agri-environmental policies

105. Through its agri-environmental policies the Government has shown that it recognises the pivotal role that farmers and land managers will play in halting the decline of species, including insects, by 2030.¹⁵³ Evidence to our Inquiry provides grounds for believing that land management practices are a significant driver of insect decline in the UK.¹⁵⁴ Consequently, agri-environmental schemes, aiming to enhance both the natural environment and food production, can be a valuable approach.¹⁵⁵

Environmental Land Management Schemes (ELMS)

106. The Environment Land Management Schemes (ELMS) consist of farm subsidies that reward landowners in England for their environmental work. ELMS replaces the EU's Common Agricultural Policy (CAP) Basic Payment Scheme as part of the Agriculture Act 2020.¹⁵⁶ ELMS is made up of three main schemes:

- The Sustainable Farming Initiative (SFI) which contains the Integrated Pest Management (IPM) schemes.¹⁵⁷ The first applications for the Sustainable Farming Incentive scheme were made in 2022;¹⁵⁸
- an enhanced Countryside Stewardship;¹⁵⁹ and
- Landscape Recovery (LR).¹⁶⁰

107. The Government has set a target for ELMS to have 70% of farmers adopting the Sustainable Farming Incentive (SFI), covering a minimum of 70% of farmland.¹⁶¹

Stakeholders' response to ELMS

108. Contributors to this Inquiry broadly welcomed the introduction of ELMS. Mr Henry Edmunds, Owner of the Cholderton Estate, Hampshire, praised the Government's approach to supporting sustainable farms saying:

153 Department for Environment, Food and Rural Affairs, [Environmental land management schemes: outcomes](#), 6 January 2022

154 [Q50](#)

155 Royal Entomological Society ([INS0025](#)); Fera Science Ltd. ([INS0010](#)); Norwich Research Park, John Innes Centre, The Sainsbury Laboratory, Earlham Institute, University of East Anglia ([INS0023](#))

156 Agriculture is a devolved policy, and the Environment Land Management Schemes are England only schemes. For a summary of agricultural payments policy in Wales, Scotland and Northern Ireland see Farm funding: Implementing new approaches, Research briefing [CBP 9431](#), House of Commons Library, 15 March 2023. See also: Welsh Government, [Sustainable Farming Scheme](#), (23 February 2024); Scottish Government, [Sustainable and regenerative farming - next steps: statement](#), (2 March 2022); Department for Agriculture, Environment and Rural Affairs, [Future Agricultural Policy for Northern Ireland](#), (24 March 2022)

157 Department for Environment, Food and Rural Affairs, [Sustainable Farming Incentive guidance](#), updated 8 December 2023

158 Farm funding: Implementing new approaches, Research briefing [CBP 9431](#), House of Commons Library, 15 March 2023

159 Department for Environment, Food and Rural Affairs, [Countryside Stewardship: get funding to protect and improve the land you manage](#), updated 3 January 2024

160 Department for Environment, Food and Rural Affairs, [Landscape Recovery: round one](#), 18 May 2023

161 Department for Environment, Food and Rural Affairs, [Environmental land management schemes: outcomes](#), 6 January 2022

I would also like to applaud Defra for the ELMS countryside stewardship. These are excellent schemes. I am and have been a participant in stewardship for many years. I could not do what I do without the support I have had through stewardship, so I have a lot to be grateful for there.¹⁶²

109. However, concerns have been raised by some, including the National Farmers' Union, on the delays to its introduction.¹⁶³ The Bumblebee Conservation Trust in its evidence expressed concern that the 2023 update to ELMS removed the more ambitious aspects of the enhanced Countryside Stewardship. It also said that these schemes needed to be more integrated with other biodiversity initiatives such as the National Pollinator Strategy.¹⁶⁴

110. In his oral evidence, Craig Bennett, Chief Executive of the Wildlife Trusts, said that Defra (Department for Environment, Food & Rural Affairs) needed to be more ambitious with the Sustainable Farming Incentive (SFI) rather than taking a cautious approach to attract more farmers:

Curiously, Defra's view over the last couple of years is that it has been very worried that there are not enough farmers going into the scheme. There was, at one point, a narrative that it did not want to make it too ambitious because it might put farmers off. I think it has done exactly the opposite. The more schemes you can put within SFI and offer generous payments to farmers to do them, the more farmers will [take it up]. I speak to many farmers who say there are almost not enough standards within SFI to tempt them into it. So I think holding back on the ambition has been a problem.¹⁶⁵

111. A key difference between the previous agri-environmental schemes and the new ELMS is the ability for farmers to 'bundle' together measures from different parts of the scheme based on the farmers' desired outcomes. However, John Holmes, Director of Strategy, Natural England, said that individual measures would not achieve the desired outcomes to benefit insects, for example "If you do an [Integrated Pest Management] strategy but then don't put into place some flower meadows, it does not work".¹⁶⁶ He expected the flexibility and the ability to bundle measures together within ELMS would provide better outcomes than the previous schemes.¹⁶⁷ However, Vicki Hird, former lead of sustainable agriculture, at Sustain, disagreed:

I would not have made the scheme pick-and-mix. I would have made it much more integrated and coherent so that farmers would need to do something and then need to do something else, so it is a logical step. At the moment, they can just pick and do things and not go to the next step, and that is not going to give us what we need.¹⁶⁸

112. In its written evidence, Natural England said that because measures could be bundled together "their effectiveness will depend on both overall patterns of uptake and the balance of uptake across the different measures".¹⁶⁹

162 [Q224](#)

163 [Farming subsidies trigger row over future of British countryside](#), Financial Times, 27 September 2023

164 Darryl Cox (Senior Science and Policy Officer at Bumblebee Conservation Trust) ([INS0034](#))

165 [Q127](#)

166 [Q292](#)

167 [Q292](#)

168 [Q232](#)

169 Natural England ([INS0037](#))

113. Monitoring the effectiveness of ELMS is the responsibility of Natural England, which has over 30 years of evidence regarding the effectiveness of agri-environmental schemes. However, it warned that it is too early to assess whether ELMS is more effective at halting insect decline than the previous schemes.¹⁷⁰

114. In its 2023 Soil Health Report, The Environment, Food and Rural Affairs Committee called for the Government to produce a set of measurable targets and an evaluation programme for ELMS to ensure it is delivering on its aims of improving the health of the environment.¹⁷¹

115. Witnesses to this Inquiry have told us that within the UK, land use change, land management practices and pesticide usage are amongst the largest contributing factors to insect decline. Consequently, the largest influence on achieving the biodiversity targets for insect species outlined in the 2021 Environment Act, could lie in the implementation of agri-environmental policies.

116. Evidence from this Inquiry supports the conclusions from the Environment, Food and Rural Affairs Committee that the impact of Environment Land Management Schemes (ELMS) should be monitored and adapted as needed throughout its implementation, to gain the benefit of an iterative approach to policy development. ELMS should also show that it delivers better environmental outcomes than previous agri-environmental schemes. However generous and efficient the payment system is, the actions being rewarded need to have their impacts monitored and assessed to ensure specific outcomes like improved insect populations are delivered by ELMS and that public money is well spent. Successful execution of this monitoring, coupled with feedback from farmers and land managers, will give a more comprehensive overview of the individual and collective effects of ELMS implementation.

117. *The Government, in response to this report, should outline its plans to establish a monitoring and evaluation programme for ELMS. Such a programme should incorporate mechanisms to feed data on specific outcomes—such as insect abundance—back into long-term monitoring programmes. The Government should publish annual reports detailing:*

- a) *ELMS uptake levels, including a breakdown for each standard within the Sustainable Farming Incentive and how the schemes are combined by participants;*
- b) *implemented actions following scheme uptake;*
- c) *the influence of farmers' feedback on ELMS development; and*
- d) *the environmental impacts of the schemes including impact on beneficial insect species.*

170 Natural England ([INS0037](#))

171 Environment, Food and Rural Affairs Committee, First Report of Session 2023–24, Soil Health, [HC245](#), p50 para 16

Integrated Pest Management

118. Integrated Pest Management (IPM) is a methodology focused on suppressing pest populations by encouraging their natural enemies or other ecological and technical means, treating chemical pesticides as a last resort.

119. The Government's new farm funding schemes, the Environmental Land Management Schemes (ELMS), contains payments for Integrated Pest Management as part of the Sustainable Farming Incentive. The actions for Integrated Pest Management focus on:

- increasing knowledge and identifying opportunities for an integrated pest management approach;
- creating habitats for natural crop pest predators;
- using 'companion cropping'¹⁷² to suppress weeds, reduce diseases and provide protection from crop pests; and
- minimising use of insecticides.¹⁷³

120. As with the whole of ELMS, Integrated Pest Management is a voluntary scheme and payments are based on four tiers of implementation, with the first being £989 per year for 'assessment and planning'.¹⁷⁴ Minette Batters, President of the National Farmers' Union, told us that as of October 2023, 4,400 Integrated Pest Management plans had been submitted.¹⁷⁵

121. Contributors to this Inquiry broadly supported Integrated Pest Management,¹⁷⁶ and Professor Alistair Griffiths, Director of Science and Collections, Royal Horticultural Society told us that Integrated Pest Management was being more widely adopted by the horticultural industry.¹⁷⁷ However some contributors, including Natural England, said it required more consistent approaches while farmers needed more Government support to implement measures.¹⁷⁸ Vicki Hird, former Head of Sustainable Farming, Sustain, said the measures needed to be "bigger, stronger and more ambitious"¹⁷⁹ and the Bumblebee Conservation Trust said:

The inclusion of IPM in ELMS is welcome, but paying farmers to simply have a plan will not equate to a reduction in pesticide use.¹⁸⁰

172 Companion crops are [a pair of] plant species sown together to gain some advantage in yield or protection from pests from complementary [physical, chemical or biological] features.

173 Department for Environment, Food and Rural Affairs, [SFI actions for integrated pest management](#), updated 18 September 2023

174 Department for Environment, Food and Rural Affairs, [SFI actions for integrated pest management](#), updated 18 September 2023

175 [Q256](#)

176 BASF ([INS0015](#)); Sustain the Alliance for Better food and Farming ([INS0019](#)); The Pesticide Collaboration ([INS0021](#)); UK Centre for Ecology & Hydrology ([INS0022](#)); Norwich Research Park, John Innes Centre, The Sainsbury Laboratory, Earlham Institute, University of East Anglia ([INS0023](#)); Royal Entomological Society ([INS0025](#)); Game & Wildlife Conservation Trust ([INS0026](#)); Queen Mary University of London ([INS0033](#))

177 [Q158](#)

178 Norwich Research Park, John Innes Centre, The Sainsbury Laboratory, Earlham Institute, University of East Anglia ([INS0023](#)); Royal Entomological Society ([INS0025](#)); Natural England ([INS0037](#))

179 [Q225](#)

180 Darryl Cox (Senior Science and Policy Officer at Bumblebee Conservation Trust) ([INS0034](#))

Impact of Integrated Pest Management on tackling insect decline

122. In its 2019 National Pollinator Strategy Evidence Update, the Government concluded that there was limited data quantifying the effects of Integrated Pest Management and other changes to the pesticide regime on pollinator diversity, abundance and health of the farmland. It also stated that there is no current review being undertaken on the effects of Integrated Pest Management, at scale, on insects.¹⁸¹

123. Natural England is exploring the efficacy of Integrated Pest Management as an agricultural control method, through its Biodiversity Enhancement study.¹⁸² Provisional results from the study were included in the submission Natural England provided, which highlighted that there was currently limited evidence that Integrated Pest Management (IPM) benefited insect populations or biodiversity more generally:

The finding of substantial evidence gaps for the impact of IPM techniques on biodiversity is pertinent, as the SFI (Sustainable Farm Incentive) IPM Standard is being introduced with the aim of paying farmers for delivering a public good. However, this report shows that there is a lack of evidence for what impact these practices will have.¹⁸³

124. When questioned on these results, John Holmes, Director of Strategy, Natural England, told us that Natural England was delaying the publication of its conclusions so that it could collect more evidence on the impact of Integrated Pest Management. However, he believed that:

IPM clearly has a good place in the future of farming for biodiversity. It is a question of tweaking the way we do it for maximum outcome, but also to make sure it fits in profitable farming.¹⁸⁴

Integrated Pest Management methods and technologies

125. The main premise of Integrated Pest Management is using alternatives to chemical pesticide applications wherever possible to protect crops from insect pests. Professor Toby Bruce of Keele University and Professor Linda Field of Rothamsted Research, gave us various examples of current and developing Integrated Pest Management strategies including the use of semiochemicals¹⁸⁵, biopesticides¹⁸⁶ and precision spraying technologies to target pesticides more accurately.¹⁸⁷

126. Integrated Pest Management techniques can also include growing crops that are more resistant to pests whether through ensuring they are as healthy and robust as possible or by introducing resistant genes to crop varieties (see Box 1).

181 Department for Environment, Food and Rural Affairs, [NPS Evidence Update](#), 3 January 2019

182 Natural England ([INS0037](#))

183 Natural England ([INS0037](#))

184 [Q291](#)

185 Semiochemical are hormones or pheromones used to either repel pests or attract them away from a crop.

186 Biopesticides are a type of pesticide made from natural materials such as animals, plants, bacteria, and certain minerals or their derivatives including genetic material or metabolites.

187 [Q200](#)

Box 1: Gene-editing to protect crops from pests.

The Genetic Technology (Precision Breeding) Act 2023 removed plants and animals produced through precision breeding technologies, such as genome editing from regulatory requirements applicable to the environmental release and marketing of Genetically Modified Organisms (GMOs). Gene editing is different to producing GMOs as the technique does not introduce new 'alien' DNA into an organism. Instead, it recreates genetic changes that could occur naturally or through conventional breeding methods but at an accelerated pace.

Gene-editing could be used to produce pest resistant crop varieties. For example, British Sugar is working with the biotechnology company TROPIC to genetically edit sugar beet's innate defence mechanisms (known as gene silencing or RNA interference) to better target Yellow Virus.¹⁸⁸

Alternatively, instead of genetically editing a crop, researchers are working on genetically editing the insect pest. A startup company Biocentis, founded by researchers from Imperial College London, are working on using gene-editing to spread female sterility among pest insect populations by disrupting the sex determination gene (doublesex) in certain insects. This aims to reduce successful breeding in the targeted population across multiple generations, leading to a localised reduction in population size. One of the first target species for this technology is the invasive pest of berries and other soft-skinned fruits *Drosophila suzukii*.¹⁸⁹

127. Mr Henry Edmunds, the owner of the Cholderton Estate, described how he successfully managed his estate organically and remained commercially successful. Mr Edmunds told the Committee that his technique of 'properly' rotating where he sows his arable crop allowed him to produce high yields of barley without the need for any additional inputs such as fertilisers or pesticides. He explained that improving the organic matter in his soil meant his crops could resist diseases and grow successfully among wild plants.¹⁹⁰

128. However, Mr Edmunds acknowledged that transitioning to fully organic practices takes time as it requires large populations of natural pest predators:

You cannot suddenly have masses of beneficial insects overnight; it takes time for populations to build up and to get the habitat right. It does not happen overnight.¹⁹¹

New technologies for Integrated Pest Management

129. Whilst introducing Integrated Pest Management into the Sustainable Farming Incentive scheme was widely seen as a positive step, some contributors to this Inquiry highlighted that challenges still need to be addressed in this developing area of research.

130. One such challenge is communicating advice on how to implement techniques that are most suited to each specific farming environment. Professor Bruce explained that:

188 [British Sugar \(INS0006\)](#)

189 Imperial College London, [Imperial startup Biocentis to develop genetic tech to control harmful insects](#), 1 February 2023

190 [Qq215-216](#)

191 [Q221](#)

One of the problems with integrated pest management is that it is too complicated and difficult for farmers to use. Some of the alternative approaches depend on the weather or need to be done at a particular time.¹⁹²

131. Advice to farmers can be provided by the Voluntary Initiative, an industry led programme which aims to be the UK's primary mechanism for promoting best practice in the use of chemical pesticides and enhance the adoption of Integrated Pest Management.¹⁹³ The chemical company BASF said in its evidence that it was:

...committed to Integrated Pest Management and support the Voluntary Initiative to reduce the impact of crop protection and indeed crop production, on the environment, including use of digital and precision agriculture to achieve more efficient and targeted use of crop protection products.¹⁹⁴

132. Some contributors highlighted the fact that the advice made available to farmers was not independent of agrichemical companies.¹⁹⁵ Ms Hird suggested that farmers who were successfully implementing Integrated Pest Management should be encouraged to advise others:

We have said that there should be an independent, affordable or free advisory network available for all farmers to access. I think some of the best advisers would be people like Henry [Edmunds]. You could pay farmers who are already doing it to provide that advice and demonstration to all farmers so they can understand what IPM really means. It is not just cutting out insecticides or herbicides; it is about a whole-farm approach with chemicals as a very last resort.¹⁹⁶

133. A second challenge highlighted was the lack of translational research in this field—studies seeking to produce more meaningful, applicable results that directly benefit human welfare more quickly—in this instance, specifically geared towards practical pest solutions as opposed to the more well-funded “curiosity-driven scientific research”.¹⁹⁷

134. The Government has committed £270 million as part of its farming innovation programme, which is a partnership between Defra and UK Research and Innovation (UKRI), to applying science and agricultural research to challenges in agriculture to provide benefits for farmers and develop practical solutions.¹⁹⁸ The programme began in 2021. However, Professor Bruce was still concerned, saying:

We need better interventions—better things that farmers can do that can be put together in the integrated pest management packages. At the moment there are not enough robust, field-applicable solutions that can be used, so we need research geared towards generating practical solutions.¹⁹⁹

192 [Q196](#)

193 Voluntary Initiative, [About Us](#), accessed 1 February 2024

194 BASF ([INS0015](#))

195 Mr Norman Guiver ([INS0003](#)); Norwich Research Park, John Innes Centre, The Sainsbury Laboratory, Earlham Institute, University of East Anglia ([INS0023](#)); Game & Wildlife Conservation Trust ([INS0026](#)); [Q199](#); [Q225](#)

196 [Q225](#)

197 [Q196](#)

198 UKRI, [Farming innovation: find out about funding](#), Accessed December 2023

199 [Q197](#)

135. **Integrated Pest Management (IPM) is an important component of sustainable crop protection; however, it requires more knowledge than traditional pesticide applications. To enhance the successful implementation of IPM, it is imperative to adopt innovative approaches and new tools, such as integrating resistant plant varieties, the use of biopesticides or new pheromones, artificial intelligence decision support systems, and advances in agronomy as and when they are developed. For widespread adoption within the farming community, effective and sustainable crop protection strategies should be demonstrated at a commercial scale.**

136. *We support the work of the Voluntary Initiative in disseminating advice to farmers on implementing Integrated Pest Management strategies. However, there is scope to extend the scheme to incorporate a peer-to-peer advisory network to provide farmers with access to a range of advice for developing and implementing their own strategies. The Government should also support the development of new IPM technologies through research funding and other mechanisms. Once these technologies are demonstrated as effective, the Government should encourage farmers to implement them by incorporating their use as specific actions into the Environmental Land Management Schemes (ELMS).*

Biodiversity indicators and Sites of Special Scientific Interest (SSSIs)

137. In accordance with the Environment Act 2021, The Environmental Targets (Biodiversity) (England) Regulations 2023 contain legally binding targets for both species abundance and extinction risk in England.²⁰⁰

Species extinction

138. The regulations set the target of reducing the risk of species extinctions by 2042, when compared to the risk of species extinctions in 2022. The baseline value of species extinction risk for this comparison was created by Natural England in the 2022 Red List for England (also known as the D5 Conservation status of our native species).²⁰¹ Whilst 49% of the species included in the ‘Red List’ metric are invertebrates, the list does not include some major insect groups such as bees, wasps, ants or moths.

139. The reasons behind the exclusion of many invertebrate species from the ‘Red List’ was due to the lack of evidence of whether a species is vulnerable, endangered, near threatened or any of the other official conservation categories.²⁰² To be included, species’ ‘Red List Data’ requires formal approval by one of the Statutory Nature Conservation Bodies²⁰³ to ensure the reliability of the data.²⁰⁴ The Minister told us that whilst there is a lot of data on some excluded species such as bees and moths the data was not “... exactly the right

200 The Environmental Targets (Biodiversity) (England) Regulations 2023 ([SI 2023/91](#))

201 Natural England, [Outcome Indicator Framework for England’s 25 Year Environment Plan: D5 Conservation status of our native species](#), 19 October 2022

202 [Q266](#)

203 The Statutory Nature Conservation Bodies’ (SNCBs) are Natural England, Natural Resources Wales, NatureScot, the Northern Ireland Environment Agency, the Joint Nature Conservation Committee, and DAERA’s statutory advisory body, the Council for Nature Conservation and the Countryside.

204 Rebecca Pow MP (Minister for Nature at Department for Environment Food and Rural Affairs) ([INS0049](#))

data for them to get on to that red list”.²⁰⁵ The Minister told us that “big talks” were had about the absence of bees specifically from the ‘Red List’ when the targets were discussed, however Minister Pow did not refer to any actions to resolve their absence.²⁰⁶

Species abundance

140. A separate list of species, or ‘biodiversity indicators’, is used as the baseline metric to measure changes in species abundance. The second set of statutory targets requires that the decline in “overall relative species abundance index” should be halted by 2030 and then reversed so that species abundance is higher in 2042 than in 2022. The abundance of species included in the ‘biodiversity indicators’ is measured each year and compared to the previous year’s figures to establish the trend.²⁰⁷ Writing to us following her oral evidence, Minister Pow told the Committee that the ‘biodiversity indicators’:

... includes 11 bumblebee species, 55 butterflies, and 452 moths and utilises data from third-party monitoring schemes including the Rothamsted Insect Survey, UK Butterfly Monitoring Scheme, and BeeWalks.²⁰⁸

141. However, compared to the numbers of invertebrate species in the UK the ‘biodiversity indicators’ is a very limited list. For example, the UK has over 270 species of bee and yet only 11 species of bumblebee are included. Other insect groups that are important for UK food security are completely absent, including beetles and wasps, which highlights major gaps in the ‘biodiversity indicators’.

142. Excluding these species from the ‘biodiversity indicators’, which is used to determine whether legally binding targets are achieved, means that the indicators lack sensitivity to changes in the populations of these invertebrates.²⁰⁹ This could lead to a situation in which the abundance targets are considered met, even if there is a significant decline in the abundance of invertebrate species not included on the list such as beetles.

143. The statutory targets to halt and reverse species extinction and decline in abundance are ambitious and welcome. However, the exclusion of numerous invertebrate species and in some cases entire groups from the baseline metrics, particularly those vital for UK food security such as predatory beetles, is concerning. Including only 11 species of bumblebee is not an adequate abundance indicator for all 270 (at least) unique UK bee species. We are concerned that a significant number of insect or invertebrate species could go extinct or significantly decline in abundance, and yet the statutory targets could still be met by law.

144. Revised versions of Natural England’s ‘Red List’ and the ‘biodiversity indicators’ used to measure changes in abundance should include a minimum of one species per family, which would result in a significant increase in invertebrate representation. In response to this report, the Government should set out what steps it is taking to gain approval from members of the Statutory Nature Conservation Bodies, so that data from species excluded from the 2022 Red List can be included in future iterations. Additionally, a detailed breakdown of how current data from the monitoring of excluded

205 [Q303](#)

206 [Q303](#)

207 The Environmental Targets (Biodiversity) (England) Regulations 2023 ([SI 2023/91](#)), [Schedule 2](#)

208 Rebecca Pow MP (Minister for Nature at Department for Environment Food and Rural Affairs) ([INS0049](#))

209 [Q268](#)

invertebrate species influence both the interim and final statutory biodiversity targets, should be published routinely. This should be in the form of an alternative ‘Baseline List’ to include species where the availability of data does not pass the threshold for inclusion in the ‘Red List’, but where evidence is available to determine a baseline conservation status. This ‘Baseline List’ should include as many excluded insect species as possible, to act as baseline statistics from which all future interim and final progress reporting for the biodiversity targets will be made.

Sites of Specific Scientific Interest (SSSI)

145. Sites of Specific Scientific Interest (SSSI) are a formal conservation designation officially made by Natural England (England); Natural Resources Wales (Wales); Scottish Natural Heritage (Scotland) or the Northern Ireland Environment Agency (Northern Ireland).

146. There are almost 7000 SSSIs across the UK and designation means that landowners must manage the site appropriately to conserve its special features. These features currently include the presence of rare flora or fauna or important geological or physiological features that may lie within its boundaries.²¹⁰

147. Evidence submitted to this Inquiry states that some SSSIs are failing to conserve invertebrate biodiversity, and Natural England said they are “... often in unsatisfactory condition”.²¹¹ In her oral evidence, Professor Lynn Dicks of the University of Cambridge, told us that with regard to insects: “The common species are actually declining faster in protected areas than outside protected areas”.²¹²

148. Naturalist Chris Packham CBE gave the Committee an example of how the Cholderton Estate, run by Mr Edmunds, had better biodiversity than a neighbouring SSSI and suggested that budget cuts to Natural England were a reason behind the unsatisfactory condition of protected sites.²¹³ In its 2019/20 Annual Report and Accounts, Natural England said that “It has been well-documented that Natural England’s government funded Grant in Aid budget has declined by 49 percent in six years and almost two-thirds over a decade”.²¹⁴

149. However, Mr Holmes of Natural England told us that the problem was not the budget cuts but rather that isolated SSSIs were surrounded by unprotected and degrading countryside:

The reason for decline is that these SSSIs are really islands of habitat for species in a highly degraded fabric of the countryside. An SSSI notified for a butterfly species on its own is unlikely to be able to support a butterfly species, even if you do all the habitat management. They are islands that need a wider countryside fabric that is accessible and in good condition. They also suffer from the same things as the wider countryside: pesticide

210 Woodland Trust, [SSSI Definition](#), 1 March 2019

211 Natural England ([INS0037](#))

212 [Q110](#)

213 [Q178](#); [Q183](#)

214 Natural England, Annual Report and Accounts 1 April 2019 to 31 March 2020, Session 2019–20, [HC712](#), 17 September 2020

impacts and fragmentation impacts affect SSSIs. That fragmentation has gone on for so long, we do not know what extinction debt, if you like, is carried.²¹⁵

150. The 2023 Environment Improvement Plan has the following commitments regarding SSSIs:

- All SSSIs will have an up-to-date condition assessment by 31 January 2028;
- 50% of SSSIs to have actions on track to achieve favourable condition by 31 January 2028; and
- delivering the £5.6 million Conservation and Enhancement Scheme to improve and maintain the condition of those SSSIs not currently eligible for existing agri-environment schemes, for example because they are not agricultural holdings.²¹⁶

151. As of November 2023, just under 19% of SSSIs had an up-to-date condition assessment, and around 12% have actions on track to achieve favourable condition.²¹⁷

152. Professor Dicks, however, warned that even the improvements to these protected sites may not be enough to prevent the reductions in insect abundance in these areas:

We have two statutory headline targets from the Environment Act. One is about halting species extinction. The protected areas network, as it is, especially if we improve the condition of the sites we have, will do that for insects. But I do not think it will do the other target—the other statutory thing we are trying to meet—which is to halt [decline in] species abundance.²¹⁸

153. Witnesses to our Inquiry estimate that approximately half of the Sites of Special Scientific Interest (SSSIs) are not in a good state and are failing to conserve invertebrate biodiversity.²¹⁹ Protected sites do not exist in isolation and are therefore influenced by the quality of nature in the surrounding environment. Whilst we welcome the statutory improvements to SSSIs set out by the Environment Improvement Plan, which will go some way to prevent more insect species extinctions, our Inquiry heard it is unlikely that these improvements will be sufficient to halt decline in species abundance. This is particularly the case for more common species, where large numbers of individuals in a population are needed to play pivotal roles such as pollination effectively.

154. The Government should invest in the monitoring of landscapes surrounding protected areas to collect evidence on how these areas impact the quality of protected sites. This data should be included in the Sites of Special Scientific Interest (SSSI) condition assessments. Details of how to mitigate external influences on SSSI conditions should also be considered as an ‘action to achieve favourable conditions’, which in accordance with the Environment Improvement Plan should be reported in 2028.

215 [Q278](#)

216 Department for Environment, Food and Rural Affairs, [Environment Improvement Plan 2023](#), 31 January 2023

217 Rebecca Pow MP (Minister for Nature at Department for Environment Food and Rural Affairs) ([INS0049](#))

218 [Q110](#)

219 [Q111](#)

The Role of Pesticides in UK Food Security

155. Pesticides are chemical and biological products used to kill, control or prevent harmful organisms and plant diseases. Insecticides (insect specific pesticides) can be broad-spectrum, meaning they can control a wide range of insects, including beneficial insects. Examples of broad-spectrum insecticides include pyrethroids, organophosphates and neonicotinoids (see section on Neonicotinoids [below](#)). Selective insecticides are active on specific pest species but have minimal impact on non-target organisms.

Impact of pesticides on insect decline

156. Whilst chemical pesticide use is recognised as a key driver of insect decline there was disagreement among contributors to this Inquiry about the extent to which insecticides play a role in insect decline in the UK.

157. Some contributors to this Inquiry have cited multiple studies where the specific use of insecticides has been linked to decline in non-target insects such as butterflies and pollinators.²²⁰

158. However, some academics, Natural England and industry stakeholders have said that the role pesticides play in insect decline trends remains unclear.²²¹ For example, the National Farmers' Union said in its evidence:

The evidence base shows some neonicotinoid insecticides are a high risk to bees and can have negative sub-lethal impacts on bees. But there is still no clear or compelling weight of evidence showing that neonicotinoids are a cause of widespread declines in pollinator or other insect populations.²²²

159. A key reason for the uncertainties around the impact of pesticides on many insect species is the lack of data on pesticide accumulation in the environment.²²³ Mr Holmes of Natural England told the Committee that terrestrial monitoring of pesticides is not currently comprehensive, and that in order to make interventions more impactful a new monitoring system needs to be implemented.²²⁴ In June 2023, Natural England published 'A proposal for terrestrial environmental monitoring of Plant Protection Products' which outlines suggested improvements to fill the gaps in our current knowledge.²²⁵

160. Currently, pesticide usage is estimated by the Food and Environment Research Agency's (Fera) Pesticide Usage Survey, where a random sample of farms is surveyed every two to four years depending on the crop.²²⁶ This survey is not compulsory and is

220 Dr Alexander Waller (Visiting Professor of Environmental Ethics and Science Education at American University of Sovereign Nations) ([INS0005](#)); Dr James Hodge (Associate Professor at University of Bristol); Dr Kiah Tasman (Lecturer at University of Bristol) ([INS0007](#)); Fera Science Ltd. ([INS0010](#)); Dr Harry Siviter and Professor Jane Memmott (Dr Harry Siviter and Professor Jane Memmott at Buglife - The Invertebrate Conservation Trust) ([INS0050](#))

221 CropLife UK ([INS0035](#)); BASF ([INS0015](#)); National Farmers' Union of England and Wales (NFU) ([INS0024](#)); Natural England ([INS0037](#)); Professor Toby Bruce (Professor of Insect Chemical Ecology at Keele University) ([INS0014](#)); Fera Science Ltd. ([INS0010](#))

222 National Farmers' Union of England and Wales (NFU) ([INS0024](#))

223 Natural England ([INS0037](#))

224 [Q269](#); [Q284](#)

225 Natural England, [A proposal for terrestrial environmental monitoring of Plant Protection Products](#), 14 June 2023

226 Fera, [Pesticide Usage Survey](#), accessed 2 January 2024

reliant on farmers recording data accurately. According to the Science Advice for Scottish Agriculture (SASA) Pesticide Survey Unit: “There are no alternative methods of pesticide usage estimation that could attain greater precision within the resource available”.²²⁷

Neonicotinoids

161. One of the most widely used classes of insecticides around the world is neonicotinoids accounting for over 24% of the global insecticide market.²²⁸ In the EU (and therefore the UK at the time), the use of neonicotinoids was restricted in 2013 to prevent their use on flowering crops that are attractive to bees. In 2018, the EU banned three of the most used neonicotinoids (clothianidin, imidacloprid and thiamethoxam) on all outdoor crops.²²⁹

162. However, temporary emergency exemptions have allowed some growers to continue using these pesticides. The UK Government grants emergency authorisation to use neonicotinoids on the non-flowering sugar beet crop in England based on forecast models provided by Rothamsted Research using Rothamsted Insect Survey data. Such exemptions were granted in February 2023 and again in January 2024.²³⁰ Vicki Hird in her written evidence told us that for all three exemptions granted between 2020 and 2023, this was done against the advice of the UK Expert Committee on Pesticides and the Health and Safety Executive which were consulted by the Secretary of State for Defra prior to the decision being made.²³¹

163. British Sugar said in its evidence that the use of neonicotinoids was required to protect the sugar beet crop as there were no viable alternatives currently available.²³² Despite this, some academics and charities called for a complete ban on neonicotinoid use due to the pesticide’s negative impact on bees, in particular the sub-lethal effects on reproduction and foraging.²³³ Professor Field told us that “there began to be evidence that insects that feed on nectar and pollen—specifically bees—were being affected with sub-lethal effects”.²³⁴ Professor Field, and others, called for more research to be carried out, especially in field experiments, on the long-term impact of neonicotinoid exposure on many insects, and said that there are extensive knowledge gaps in this area.²³⁵

227 Science Advice for Scottish Agriculture , [Pesticide Survey Unit – Methods of Data Collection, Statistical Estimation and Quality Assurance Procedures, 2022](#)

228 Dr James Hodge (Associate Professor at University of Bristol); Dr Kiah Tasman (Lecturer at University of Bristol) ([INS0007](#))

229 Understanding insect decline: data and drivers, [POSTbrief 36](#), Parliamentary Office for Science and Technology, March 2020, p22

230 Department for Environment, Food and Rural Affairs, [Neonicotinoid product as seed treatment for sugar beet: emergency authorisation application 2023](#), 16 February 2023; Department for Environment, Food and Rural Affairs, [Statement of reasons for the decision on the application for emergency authorisation for the use of Cruiser SB on sugar beet crops in 2024](#), 18 January 2024

231 Vicki Hird (Former Head of Sustainable Farming at Sustain) ([INS0048](#))

232 British Sugar ([INS0006](#))

233 Dr James Hodge (Associate Professor at University of Bristol); Dr Kiah Tasman (Lecturer at University of Bristol) ([INS0007](#)); Buglife ([INS0038](#)); Butterfly Conservation ([INS0018](#)); The Pesticide Collaboration ([INS0021](#))

234 [Q187](#)

235 National Farmers’ Union of England and Wales (NFU) ([INS0024](#)); Norwich Research Park, John Innes Centre, The Sainsbury Laboratory, Earlham Institute, University of East Anglia ([INS0023](#)); [Q192](#)

National Action Plan for Sustainable Pesticide Use

164. Having taken evidence during this Inquiry from industry stakeholders, academics, charities and farming representatives, there was no suggestion that chemical pesticides should be completely banned within agricultural settings.

165. There was a consensus that pesticides, even if only used as a last resort, are needed for UK food production. However, some witnesses called for a more sustainable approach to insecticide use to reduce their environmental impact.²³⁶

166. The 15th Conference of the Parties to the United Nations Convention on Biological Diversity saw the adoption of the Kunming-Montreal Global Biodiversity Framework. Target 7 includes the commitment of parties, including the UK, to reduce the overall risk from pesticides and highly hazardous chemicals by at least half by 2030.²³⁷

167. The strategy of the UK Government to mitigate the adverse effects of pesticides is outlined in the National Action Plan for Sustainable Pesticide Use. The **first** National Action Plan for Sustainable Pesticide Use (NAP) was published in 2013 and was expected to be reviewed every five years. The overarching objective of the NAP is to minimise the risks and impacts associated with pesticides on human health and the environment, all the while ensuring effective management of pests and pesticide resistance.²³⁸

168. In 2020, Defra, the Scottish Government, the Welsh Government, and the Department of Agriculture, Environment, and Rural Affairs (DAERA) in Northern Ireland collectively formulated a revised National Action Plan for the Sustainable Use of Pesticides (NAP). This **draft** updated plan **was published for consultation and** designed to replace the 2013 NAP and outlines a 5-year strategy aimed at enhancing the sustainability of pesticide usage across the UK.

169. Conservation and environmental charities recommended in written evidence to this Inquiry that the revised NAP should contain ambitious targets for the reduction in pesticide use and expressed frustration at the delay in its publication.²³⁹ Evidence submitted to the Environment, Food and Rural Affairs Committee's Soil Health Inquiry also called for the updated National Action Plan to be published as soon as possible.²⁴⁰

170. As of 28 February 2024, the revised National Action Plan for Sustainable Pesticide Use remains unpublished, a delay of over six years.

236 BASF ([INS0015](#)); Sustain the Alliance for Better food and Farming ([INS0019](#)); The Pesticide Collaboration ([INS0021](#)); UK Centre for Ecology & Hydrology ([INS0022](#)); Norwich Research Park, John Innes Centre, The Sainsbury Laboratory, Earlham Institute, University of East Anglia ([INS0023](#)); National Farmers' Union of England and Wales (NFU) ([INS0024](#)); Royal Entomological Society ([INS0025](#)); Game & Wildlife Conservation Trust ([INS0026](#)); Queen Mary University of London ([INS0033](#))

237 The 15th Conference of the Parties Convention on Biological Diversity, [Kunming-Montreal Global Biodiversity Framework](#), 19 December 2022

238 Department for Environment, Food and Rural Affairs, [Consultation outcome: Summary of responses](#), 15 December 2021

239 The Pesticide Collaboration ([INS0021](#)); Darryl Cox (Senior Science and Policy Officer at Bumblebee Conservation Trust) ([INS0034](#))

240 Environment, Food and Rural Affairs Committee, First Report of Session 2023–24, Soil Health, [HC245](#), p17 para 36

Response to Delays in publication

171. Vicki Hird, former lead of sustainable agriculture, Sustain, told the Committee that the lack of an action plan was ‘disastrous’ for farmers.²⁴¹ Minette Batters, President of the NFU, agreed and described the delay as “frustrating”.²⁴² When pressed for her opinion on why there has been such a delay, Ms Batters said:

We have had three Prime Ministers in 12 months. They have had very different approaches to what they want to achieve. In that time, we have had different Secretaries of State who have had very different approaches to what they want to achieve.²⁴³

172. However, Dr Rachel Irving, Deputy Director for Chemicals, Pesticides and Hazardous Waste at Defra told our Committee that the reasons behind the delay was the 38,500 responses to the 2021 consultation and that it was “a really complex area that the Government are keen to get right”.²⁴⁴

173. The UK has made international commitments to reducing the overall risk caused by pesticides by at least half by 2030. Whilst we acknowledge that updating the National Action Plan for Sustainable Pesticide Use, the UK implementation plan to achieve these commitments, is a substantial task for the Government, this does not excuse the six-year delay in the publication of this crucial policy.

174. We echo the Environment, Food and Rural Affairs Select Committee’s recommendation that the Government should publish the National Action Plan for Sustainable Pesticide Use no later than May 2024.

175. The impact of pesticides on insect species that are not pollinators remains not fully known due to the lack of data on pesticide accumulation in terrestrial environments and specific details of pesticide applications on managed land.

176. The Government should outline how the ‘Proposals for Terrestrial Environmental Monitoring of Plant Protectant Products’ will be incorporated into the National Action Plan for Sustainable Pesticide Use. Furthermore, the Government should consider how it could use its powers to increase respondents to the Fera’s pesticide usage survey.

Urban and suburban pesticide use

177. Residential gardens comprise 29.5% of Great Britain’s total urban area and up to 400,000 different varieties of plants grow in UK gardens.²⁴⁵ According to the Royal Horticultural Society (RHS), these gardens and other urban green spaces such as parks and allotments are critically important refuges which help pollinators and other invertebrates thrive.²⁴⁶

241 [Q235](#)

242 [Q245](#)

243 [Q247](#)

244 [Q316](#)

245 Royal Horticultural Society, [The RHS Sustainability Strategy: Net Positive for Nature and People by 2030](#), 12 November 2021

246 [Q144](#)

178. Insects are experiencing a decline in urban and suburban areas as well as rural areas. This decline can be attributed to various detrimental management practices, such as the replacement of lawns and gardens with paved surfaces, the adoption of artificial grass, and excessive use of agrochemicals in gardens.²⁴⁷

179. Matt Shardlow, Chief Executive Officer of Buglife, reasoned that, as domestic pesticide use was not essential for food production, the UK Government should follow other European countries such as France and Luxembourg,²⁴⁸ and ban the use of pesticides in non-agricultural settings.²⁴⁹

180. Professor Alistair Griffiths, Director of Science and Collections at the Royal Horticultural Society, told this Committee that the majority of gardeners did not use chemicals for pest control. In its own gardens, such as RHS Wisely, the RHS was working to reduce its pesticide use by 100% by 2025 except in specific cases of invasive species where pesticide use is judged by experts as essential for biodiversity net gain.²⁵⁰ However, when asked if pesticides could be removed from the garden horticulture sector completely, Professor Griffiths said that the complete removal of pesticides from events such as the Chelsea Flower Show would be difficult.²⁵¹

181. The Minister for Nature, Rebecca Pow MP, told the Committee that a ban on urban or suburban pesticide use would not be necessary, but that the Government supports the encouragement of gardeners to “go chemical-free”.²⁵²

Sustainable pesticide use in urban areas

182. Whilst accounting for only 15% of overall pesticide use in the UK, provisions for urban and suburban usage are contained in the National Action Plan for Sustainable Pesticide Use (NAP). Dr Irving told the Committee that the lack of data for use in these areas was one of the reasons behind the delay in publishing the updated NAP, and that the department was looking into how it can improve on pesticide usage data in these areas.²⁵³

183. Furthermore, some contributors to this Inquiry were concerned that agrichemicals could be purchased for domestic application with no requirement for training in safe usage or storage.²⁵⁴ The current 2013 National Action Plan said that users of pesticides for the maintenance of public spaces such as parks or recreational facilities and amateur users “are not operating to the same high standards as is generally found in agriculture”.²⁵⁵

184. Pesticide use by amenity and amateur sectors in urban and suburban areas does not benefit UK food production and can have adverse effects on many insect species.

247 Dr. Siobhan Maderson (Research Associate at Cardiff University) ([INS0016](#))

248 Luxembourg and France passed total bans on all non-agricultural pesticides from 1 January 2016 for the former and 1 January 2017 for the latter. These bans cover pesticides used in private gardens as well as in urban public spaces such as pavements, playgrounds, green spaces, cemeteries, sports facilities, allotments and more. Pesticide Action Network Europe, [Pesticide Free Towns: A Diversity of European Approaches](#), 27 March 2022

249 [Q152](#)

250 [Qq154–157](#)

251 [Q158](#)

252 [Q320](#)

253 [Q307](#)

254 Dr. Siobhan Maderson (Research Associate at Cardiff University) ([INS0016](#))

255 Department for Environment, Food and Rural Affairs, [National Action Plan for Sustainable Pesticide Use](#), February 2013, Para 7.2 p5

185. *The updated National Action Plan for Sustainable Pesticide Usage should include targets for reducing pesticide use in urban and suburban areas and to improve best practice for use by amateurs. The Government should work with stakeholders such as the Royal Horticultural Society, to stimulate the phasing down of pesticide use in the domestic horticultural sector.*

New plant protection products and regulation

186. Contributors to this Inquiry, including British Sugar, called for the Government to work with academia and industry to accelerate the development of replacements for neonicotinoids and other pesticides.²⁵⁶

187. There was concern that restricting the availability of numerous pesticides might lead to an overreliance on a limited set of existing products, thereby heightening the risk of pests developing resistance. Professor Bruce warned that:

If pesticides are just banned, without enough new solutions being made available, there will be intense selection pressure for resistance, given the limited number of pesticides that are considered less harmful that are still available. Without a range of options, those interventions will be over-used and insects will evolve resistance. We will lose those more benign products as well.²⁵⁷

188. Professor Field explained that as researchers learn more about the genetics of pest species, there is potential to create more precise chemistries targeting specific insects, minimising the impact on non-target beneficial insects. However, she suggested that motivating the industry to develop these new pesticides would require legislative encouragement.²⁵⁸

189. Professor Bruce believes that streamlining the regulatory processes for both new chemical pesticides and alternative plant protection products such as biopesticides would speed up the transition away from the more harmful broad-spectrum conventional insecticides.²⁵⁹

190. Industry contributors to this Inquiry were keen to improve commitments to research and development of new and alternative plant protection products. British Sugar highlighted its long-term plans, together with the NFU and the British Beet Research Organisation to tackle Yellow Virus spread by aphids, including non-chemical treatments and gene-editing (see Box 1).²⁶⁰

191. While a contentious debate exists between nature conservation groups and agriculturalists regarding the use of conventional pesticides, both sides acknowledge the importance of developing new solutions, emphasising the need for increased investment in practical research and development. The regulatory system's failure to distinguish between conventional chemicals and alternative plant protection products

256 British Sugar ([INS0006](#))

257 [Q198](#)

258 [Q193](#)

259 Professor Toby Bruce (Professor of Insect Chemical Ecology at Keele University) ([INS0014](#))

260 British Sugar ([INS0006](#))

such as biopesticides, coupled with high costs and lengthy approval processes, pose a barrier to innovation. Streamlining this process is essential for advancing environmentally sustainable alternatives in agricultural practices.

192. The Government should adopt an evidence-based strategy in formulating pesticide legislation, promoting the development of new plant pesticides with heightened target specificity. This approach would aim to mitigate the dual risks of pest resistance development and adverse off-target effects on beneficial insects. Any alterations to the regulatory framework should include ongoing monitoring of the impact on non-target species in field environments, where approved active substances are employed. Moreover, there should be an expansion in the range of non-target species for which data is collected to assess a chemical's impact prior to regulatory approval.

The Government should outline in its response to this Report, how it intends to support the development, regulation and practical application of pesticide alternatives, including, but not exclusive, to biopesticides, hormones and mRNA technologies. The Government should set out how it intends to adapt the current regulatory systems to accommodate innovative pesticide alternatives so that regulatory approval for these technologies can, where possible, be expedited.

Conclusions and recommendations

Insect population trends

1. During this Inquiry it has become evident that substantial knowledge gaps persist in our understanding of insect populations. Despite the UK being a leader in this field of research, there remains a scarcity of comprehensive and comparable data which poses a significant challenge in accurately assessing the extent and underlying causes of insect decline. (Paragraph 34)
2. The lack of long-term monitoring programmes for many insect species, and inconsistent data collection methods, hampers the ability to discern trends over time. (Paragraph 35)
3. *The Government and its agencies like UKRI should produce a clear strategy for sustaining long-term insect monitoring research. This involves not only maintaining existing projects but also initiating new studies that can address insect data gaps. Funders should commit to the longer term funding which is needed for insect monitoring projects, extending beyond the usual five-year cycle of research grants and ensure that these studies have clear channels for the incorporation of data collected by amateur groups.* (Paragraph 36)
4. Effective communication of the reality of insect decline needs to be accompanied by communication of actions that can address it. A fatalistic approach risks reducing the chances of changes being made to policy, behaviour and practices that can make a real difference to stopping and reversing insect decline. Empowering both the public and policy makers is a more effective tool for change than implying hopelessness. (Paragraph 41)
5. *The Government and its agencies should consider ways in which to communicate not only the reality of insect decline but also the attainable steps that can be taken to tackle it.* (Paragraph 42)

The importance of insects for UK Food Security

6. While pollinators play a crucial role in ensuring UK food security, it is essential to recognise that insects and invertebrates play more than this one role in supporting food production. Diverse species are essential for preserving ecosystems, and their populations require careful nurturing and maintenance to support sustainable and resilient food production. (Paragraph 57)
7. *We commend the success of the National Pollinator Strategy and eagerly await the 2025–2035 update that we expect to be published by September 2024. There is scope to build on the work of the strategy by creating a complementary ‘National Invertebrate Strategy’ that would include provisions for invertebrates that carry out other important ecological roles. As seen in the creation of the National Pollinator Strategy, the National Invertebrate Strategy should include the publication of an implementation plan, containing accountability targets, linked to the strategy every five years for non-pollinating, agriculturally beneficial, invertebrates.* (Paragraph 58)

8. The United Kingdom relies significantly on the global production of various horticultural crops, including fruits and salad vegetables. These imported foods may be subject to vulnerabilities, such as wars, which can see significant price increases. Approximately 50% of the food consumed in the UK comes from overseas. Therefore, it is integral to UK food security that the issues regarding insect decline and food production are also addressed at an international level. *The UK Government should use its position in international forums to advocate for and address the issues highlighted in this report on a global scale. Collaborative efforts are essential to mitigate the challenges posed by insect decline and to secure sustainable and resilient food systems worldwide.* (Paragraph 59)
9. Charismatic insect species, of which the honeybee is a prime example, serve as invaluable ambassadors for the field of entomology, rendering the subject more accessible to the public and bringing to public attention this often-overlooked animal group. The concentrations of high numbers of hives in a small number of specific geographical areas may have detrimental effects on wild pollinator species due to resource competition. Consequently, there is a need to extend the range of conservation efforts to include the over 270 wild species of bees in the UK, acknowledging the importance of preserving the entire spectrum of biodiversity for a more balanced and resilient ecosystem. (Paragraph 72)
10. *Defra should expand the remit of the National Bee Unit, to include a focus on wild bee health. This should include both developing internal expertise and fostering collaboration with entomology experts and producing biennial reports, as part of the National Pollinator Strategy update previously recommended in this report. The Unit should also produce guidance to keepers about the potential impacts of over densification of hives on wild pollinator species.* (Paragraph 73)
11. Raising awareness of the importance of various insect species must be nurtured early to avoid the aversion that many people have to insects. The scarcity of experts, both professional and amateur, underscores the importance of cultivating a greater public passion for entomology, starting from an early age. The commendable efforts made by institutions such as the Natural History Museum and the Royal Botanical Gardens Kew, demonstrate promising avenues for engaging the public both online and in person. (Paragraph 86)
12. *In its response to this report, the Government should set out how it intends to facilitate nationwide access to external teaching resources offered by public bodies. This access, available through online platforms and educational visits, can significantly enhance the educational experience. The Government should also outline details of how it can make it easier to enter specific careers in entomology whether through vocational routes including collaborations with the Chartered Institute of Ecology and Environment Management or through academic streams.* (Paragraph 87)
13. The existing biology and core sciences GCSE curriculum inadequately addresses crucial aspects of insect study and focuses on a limited selection of ecological roles. We applaud the introduction of the new Natural History GCSE, which aims to not only encompass scientific knowledge but also lay the foundations of skills necessary for pursuing a career in entomology and other nature-related subjects. (Paragraph 88)

14. *The Government should ensure that it promotes access to the new Natural History GCSE when it is launched, with particular focus on schools that may not currently have easy access to the natural environment. (Paragraph 89)*
15. We commend the often-overlooked contributions of amateur entomologists, ranging from unpaid species experts to members of the public involved in citizen science initiatives. While the collection of insect monitoring data remains invaluable for entomology, citizen science projects serve a broader purpose. We agree with the perspective of conservation experts, acknowledging that participation in such projects not only aids insect research but also enriches the lives of participants by fostering a deeper connection with the natural world. Citizen science projects allow researchers access to insect data from broad geographic areas that they may not have the resources to sample themselves. However, this type of survey must supplement, not replace, expert-led academic research projects. (Paragraph 103)
16. *Citizen science projects, especially those supported by public funding, should implement strategies to enhance inclusivity, ensuring the involvement of people from urban and disadvantaged backgrounds. This broader participation not only facilitates the collection of data from areas such as urban environments but also allows more people to experience the mental health benefits associated with engaging with nature. (Paragraph 104)*

Pesticides and agri-environmental policies

17. Witnesses to this Inquiry have told us that within the UK, land use change, land management practices and pesticide usage are amongst the largest contributing factors to insect decline. Consequently, the largest influence on achieving the biodiversity targets for insect species outlined in the 2021 Environment Act, could lie in the implementation of agri-environmental policies. (Paragraph 115)
18. Evidence from this Inquiry supports the conclusions from the Environment, Food and Rural Affairs Committee that the impact of Environment Land Management Schemes (ELMS) should be monitored and adapted as needed throughout its implementation, to gain the benefit of an iterative approach to policy development. ELMS should also show that it delivers better environmental outcomes than previous agri-environmental schemes. However generous and efficient the payment system is, the actions being rewarded need to have their impacts monitored and assessed to ensure specific outcomes like improved insect populations are delivered by ELMS and that public money is well spent. Successful execution of this monitoring, coupled with feedback from farmers and land managers, will give a more comprehensive overview of the individual and collective effects of ELMS implementation. (Paragraph 116)
19. *The Government, in response to this report, should outline its plans to establish a monitoring and evaluation programme for ELMS. Such a programme should incorporate mechanisms to feed data on specific outcomes—such as insect abundance—back into long-term monitoring programmes. The Government should publish annual reports detailing:*

20. *ELMS uptake levels, including a breakdown for each standard within the Sustainable Farming Incentive and how the schemes are combined by participants;*
- a) *implemented actions following scheme uptake;*
 - b) *the influence of farmers' feedback on ELMS development; and*
 - c) *the environmental impacts of the schemes including impact on beneficial insect species. (Paragraph 117)*
21. Integrated Pest Management (IPM) is an important component of sustainable crop protection; however, it requires more knowledge than traditional pesticide applications. To enhance the successful implementation of IPM, it is imperative to adopt innovative approaches and new tools, such as integrating resistant plant varieties, the use of biopesticides or new pheromones, artificial intelligence decision support systems, and advances in agronomy as and when they are developed. For widespread adoption within the farming community, effective and sustainable crop protection strategies should be demonstrated at a commercial scale. (Paragraph 135)
22. *We support the work of the Voluntary Initiative in disseminating advice to farmers on implementing Integrated Pest Management strategies. However, there is scope to extend the scheme to incorporate a peer-to-peer advisory network to provide farmers with access to a range of advice for developing and implementing their own strategies. The Government should also support the development of new IPM technologies through research funding and other mechanisms. Once these technologies are demonstrated as effective, the Government should encourage farmers to implement them by incorporating their use as specific actions into the Environmental Land Management Schemes (ELMS). (Paragraph 136)*
23. The statutory targets to halt and reverse species extinction and decline in abundance are ambitious and welcome. However, the exclusion of numerous invertebrate species and in some cases entire groups from the baseline metrics, particularly those vital for UK food security such as predatory beetles, is concerning. Including only 11 species of bumblebee is not an adequate abundance indicator for all 270 (at least) unique UK bee species. We are concerned that a significant number of insect or invertebrate species could go extinct or significantly decline in abundance, and yet the statutory targets could still be met by law. (Paragraph 143)
24. *Revised versions of Natural England's 'Red List' and the 'biodiversity indicators' used to measure changes in abundance should include a minimum of one species per family, which would result in a significant increase in invertebrate representation. In response to this report, the Government should set out what steps it is taking to gain approval from members of the Statutory Nature Conservation Bodies, so that data from species excluded from the 2022 Red List can be included in future iterations. Additionally, a detailed breakdown of how current data from the monitoring of excluded invertebrate species influence both the interim and final statutory biodiversity targets, should be published routinely. This should be in the form of an alternative 'Baseline List' to include species where the availability of data does not pass the threshold for inclusion in the 'Red List', but where evidence is available to determine a baseline conservation*

status. This 'Baseline List' should include as many excluded insect species as possible, to act as baseline statistics from which all future interim and final progress reporting for the biodiversity targets will be made. (Paragraph 144)

25. Witnesses to our Inquiry estimate that approximately half of the Sites of Special Scientific Interest (SSSIs) are not in a good state and are failing to conserve invertebrate biodiversity. Protected sites do not exist in isolation and are therefore influenced by the quality of nature in the surrounding environment. Whilst we welcome the statutory improvements to SSSIs set out by the Environment Improvement Plan, which will go some way to prevent more insect species extinctions, our Inquiry heard it is unlikely that these improvements will be sufficient to halt decline in species abundance. This is particularly the case for more common species, where large numbers of individuals in a population are needed to play pivotal roles such as pollination effectively. (Paragraph 153)
26. *The Government should invest in the monitoring of landscapes surrounding protected areas to collect evidence on how these areas impact the quality of protected sites. This data should be included in the Sites of Special Scientific Interest (SSSI) condition assessments. Details of how to mitigate external influences on SSSI conditions should also be considered as an 'action to achieve favourable conditions', which in accordance with the Environment Improvement Plan should be reported in 2028. (Paragraph 154)*
27. The UK has made international commitments to reducing the overall risk caused by pesticides by at least half by 2030. Whilst we acknowledge that updating the National Action Plan for Sustainable Pesticide Use, the UK implementation plan to achieve these commitments, is a substantial task for the Government, this does not excuse the six-year delay in the publication of this crucial policy. (Paragraph 173)
28. *We echo the Environment, Food and Rural Affairs Select Committee's recommendation that the Government should publish the National Action Plan for Sustainable Pesticide Use no later than May 2024. (Paragraph 174)*
29. The impact of pesticides on insect species that are not pollinators remains not fully known due to the lack of data on pesticide accumulation in terrestrial environments and specific details of pesticide applications on managed land. (Paragraph 175)
30. *The Government should outline how the 'Proposals for Terrestrial Environmental Monitoring of Plant Protectant Products' will be incorporated into the National Action Plan for Sustainable Pesticide Use. Furthermore, the Government should consider how it could use its powers to increase respondents to the Fera's pesticide usage survey. (Paragraph 176)*
31. Pesticide use by amenity and amateur sectors in urban and suburban areas does not benefit UK food production and can have adverse effects on many insect species. (Paragraph 184)
32. *The updated National Action Plan for Sustainable Pesticide Usage should include targets for reducing pesticide use in urban and suburban areas and to improve best practice for use by amateurs. The Government should work with stakeholders such as the Royal Horticultural Society, to stimulate the phasing down of pesticide use in the domestic horticultural sector. (Paragraph 185)*

33. While a contentious debate exists between nature conservation groups and agriculturalists regarding the use of conventional pesticides, both sides acknowledge the importance of developing new solutions, emphasising the need for increased investment in practical research and development. The regulatory system's failure to distinguish between conventional chemicals and alternative plant protection products such as biopesticides, coupled with high costs and lengthy approval processes, pose a barrier to innovation. Streamlining this process is essential for advancing environmentally sustainable alternatives in agricultural practices. (Paragraph 191)
34. *The Government should adopt an evidence-based strategy in formulating pesticide legislation, promoting the development of new plant pesticides with heightened target specificity. This approach would aim to mitigate the dual risks of pest resistance development and adverse off-target effects on beneficial insects. Any alterations to the regulatory framework should include ongoing monitoring of the impact on non-target species in field environments, where approved active substances are employed. Moreover, there should be an expansion in the range of non-target species for which data is collected to assess a chemical's impact prior to regulatory approval.*

The Government should outline in its response to this Report, how it intends to support the development, regulation and practical application of pesticide alternatives, including, but not exclusive, to biopesticides, hormones and mRNA technologies. The Government should set out how it intends to adapt the current regulatory systems to accommodate innovative pesticide alternatives so that regulatory approval for these technologies can, where possible, be expedited. (Paragraph 192)

Formal minutes

28 February 2024

Members present

Greg Clark, in the Chair

Tracey Crouch

James Davies

Katherine Fletcher

Rebecca Long Bailey

Stephen Metcalfe

Graham Stringer

Draft Report (*Insect decline and UK food security*), proposed by the Chair, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 192 read and agreed to.

Summary agreed to.

Resolved, That the Report be the Second Report of the Committee to the House.

Ordered, That the Chair make the Report to the House.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

Adjournment

[Adjourned till Wednesday 6 March 2024 at 9.20am.]

Witnesses

The following witnesses gave evidence. Transcripts can be viewed on the [inquiry publications page](#) of the Committee's website.

Wednesday 07 June 2023

Dr Erica McAlister, Senior Curator of Diptera, Natural History Museum; **Professor Phil Stevenson**, Head of Trait Diversity and Function, Royal Botanical Gardens, Kew [Q1–37](#)

Professor Dave Goulson, Professor of Biology, University of Sussex; **Professor Simon Potts**, Director, Centre for Agri-environmental Research, University of Reading [Q38–75](#)

Professor William Kunin, Professor of Ecology, University of Leeds; **Dr James Bell**, Head, Rothamsted Insect Survey, Rothamsted Research; **Dr Claire Carvell**, Senior Ecologist, UK Centre for Ecology and Hydrology [Q76–109](#)

Wednesday 12 July 2023

Professor Lynn Dicks, Lead of the Agroecology Research Group, University of Cambridge; **Craig Bennett**, Chief Executive Officer, The Wildlife Trusts [Q110–137](#)

Professor Alistair Griffiths, Director of Science and Collections, Royal Horticultural Society; **Matt Shardlow**, Chief Executive Officer, Buglife [Q138–166](#)

Chris Packham CBE, Naturalist, conservationist and environmental campaigner [Q167–186](#)

Wednesday 18 October 2023

Professor Linda Field, Professor Emirita, Rothamsted Research; **Professor Toby Bruce**, Professor of Insect Chemical Ecology, Keele University [Q187–213](#)

Vicki Hird, Former Head of Sustainable Farming, Sustain; **Henry Edmunds**, Estate Owner, Cholderton Estate [Q214–238](#)

Minette Batters, President, National Farmers Union [Q239–259](#)

Wednesday 29 November 2023

John Holmes, Director of Strategy, Natural England [Q260–298](#)

Rebecca Pow MP, Parliamentary Under-Secretary, Department for Environment Food and Rural Affairs; **Dr Rachel Irving**, Deputy Director for Chemicals, Pesticides and Hazardous Waste, Department for Environment Food and Rural Affairs [Q299–323](#)

Published written evidence

The following written evidence was received and can be viewed on the [inquiry publications page](#) of the Committee's website.

INS numbers are generated by the evidence processing system and so may not be complete.

- 1 BASF ([INS0015](#))
- 2 Bentley, Mr Dave (Entomological and Ecological Consultant, Dave Bentley Ecology Services/ Elton Reservoir Basin Countryside Warden Service) ([INS0029](#))
- 3 British Sugar ([INS0006](#))
- 4 Bruce, Prof Toby (Professor of Insect Chemical Ecology, Keele University) ([INS0014](#))
- 5 Buglife ([INS0038](#))
- 6 Butterfly Conservation ([INS0018](#))
- 7 Cambridge Global Food Security Interdisciplinary Research Centre, Wolfson College Interdisciplinary Research Hub on Sustainability & Conservation, and the Cambridge Institute for Sustainability Leadership ([INS0036](#))
- 8 Carvell, Dr Claire (Senior Ecologist, UK Centre for Ecology and Hydrology) ([INS0045](#))
- 9 Cox, Darryl (Senior Science and Policy Officer, Bumblebee Conservation Trust) ([INS0034](#))
- 10 CropLife UK ([INS0035](#))
- 11 Dicks, Professor Lynn (Lead of the Agroecology Research Group, University of Cambridge) ([INS0043](#))
- 12 Dipterists Forum ([INS0030](#))
- 13 Edmunds, Henry (Owner, The Cholderton Estate) ([INS0047](#))
- 14 Fera Science Ltd. ([INS0010](#))
- 15 Ficker, Isabelle (Contributor, Starlit Skies) ([INS0039](#))
- 16 Game & Wildlife Conservation Trust ([INS0026](#))
- 17 Garland, Mr Steve ([INS0004](#))
- 18 Goodacre, Professor Sara (Professor of Evolutionary Biology and Genetics, University of Nottingham) ([INS0002](#))
- 19 Goulson, Prof Dave (Professor of Biology, University of Sussex) ([INS0001](#))
- 20 Green Alliance ([INS0017](#))
- 21 Griffiths, Professor Alistair (Director of Science and Collections, Royal Horticultural Society) ([INS0042](#))
- 22 Guiver, Mr Norman ([INS0003](#))
- 23 Heyburn, Mr James (Policy & Engagement Officer, Imperial Policy Forum); and Gill, Dr Richard (Senior Lecturer, Department of Life Sciences, Imperial College London) ([INS0012](#))
- 24 Hird, Vicki (Former Head of Sustainable Farming, Sustain) ([INS0048](#))
- 25 Hodge, Dr James (Associate Professor, University of Bristol); and Tasman, Dr Kiah (Lecturer, University of Bristol) ([INS0007](#))
- 26 Kent Wildlife Trust ([INS0013](#))
- 27 Lancashire Wildlife Trust ([INS0031](#))

- 28 MP, Rebecca Pow (Minister for Nature, Department for Environment Food and Rural Affairs) ([INS0049](#))
- 29 Maderson, Dr. Siobhan (Research Associate, Cardiff University) ([INS0016](#))
- 30 Memmott, Dr Harry Siviter and Professor Jane (Dr Harry Siviter and Professor Jane Memmott, Buglife - The Invertebrate Conservation Trust) ([INS0050](#))
- 31 National Farmers' Union of England and Wales (NFU) ([INS0024](#))
- 32 Natural England ([INS0037](#))
- 33 Norwich Research Park; John Innes Centre; The Sainsbury Laboratory; Earlham Institute; and University of East Anglia ([INS0023](#))
- 34 Potts, Professor Simon (Director, Centre for Agri-environmental Research, University of Reading) ([INS0041](#))
- 35 Queen Mary University of London ([INS0033](#))
- 36 Rothamsted Research: Rothamsted Insect Survey ([INS0020](#))
- 37 Royal Botanical Gardens, Kew ([INS0044](#))
- 38 Royal Entomological Society ([INS0025](#))
- 39 Save Greater Manchester's Green Belt ([INS0008](#))
- 40 Shardlow, Matt (Chief Executive, Buglife) ([INS0046](#))
- 41 Sustain the Alliance for Better food and Farming ([INS0019](#))
- 42 The Pesticide Collaboration ([INS0021](#))
- 43 The Wildlife Trusts ([INS0027](#))
- 44 UK Centre for Ecology & Hydrology ([INS0022](#))
- 45 University of Reading, School of Agriculture, policy and Development ([INS0032](#))
- 46 Vertical Future ([INS0028](#))
- 47 Wagner, David (Professor, University of Connecticut); Grames, Eliza (Assistant Professor, State University of New York, Binghamton); Ware, Jessica (Curator, American Museum of Natural History); Bahlai, Christie (Assistant Professor, Kent State University); and Elphick, Chris (Professor, University of Connecticut) ([INS0011](#))
- 48 Waller, Dr Alexander (Visiting Professor of Environmental Ethics and Science Education, American University of Sovereign Nations) ([INS0005](#))

List of Reports from the Committee during the current Parliament

All publications from the Committee are available on the [publications page](#) of the Committee's website.

Session 2023–24

Number	Title	Reference
1st	The antimicrobial potential of bacteriophages	HC 328
1st Special	The governance of artificial intelligence: interim report: Government response to the Committee's Ninth report of Session 2022–23	HC 248

Session 2022–23

Number	Title	Reference
1st	Pre-appointment hearing for the Executive Chair of Research England	HC 636
2nd	UK space strategy and UK satellite infrastructure	HC 100
3rd	My Science Inquiry	HC 618
4th	The role of Hydrogen in achieving Net Zero	HC 99
5th	Diversity and Inclusion in STEM	HC 95
6th	Reproducibility and Research Integrity	HC 101
7th	UK space strategy and UK satellite infrastructure: reviewing the licencing regime for launch	HC 1717
8th	Delivering nuclear power	HC 626
9th	The governance of artificial intelligence: interim report	HC 1769

Session 2021–22

Number	Title	Reference
1st	Direct-to-consumer genomic testing	HC 94
2nd	Pre-appointment hearing for the Chair of UK Research and Innovation	HC 358
3rd	Coronavirus: lessons learned to date	HC 92

Session 2019–21

Number	Title	Reference
1st	The UK response to covid-19: use of scientific advice	HC 136

Number	Title	Reference
2nd	5G market diversification and wider lessons for critical and emerging technologies	HC 450
3rd	A new UK research funding agency	HC 778

APPENDIX 14 Buglife Technical report



Technical Report

The Bugs Matter Citizen Science Survey: counting insect 'splats' on vehicle number plates reveals a 58.5% reduction in the abundance of actively flying insects in the UK between 2004 and 2021.

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Abstract

In recent years, scientists and the media have drawn attention to global declines in insect abundance, the consequences of which are potentially catastrophic. Invertebrates are critical to ecosystem functions and services, and without them life on earth would collapse. However, there has been insufficient data to make robust conclusions about trends in insect abundance in the UK, because standardised insect sampling approaches are not widely applied to all insect groups or at a national scale. Here, we demonstrate the use of an innovative and scalable invertebrate sampling technique conducted by citizen scientists, to examine the difference in invertebrate abundance in the UK over a 17-year timeframe. The 'windscreen phenomenon' is a term given to the anecdotal observation that people tend to find fewer insects squashed on the windscreens of their cars now, compared to in the past. This observation has been ascribed to major declines in insect abundance. In this study, citizen scientists were asked to record the numbers of squashed insects and other invertebrates on their vehicle number plates following a journey, having first removed any residual insects sampled on previous journeys. We compared the number of insects sampled by vehicles in 2019 (n = 599 journeys in Kent) and 2021 (n = 3,348 journeys nationwide) with the results of a nationwide survey using this methodology led by the RSPB ('Big Bug Count') in 2004 (n = 14,466 journeys). The results show that the number of insects sampled on vehicle number plates in the UK decreased by 58.5% between 2004 and 2021, and that these differences were statistically significant. A comparison of the 2004 national data with the 2019 data from Kent showed a 53.7% decrease. The greatest decreases in splat rate between 2004 and 2021 occurred in England (65%) whilst journeys in Scotland recorded a comparably smaller decrease (27.9%), with intermediate decreases in Wales (55%). These results are consistent with the declining trends in insect populations widely

reported by others, and informs a growing requirement for conservation research, policy and practice targeted at invertebrates in the UK. However, our results are based on data with low temporal resolution and consequently we interpret this change between two points in time with caution. Furthermore, inter-annual variation in a range of unmeasured factors, such as wind speed, predation or land-use change, could significantly influence the observed pattern. To draw robust conclusions about long-term trends in insect populations in the UK, scientists require data from multiple years, over long time periods, and over large spatial scales – the Bugs Matter citizen science survey has demonstrated that it has the potential to generate such data.

1 Introduction

A growing body of evidence (Fox et al., 2013; Hallmann et al., 2017; Goulson, D. 2019; Sánchez-Bayo et al., 2019; Thomas et al., 2019; van der Sluijs, 2020; Macadam et al., 2020; Outhwaite, McCann and Newbold, 2022) highlights population declines in insects and other invertebrates at global scales (herein referred to collectively as ‘insects’). These declines, which are evident across all functional groups of insects (herbivores, detritivores, parasitoids, predators and pollinators) could have catastrophic impacts on the earth’s natural systems and human survivability on our planet. Invertebrates are functionally of greater importance than large-bodied fauna, and in terms of biomass, bioabundance and species diversity, they make up the greatest proportion of life on earth.

Invertebrates are critical to ecosystem functions and services. They pollinate most of the world’s crops, provide natural pest control services, and decompose organic matter and recycle nutrients into the soil. Without them we could not grow onions, cabbages, broccoli, chillies, most tomatoes, coffee, cocoa, most fruits, sunflowers, and rapeseed, and demand for synthetic fibres would surge because bees pollinate cotton and flax. Invertebrates underpin food chains, providing food for larger animals including birds, bats, reptiles, amphibians, fish and terrestrial mammals. Almost all birds eat insects, and many of those that eat seeds and other food as adults must feed insects to their young – it is thought to take 200,000 insects to raise a single swallow chick (Chapman et al., 2013). Without insects, life on earth would collapse, millions of species would go extinct, and we would be surrounded by the carcasses of dead animals.

Evidence of insect declines comes from targeted surveys using specific sampling techniques aimed at specific target groups. Many of these have generated long-term data sets, such as the Rothamstead Insect Survey of aphids and larger moths, since 1964 (Taylor, 1986), the UK Butterfly Monitoring Scheme, since 1976, (Brereton et al., 2020), and the National Moth Recording Scheme, since 2007 (Fox et al., 2021), and they provide a good indication of trends for those target taxa. However, generalising national and global trends from surveys of a limited number of insect groups could be inaccurate. Patterns and trends for specific species or species groups are nuanced, and while trends in some insect groups are well understood, there is a paucity of data for many others. Whilst some survey techniques such as moth trapping and butterfly transects are discriminate in terms of what species they record, there are very few established methods for large-scale monitoring of insect abundance across a broad range of insect groups. Both discriminate and indiscriminate approaches have advantages and disadvantages. Here we present the results from a survey that used an innovative method for large-scale indiscriminate monitoring of flying insect populations, which has potential to provide an efficient, standardised and scalable approach to monitor trends in insect abundance across local, regional and global scales.

The ‘windscreen phenomenon’ (Wikipedia, 2021) is a term given to the anecdotal observation that fewer insects tend to get squashed on the windscreens of cars now compared to a decade or several decades ago. These observations have served as an indication of the major global declines in insect abundance,

and have been reported from empirical data (Møller, 2019). Flying insects are inadvertently sampled when they become squashed on vehicle windscreens and number plates when they are impacted. We implemented an invertebrate sampling technique based on the ‘windscreen phenomenon’. Data were collected by citizen scientists to assess invertebrate abundance over a 17 year timeframe (Tinsley-Marshall et al., 2021a, 2021b). The aim was to quantify insect abundance in the UK using a standardised approach and to make comparisons with pre-existing baseline data from 2004, which was collected as part of a national survey using the same sampling method led by the RSPB (‘Big Bug Count’). By repeating the survey in 2019 and 2021 it was possible to compare the numbers of insects sampled between these points in time.

We aimed to test the null hypothesis H0: there is no evidence of variation in the numbers of insects sampled on vehicle number plates in the UK between 2004, 2019 and 2021 and to determine whether an alternative hypothesis H1: there is evidence of variation in the numbers of insects sampled on vehicle number plates in the UK between 2004, 2019 and 2021, could be accepted. This report summarises the results of an analysis of the insect abundance and participation data from the Bugs Matter survey in the UK, and adds to the evidence base for patterns in invertebrate abundance.

2 Materials and Methods

Study area and survey design

The parameters of the study landscape were defined as the whole of the UK. For some parts of the analysis we provide country-specific results for England, Scotland, Wales and Northern Ireland separately, accepting that some data was collected from journeys that spanned the country borders (Figure 1). It was not possible to isolate at which point in each journey insects were sampled, therefore each complete journey was included where journeys crossed country borders. Survey design was informed by a list of desirable attributes of monitoring programmes, ordered from most elemental to most aspirational (Pocock et al., 2015) and aimed to ensure that all relevant attributes were adopted.

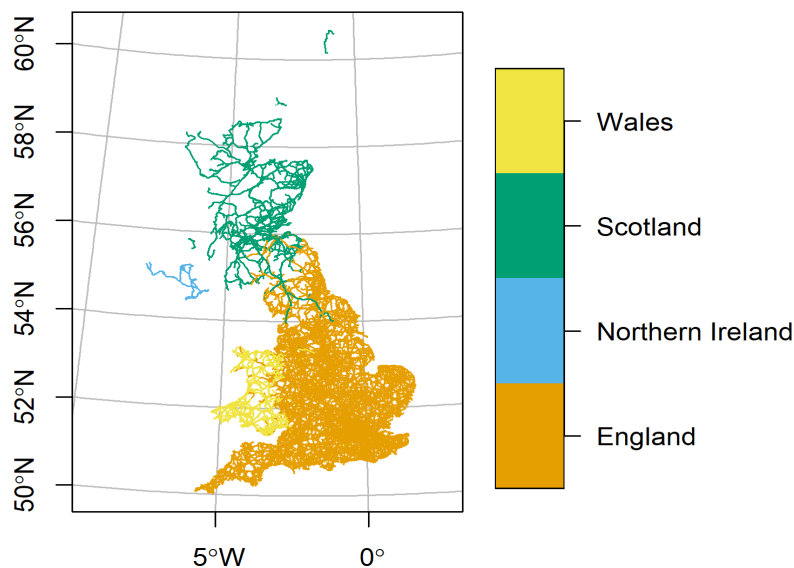


Figure 1. A map showing the distribution and extent of journeys in 2004, 2019 and 2021 included in this analysis of Bugs Matter survey data on insect numbers sampled by vehicle number plates in the UK.

Insect sampling method

Prior to commencing a journey, citizen scientists cleaned the front number plate of their vehicle to remove any residual insects. Insects were then sampled when they collided with the number plate throughout the duration of a journey. Whilst the sampling method was not designed to identify species, or groups of species, insects sampled will have been predominantly the adult forms of flying species from the following taxonomic groups: Coleoptera, Diptera, Ephemeroptera, Hemiptera, Hymenoptera, Lepidoptera, Megaloptera, Neuroptera, Plecoptera, Trichoptera and Thysanoptera. Citizen scientists were asked to participate only on essential journeys and not to make journeys specifically to take part in the survey. Using a standardised sampling grid, termed a 'splatometer', citizen scientists recorded the number of insects squashed on the number plate of their car (Figure 2). Only insects within the cut-out portions of the splatometer were counted to ensure all counts were made from within a standardized area on each number plate. In 2019 and 2021, data was collected on journeys undertaken between 1st June and 31st August, and in 2004 data was collected in June. In 2004 and 2019, the start and end times and locations of the journeys were recorded, along with the journey distance using vehicle odometer readings. In 2019, data was only collected from journeys starting in Kent. In 2021 the precise route of the journey was recorded in real-time using the Bugs Matter mobile app.



Figure 2. Photograph showing the splatometer positioned over a number plate.

Bugs Matter mobile app

In 2021, data were submitted by citizen scientists via the Bugs Matter mobile app (Figure 3). The app provided a platform to record counts of insects on number plates, track the journey route using GPS, and collect information on the length, duration, and average speed of each journey undertaken as part of the survey. It also used an Application Programming Interface (API) number plate look-up service to collect information about vehicles involved in the survey. This data was used in the analysis to determine whether and how vehicle specifications influence insect sampling.



Figure 3. Screenshots of the Bugs Matter mobile app.

Collating explanatory variables

Time of day was calculated for each journey as the intermediate time between the start and end times. As 97% of journeys occurred during daytime hours (05:00-21:00), we treated time as a continuous variable in the statistical modelling, rather than converting to a factor variable or sin/cos time. The 'sf' package (Pebesma, 2018) in R was used to calculate journey length. The average speed of the journey was calculated by dividing the journey distance by the journey duration. The vehicle type, acquired via the API, was classified to align with the analysis conducted by the RSPB in 2004. These categories were car, heavy goods vehicle (HGV), multi-purpose vehicle (MPV), sports car, sports utility vehicle (SUV) and van. Data collected prior to 2021 contained only start and end postcodes, and so journey routes were obtained from the Google Directions API, through the R 'mapsapi' package (Dorman, 2022). Mean temperature was calculated for each journey by averaging the intersecting raster cell values from 0.1 degree E-OBS gridded daily mean temperature (Cornes et al., 2018).

Maximum greenest pixel composites of normalized difference vegetation index (NDVI) values were generated in Google Earth Engine (Gorelick et al., 2017) from MODIS Terra Vegetation Indices 16-Day Global 250 m data (Didan, 2015) for each survey year. NDVI describes the difference between visible and near-infrared reflectance of vegetation cover based on chlorophyll content, and can be used to estimate vegetation productivity. Artificially-surfaced areas such as roads and buildings show as low values, whilst vegetated areas show as high values. The NDVI values were averaged within a 500 m buffer of each journey route to approximate the suitability of the habitat for insects surrounding each journey route. The NDVI values were rescaled to a -10-10 range to aid interpretation of the model coefficients.

Finally, the proportion of each journey that was conducted on 'primary', 'secondary', 'tertiary' and 'other' roads were extracted for each journey by snapping the journeys to OpenStreetMap roads data and extracting the road type information. Journeys mostly followed primary, secondary, and to a lesser extent tertiary roads, with very few on other road types. Only data on the proportions of secondary and tertiary

roads were included as variables in the model because including additional variables in the model would lead to perfect collinearity, as the proportions of each road type sum to a whole (100%).

Statistical analysis

Data cleaning and preparation

To make the data comparable between journeys, insect counts recorded by citizen scientists, were converted to a 'splat rate', by dividing the insect count by the journey distance, expressed in a unit of 'splats per mile'. This important metric is easily defined as the number of insects sampled on the number plate every mile. Differences in insect splat rate (splats per mile) between years were visualized in a boxplot. In addition, relationships between other variables, such as how journey distance or the types of vehicles used in the surveys varied between years, were examined visually in boxplots and correlation plots, and tested using Kruskal-Wallis tests or Spearman correlation tests.

Prior to the analysis, some steps were taken to clean the data and remove outliers. Journeys with GPS errors were removed from the 2021 data. These errors were caused by a drop-out of background tracking due to GPS signal being lost by the device, and they appeared as long straight lines between distant locations. All journeys with a 1 km or greater gap between route vertices were omitted. Of the 4834 journeys collected in 2021, 825 (17%) had GPS errors and were removed from the analysis. Some journeys were very short with extremely high splat rates. Therefore, very short journeys of less than 0.3 miles were removed, as they are highly likely to be the result of GPS errors or incorrect use of the app, for example by the user forgetting to press the start journey button at the appropriate time. Similarly, all journeys that lasted less than one minute and journeys with an average speed of less than 1 mph or over 80 mph were omitted. In addition, all journeys during which rainfall occurred were omitted from the dataset due to the risk that rainfall could dislodge insects from numberplates, leading to bias in the data. After data cleaning, 18,413 of 22,364 journeys were retained.

Modelling

We performed a statistical analysis to examine the relative effects of survey year, time of day of the journey, average journey temperature, average journey speed, journey distance, vehicle type, local NDVI, and road type, on insect splat rate. The response variable in our analysis was the insect count which showed a right-skewed distribution due to the high number of zero and low values, as is typical for count-derived data (Appendix 1). Therefore we tested several modelling approaches suited to over-dispersed and zero-inflated count data and compared their performance, to identify the optimum model to use (Yau, Wang and Lee, 2003).

Journey distance was included in the models as an offset term. Offset terms are included in models of count-derived data to deal with counts made over different observation periods, which in this case was journey distance. This is preferable to using the precalculated splat rate because by adding the denominator of the ratio (distance) as an offset term, it makes use of the correct probability distributions. It can be thought of as explicitly modelling the expected rate of sampling an insect as distance driven changes. The model with offset does model the splat rate (splats per mile), but in a way that is likely to be much more compatible with the data (Coelho et al., 2020).

We performed a Poisson generalized linear model (Poisson), a negative binomial generalized linear model (NB), a zero-inflated Poisson model (ZIP), and a zero-inflated negative binomial generalized linear model (ZINB) and compared their Log Likelihood, AIC, BIC and Likelihood ratio test statistics (Table 1). Overdispersion was confirmed using a test for overdispersion on a Poisson model (Cameron and Trivedi,

1990), which resulted in a test statistic of $c = 11.664$, indicating overdispersion ($c = 0$ for equidispersion). The ZINB model provided the best fit and was therefore used for the main analysis.

Table 1. Summary statistics from fitting several different models to the data from the Bugs Matter citizen science survey of insect abundance. Based on the evaluation metrics, the ZINB model was found to provide the most accurate fit.

Model	Log.likelihood	AIC	BIC	Likelihood ratio test, DF diff.
Poisson	-130198.13	260426.3	260543.3	149481.51 , -14
NB	-56021.80	112075.6	112200.4	10659.28 , -14
ZIP	-125627.81	251315.6	251549.7	29174.8 , -28
ZINB	-55956.73	111975.5	112217.3	2802.61 , -28

The ZINB model, akin to the ZIP model, is designed for data that includes excess zeros. The model accepts that there could be additional processes that are determining whether a count is zero or greater than zero and models this explicitly. Whilst the importance of submitting data for zero-count journeys was explained to citizen scientists in all survey years, there may be other unknown processes that result in zero count journeys, for example associated with journey speed or location. The ZINB has two parts. The first is a binomial model which models the relationship between the independent variables and a binary outcome of zero or greater than zero insect splats. The second part is a negative binomial model to model the count process. The analysis was performed using the MASS package (Venables and Ripley, 2002) and the pscl package (Zeileis, Kleiber and Jackman, 2008) in RStudio (R Core Team, 2021) following established techniques (Sokal & Rolf, 1995; Crawley, 2007).

After running the model, variance inflation factor (VIF) scores were calculated to check for multicollinearity between independent variables. A VIF score greater than 10 indicates high collinearity, which means two or more independent variables are correlated with one another. This can cause unreliable predictions and weaken the statistical power of the model. A likelihood ratio test was used to compare a model with only survey year included as an independent variable, with the full model, to evaluate the contribution of the other independent variables to the model fit.

The results of the ZINB zero-inflated model show the change in the odds of a zero-count journey occurring given a one-unit change in the independent variable. The results of the ZINB negative binomial model show the quantity of change (a multiplier) in the response variable given a one-unit change in the independent variable, while holding other variables in the model constant. These values are called incidence rate ratios and they can be visualized effectively in a forest plot.

To examine country-specific trends, we repeated the analysis on the data for each country separately. We used NB models because there was perfect separation between the binomial outcome of zero or greater than zero and one or more independent variables in the these country-specific datasets.

We also performed a regression tree analysis (RTA) in the R 'rpart' package (R Core team, 2019; Therneau and Atkinson 2019b) which implements methodologies of Breiman et al. (1984). Regression tree analysis partitions a dataset into smaller subgroups through recursive partitioning. The binary splits occur at nodes based on true/false answers about the values of predictors, and each split is based on a single variable. The rule generated at each step maximizes the class purity within each of the two resulting subgroups (Breiman et al. 1984; Miska and Jan 2004). This machine learning classification approach enabled us to detect any important non-linear relationships between our independent variables and splat rate and also provides a measure of variable importance.

3 Results

Flying insect abundance

In 2004, 196,448 insects were sampled over 14,466 journeys comprising 867,595 miles. In 2019, 1,063 insects were sampled over 599 journeys comprising 9,960 miles. In 2021, 11,712 insects were sampled over 3,348 journeys comprising 121,641 miles. The average splat rate in 2004 was 0.238 splats per mile, in 2019 it was 0.098, and in 2021 it was 0.104 splats per mile. The spread of the insect splat rate data is shown in Figure 4. The proportion of journeys in which zero insects were sampled was 7.8% in 2004, 54.3% in 2019, and 39.5% in 2021. The majority of journeys (85%) were undertaken in a conventional car with the remainder being undertaken in HGVs, MPVs, sports cars, SUVs, and vans (Appendix 2). The average time of day of journeys in 2004 was 13:40, in 2019 it was 12:48 whilst in 2021 it was 13:33 (Appendix 3). The mean average journey speed in 2004 was 37.2 mph, in 2019 it was 21.7 mph, whilst in 2021 it was 29.3 mph (Appendix 4). The average journey temperature in 2004 was 16°C, in 2019 it was 17°C, whilst in 2021 it was 16.7°C (Appendix 5). The average journey distance in 2004 was 60 miles, in 2019 it was 16.6 miles, and in 2021 it was 36.3 miles (Appendix 6). The average NDVI surrounding journeys in 2004 was 4.975, in 2019 it was 5.423, and in 2021 it was 5.428 (Appendix 7). The mean proportion of journeys conducted on primary roads was 71.6% in 2004, 39.8% in 2019, and 47.2% in 2021. The mean proportion of journeys conducted on secondary roads was 25.1% in 2004, 48.6% in 2019, and 42.6% in 2021. The mean proportion of journeys conducted on tertiary roads was 3.3% in 2004, 11.5% in 2019, and 10.1% in 2021 (Appendix 8). A positive correlation was observed between journey distance and count of splats (Appendix 9). A positive correlation was also observed between journey distance and splat rate (Appendix 10). A weak positive trend was found between vehicle registration year and splat rate (Appendix 11). The VIF scores (max VIF = 1.49) showed very low collinearity between independent variables.

The results of the ZINB negative binomial model showed a 53.7% (95% CI [46.7%, 59.7%]) reduction in insect splat rate in 2019 (35.8%/decade), and a 58.5% (95% CI [56.2%, 60.8%]) reduction in 2021 (34.4%/decade), compared with 2004 (Figure 5). The differences were statistically significant ($p < 0.001$). The Likelihood Ratio test statistic was 2,802.6, and in a model with only year as a predictor it was 1,449.9. This shows that the goodness of fit of the model almost doubled with the addition of the other independent variables.

Regarding the other independent variables, the results showed that compared to conventional cars, splat rate was 48% higher for HGVs, 15% higher for sports cars, and 26% lower for MPVs, and these relationships were statistically significant. Splat rates of vans and SUVs did not differ significantly from conventional cars. On average, splat rate increased by 6% with each hour of the day, splat rate increased by 2% with each one degree increase in mean daily temperature, and splat rate increased by 3% with each one unit increase in NDVI, and these relationships were statistically significant. There was a significant but very slight change in splat rate with journey distance, whereby splat rate decreased by 0.1% with each mile driven. There was no significant relationship between splat rate and average journey speed (Figure 5).

The results of the ZINB zero-inflated model showed that the odds of a zero-count journey occurring increased by 2.9 times between 2004 and 2021. The odds of a zero-count journey occurring increased by 1.01 times with each 1% increase in the proportion of a journey that was conducted on secondary roads. Furthermore, the odds of a zero-count journey occurring increased by 1.94 times if the vehicle was a HGV rather than a car and 3.28 times if the vehicle was a SUV rather than a car. The odds of a zero-count journey occurring decreased by 1.15 times with each hour in the day, decreased by 1.17 times with each

one degree increase in temperature, and decreased by 1.3 times with each unit increase in NDVI. In addition, the odds of a zero-count journey occurring decreased by 1.02 times with each mile increase in journey distance. These relationships were statistically significant (Appendix 12).

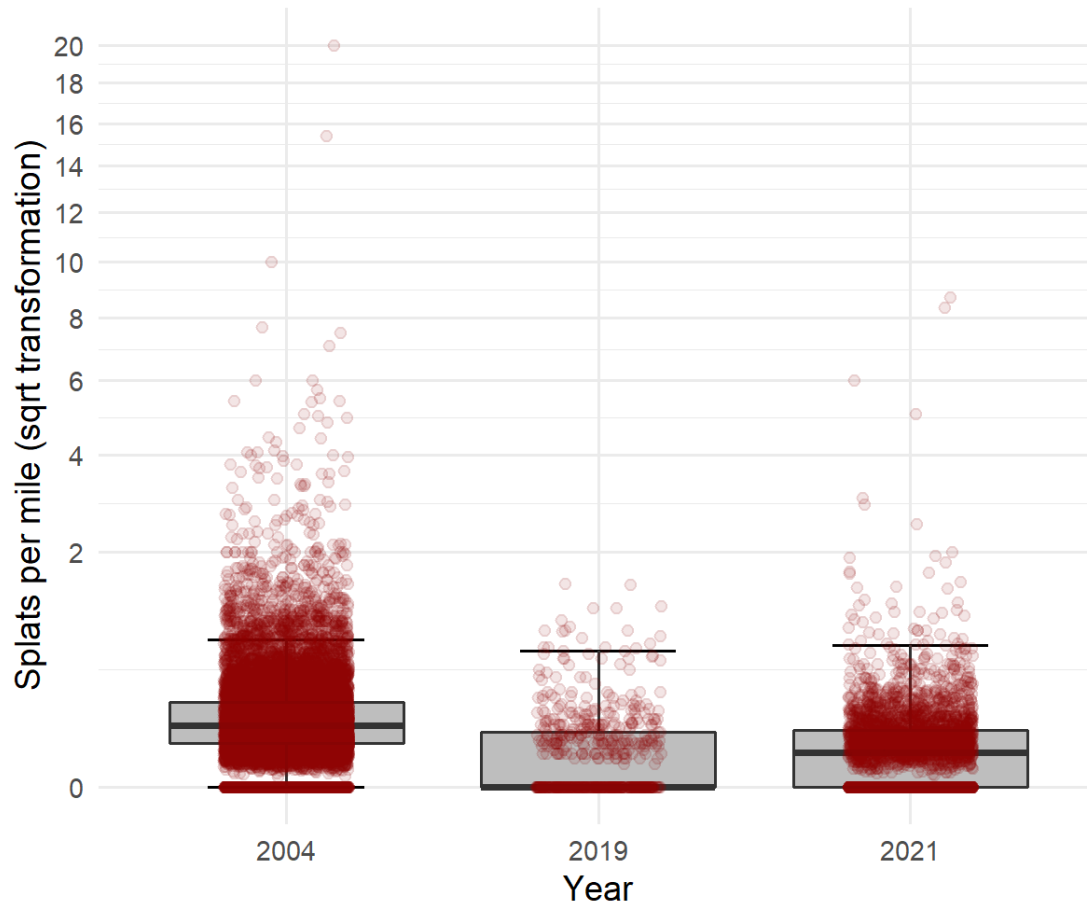


Figure 4. Box and whisker plot with jittered data points showing the spread of insect splat rate data (splats per mile) from the Bugs Matter survey of insects on car number plates in the UK in each of the survey years. The boxes indicate the interquartile range (central 50% of the data), either side of the median splat rate which is shown by the horizontal line inside the box. The vertical lines extend out by 1.5 times the interquartile range, and the data points themselves are added with a 'horizontal jitter' so they do not overlap to improve visualization of the data distribution. The thick line at $y = 0$ for each year are data points for journeys with a count of zero splats per mile. If splat rate on every journey was identical, we would only see the line across the middle of the box, with the data points on top of it.

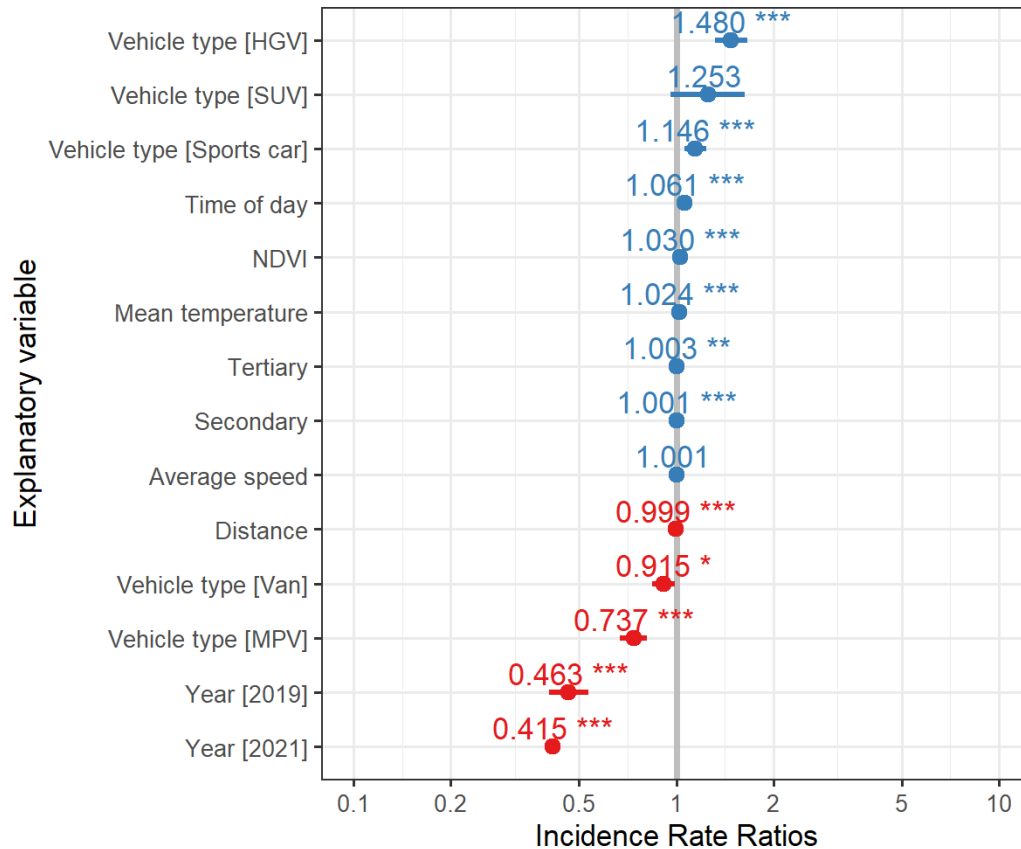


Figure 5. Forest plot of incidence rate ratios from the ZINB negative binomial model of Bugs Matter survey data of insects on car number plates in the UK, showing the quantity of change (a multiplier) in splat rate (splats per mile) given a one-unit change in the independent variable, while holding other variables in the model constant. Significant relationships between splat rate and independent variables are shown by asterisks (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$). Vehicle types are compared to the reference category of 'conventional cars'. The reference year is 2004.

The regression tree describing splat rate (Appendix 13) had two splits, three terminal nodes and a cross-validated error of 0.918. It showed that splat rate was, on average, over three times as high after 8 pm, and highest in 2004. The complexity parameter plot shows the reduction in the cross-validated error with decreasing complexity parameter values and increasing tree size (Appendix 14). We would see diminishing returns if we continued to grow the tree. A cross-validated error of 0.918 shows that the tree could only explain a small amount of the variance in the data. Variable importance is calculated as the sum of the goodness of split measures (Gini index) and considers both primary and surrogate splits. Time of day of the journey and the journey year were the two most important variables (Appendix 14).

The country-specific results show that the greatest decreases in splat rate occurred in England (65% between 2004 and 2021) whilst journeys in Scotland recorded a comparably smaller decrease in splat rate between 2004 and 2021 (27.9%) (Table 2 and Figure 6).

Table 2. The results from country-specific NB models of insects sampled on vehicle number plates gathered by the RSPB Big Bug Count in 2004 and by the Bugs Matter survey in 2019 and 2021, showing the estimates and confidence intervals (95%) of the percentage decrease in splat rate between years.

Country (years)	% decrease in splat rate			
	Estimate	Per decade	2.50%	97.50%
England (2004-2019)	56.19	37.5	61.36	50.31
England (2004-2021)	64.96	38.2	66.78	63.02
Scotland(2004-2021)	27.85	16.4	41.07	11.32
Wales (2004-2021)	54.95	32.3	62.28	46.11

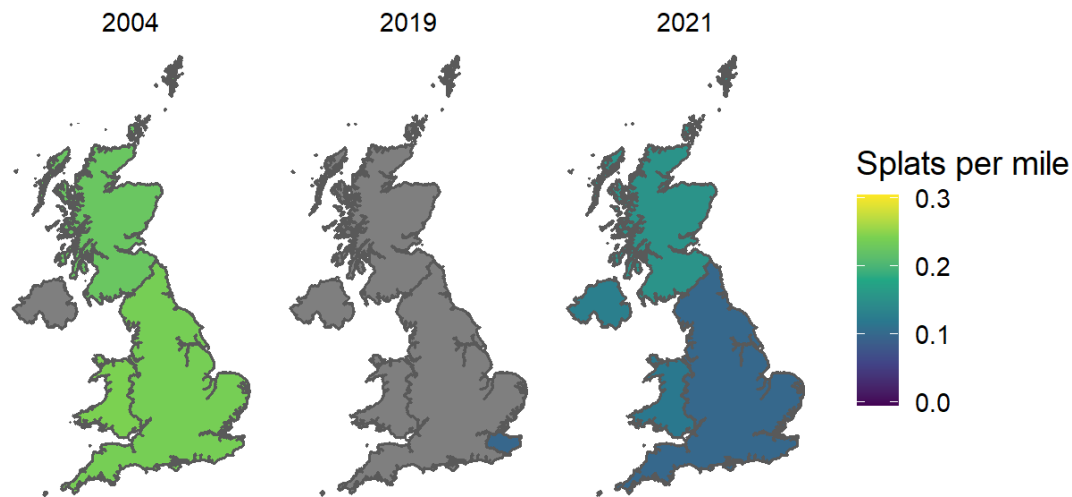


Figure 6. Heat map of splat rate of insects on car number plates from the Bugs Matter survey in the UK in each of the survey years, 2004, 2019 and 2021.

Participation

In the 2021 survey season, 5,215 users signed up to Bugs Matter via the mobile app. The majority signed-up in the initial launch period between mid-May and early-June, although there were considerable spikes in signups around key dates (Figure 7). For example, an increase in early June coincides with Bugs Matter featuring on BBC Springwatch. There was a slight lag between launch and sign-up spikes in Wales - this may have been due to delays in translating communication materials into the Welsh language.

Of the 5,215 individuals who signed up to the Bugs Matter app in 2021, 710 participated in the survey, the criteria for which was submitting data for at least one journey. We calculated a conversion rate as the number of participants who submitted one or more journeys (710) divided by the number of sign-ups (5,215). This gives a conversion rate of 13.6%. At the end of the survey season, these users had recorded a total of 4,778 journeys. The average number of journeys recorded by each surveyor was 4.7. In 2021, 4,053 journeys were completed in England, 36 journeys were completed in Northern Ireland, 283 journeys were completed in Scotland, and 403 journeys were completed in Wales (Figure 8).

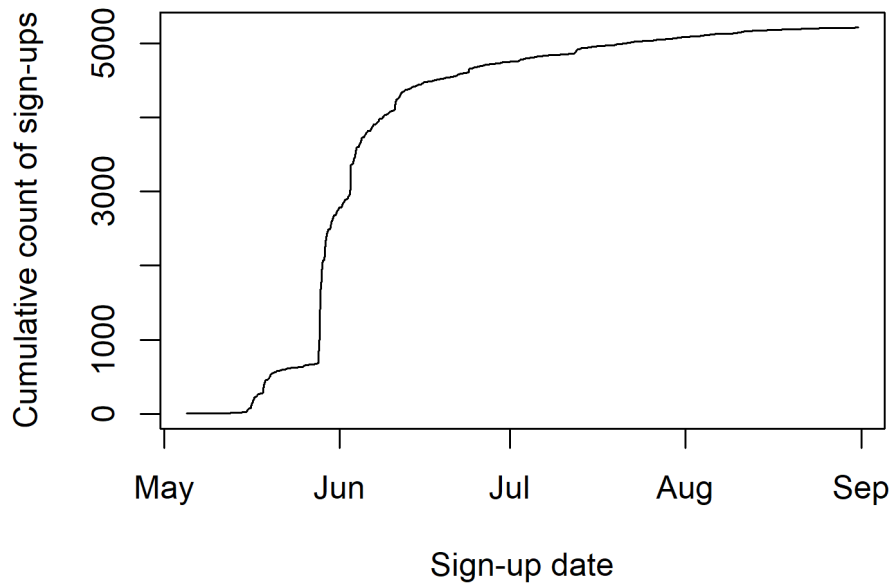


Figure 7. Number of signups to the Bugs Matter app during the 2021 survey season.

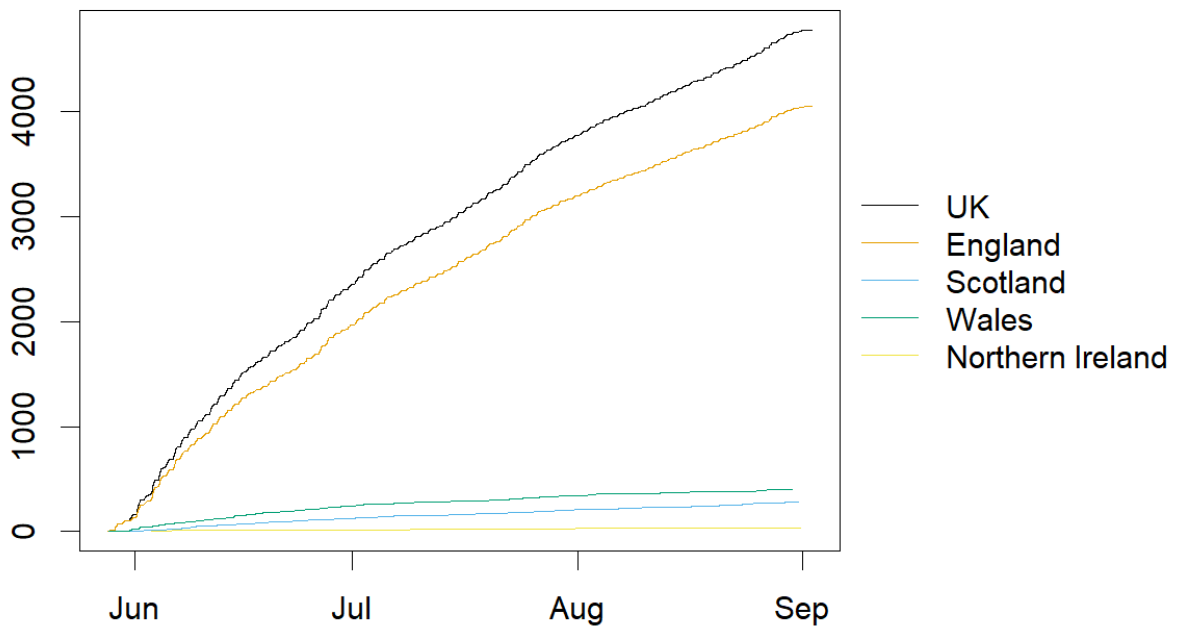


Figure 8. Number of journeys submitted via the Bugs Matter app for the UK and each country during the 2021 survey season.

4 Discussion

Insect abundance

The results of this study show a reduction in numbers of insects sampled on vehicle number plates, consistent with insect abundance decline rates reported by others (Fox et al., 2013; Goulson, D., 2019; Hallmann et al., 2017). The estimate of change in splat rate between 2004 and 2021 (a decrease of 58.5%) has a lower confidence interval of 56.2% and an upper confidence interval of 60.8%, at a 95% confidence level. This means that if we repeated the study, 95% of the time we would expect the estimate of change in splat rate to fall between these values. However, it should be noted that the observations reported here are based on data from only three points in time with a skewed temporal distribution, and consequently do not constitute a trend. With such a low temporal resolution, there is a risk of uncharacteristically high or low insect abundances during these sampling years showing an apparent change in abundance that is unrepresentative of actual insect abundance trends. To accurately estimate change in insect abundance over time, the population needs to be monitored comprehensively at regular intervals over an extended timeframe to reveal the direction and scale of genuine trends. However, the pattern observed in this study is consistent with examples of insect decline reported elsewhere and informs a growing requirement for conservation research, policy and practice targeted at invertebrates in the UK. Similar declining trends were recorded in a study that sampled insects splatted on vehicle windscreens every year between 1997 and 2017 in Denmark (Møller, 2019). However, when windscreen splats in Denmark and Spain in just 1997 and 2018 were compared there was no significant difference due to year (Møller, et al. 2021).

Insect population dynamics and activity are influenced by a range of natural factors that vary inter-annually and across spatial and temporal scales (Figure 9). These factors add noise to longer-term trends in insect abundance but can be partly controlled for in our modelling. For instance, the inclusion of mean temperature and NDVI in our models controls for inter-annual differences in temperature and spatial variation in vegetation cover, both of which may naturally influence insect abundance and activity. Whilst insect populations vary spatially and temporally, so did our insect sampling approach. The time of day and date of the journey, the vehicle type, the vehicle speed and the journey distance all create sampling bias, which we have attempted to control for in our methods, by measuring these variables and including them in our models (Figure 9). By controlling for these effects we obtain more accurate estimates of change in insect splat rate between survey years. However, there are other important variables that are not yet included in the models. For example, environmental variables with demonstrated lethal and sub-lethal influence on insect population ecology such as pesticide use (Møller, et al. 2021a), pollution, land-use change and climate change could explain a further proportion of the unexplained variation in the data. Our model also lacks data on a number of other influential factors on insect abundance and activity such as variation in habitat type and management, disease and predation of insects, other weather conditions including humidity or wind, and natural variation in insect lifecycles or flight periods. Finally, there may be subtle differences in survey methods and/or approaches between journeys and/or years which were not recorded or communicated to subsequent survey managers.

By including a range of variables in the statistical model, it was possible to examine how specific variables affected insect splat rate while controlling for the effects of the other variables in the model. This was important for a more robust estimation of change in splat rate between years, but also allowed us to examine the effects of other factors on insect splat rate. HGVs and sports cars sampled more insects than conventional cars. This may be due to their typical travel speed or aerodynamic properties. Insect splat rate increased by 6% as each hour in the day passed. This could be due to the fact that insects are more

active at higher ambient air temperatures (Mellanby, 1939). Indeed, insect splat rate increased by 2% with each one degree increase in mean daily temperature. Splat rate was found to increase by 3% with each one unit increase in NDVI and the odds of a zero-count journey occurring decreased by 1.3 times with each unit increase in NDVI. These results most likely reflect the fact that insects are more abundant in more vegetated rural areas compared to urban areas, due to the relative suitability of habitats. However, it should also be noted that certain crops will show high NDVI values, but insect abundance may be low in these locations due to pesticide use, the negative influence of crop monocultures on insect abundance, a lack of habitat attributes that provide nesting or overwintering habitats, and a lack of undisturbed habitat and habitat continuity due to intensive management for crops. In future analyses we aim to include data on broad habitat types surrounding journey routes which might help to reveal further information about how insect splat rates vary between land use types. There was no significant relationship between splat rate and average journey speed. Average journey speed is a very low resolution measure of journey speed, and it is likely that a range of other factors such as the spatial distribution of insects and road type interact with the vehicle speed differently along different sections of the journey route. The weak positive relationship between vehicle registration year and splat rate suggests that newer vehicles are more efficient at sampling insects than older vehicles. This is contrary to a suggestion that finding fewer insects on number plates in recent years might be attributed to increasing streamlining of vehicle aerodynamics over time. Our data show that newer vehicles sample more insects than older vehicles, and we have observed pattern of fewer insects on number plates more recently than in the past in spite of this effect of vehicle age, which is assumed to be correlated with aerodynamics.

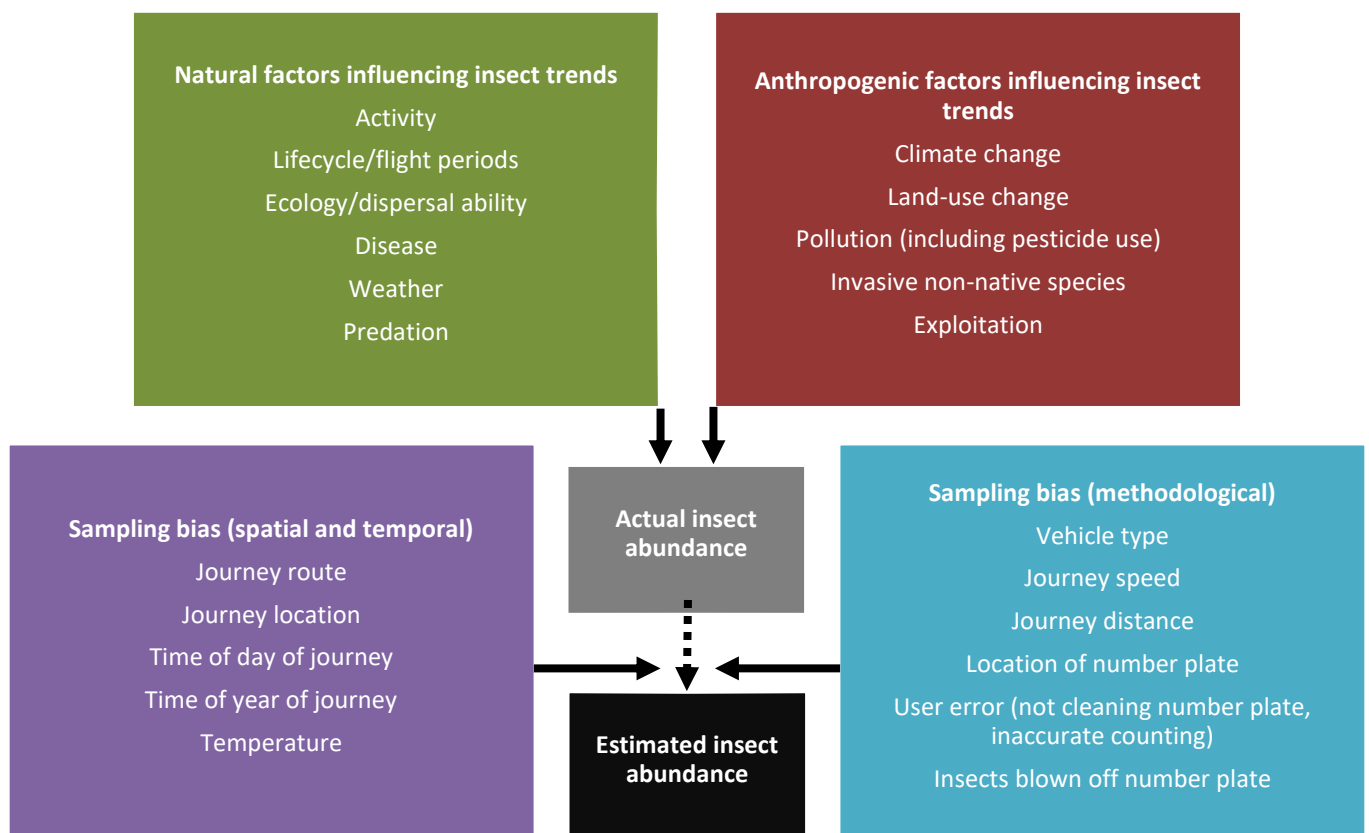


Figure 9. A conceptual diagram showing the range of variables potentially influencing actual insect abundance and estimates of insect abundance using the Bugs Matter app and insect sampling using vehicle number plates conducted by citizen scientists.

Splat rate showed little correlation with journey distance, as shown by a significant but very slight change in splat rate with journey distance. This is somewhat expected as the splat rate is normalized over journey distance, however we might have expected to see more insects sampled over longer journeys due to the increased chances of encountering areas with higher densities of flying insects. Conversely, longer journeys tend to follow motorways where insect abundance may be lower and it is possible that sampled insects could be blown off the number plate on long journeys, especially if the average journey speed is high. The correlation plots showing the relationship between journey distance and splat count and rate (Appendix 8) show some long journeys with very few insect splats or low overall splat rates, which could be partially explained by this phenomenon. Interestingly, the ZINB zero-inflated model determined that the odds of a zero-count journey occurring decreased by 1.02 times with each mile increase in journey distance, suggesting a threshold distance might exist, above which one or more insects are sampled. The average journey distance in 2004 was 60 miles, in 2019 it was 16.6 miles, and in 2021 was 36.3 miles, perhaps reflecting the 2019 survey being focused only in Kent, and changes in traveling behaviour influenced by the global COVID-19 pandemic.

The results of the ZINB zero-inflated model showed that the odds of a zero-count journey occurring increased by 2.9 times between 2004 and 2021. The importance of submitting data for journeys during which zero insects were sampled was communicated to citizen scientists during all survey years, yet there was still a considerably higher proportion of journeys with zero insect splats in 2019 (54.3%) and 2021 (39.5%) compared to 2004 (7.8%). In 2004, the primary method of engagement with citizen scientists was a printed leaflet. With the rise in the use of social media and digital communications it was possible for engagement with citizen scientists in 2019 and 2021 to be more frequent, targeted and specific. This may have resulted in more effective communication of the importance of submitting zero-count journeys, and therefore greater frequency of their occurrence in the data. Another limitation of the survey was that citizen scientists may have forgotten to clean their numberplate prior to conducting a survey, although the risk of this is very low for the 2021 Bugs Matter survey, where the app required a checkbox confirmation that the number plate had been cleaned, the risk may have been higher in 2004, resulting potentially in an elevated count in that year.

Differences in participant behaviour between the two surveys cannot however explain the fact that there were significantly different changes in splat rates in 2004 and 2021 between the different countries of the UK. Most notably while the splat rate was 27.9% lower in Scotland in 2021, it was over twice as reduced in England - 65% lower. Annual counts of moths caught in Rothamsted moth traps were analysed by Fox et al. (2021), they revealed declining trends in moth abundance in traps in Northern and Southern Britain between 1968 and 2017, however while the reduction was -22% in northern Britain, it was nearly twice that, -39%, in southern Britain. Rothamsted moth trap data is itself a proxy for moth abundance, and the time period of the decline is much longer, but the similar pattern of greater rates of loss in the south reinforces concerns that the factors responsible for recent insect declines are acting more strongly on populations in England or Southern Britain.

The national rate of change in flying insect abundance that may be inferred by this study, -34.4%/decade, is much higher than the longer term -6.6%/decade rate of annual moth change calculated by Fox et al. (2021), however the figures are similar to more recent trends, such as the change in insect numbers sampled on vehicle windscreens recorded by Møller (2019), on two transects in Denmark between 1997 and 2017, -38.0%/decade and -46.0%/decade, and are slightly higher than the -28.0% decadal change in the biomass of flying insects in malaise traps on nature reserves in Germany between 1990 and 2011 revealed by Hallmann et al. (2017).

While this data firms up a picture of widespread and severe modern declines in insects, caution is required in extrapolating conclusions from this apparent decline, and in particular in drawing conclusions about insect abundance itself as this is not the only factor affecting the splat rate of insects on number plates. Insect sampling was restricted to transects along the road network, and therefore the spatial coverage of the surveys is inherently limited and may be in part dependant on specific changes to roadside verge management. Whilst this design serves to provide a robust measure of change in the number of insects sampled by cars, by comparing one year to the next, we caution against the use of this data to directly infer insect abundance. Indeed, our method is an activity-density measure and it is conceivable that insects are just as abundant between years, but are less active. We can see this in our results at shorter timescales, where splat rate increases with temperature and after 8pm, not because there are more insects, but because the same number of insects are active in a different way.

Reduced frequency and distances of flying is a scenario that occurs when habitats become so fragmented that dispersal becomes evolutionarily disadvantageous for a species (Hill et al., 1999). There is evidence that when habitats become fragmented there is a tipping point beyond which dispersal is more likely to decrease genetic resources than give genes the chance to proliferate in an under-exploited habitat.

Eventually the high probability of failure outweighs the benefits if successful, so wings shrink, wing muscles atrophy, dispersal reduces (Davies and Saccheri, 2013) and we assume, long-distance dispersal eventually stops. The relationship between increasing habitat fragmentation, increasing temperature and reduced wing functionality has been shown in most groups of butterflies including swallowtails (Dempster et al., 1976; Dempster, 1991), skippers (Fenberg et al., 2016), blues (Dempster, 1991; Wilson et al., 2019), and a white and nymphalid (Bowden et al., 2015). Shrinking wing-size is a phenomenon that has been recently observed in many smaller animals that are likely to be more vulnerable to the effect of fragmentation, such as Spanish wasps (Polidori et al., 2019), German craneflies, where wing size increased but wing loading increased by 26.9% in males (Jourdan et al., 2019), and Bornean moths (Wu et al., 2019). While in South American birds in primary forest body size is reducing but wing size is increasing (Jirinec et al., 2021) indicating that dispersal or at least flight is still evolutionarily beneficial to birds in less fragmented habitats. It may be that reductions in the occurrence of insects in traps or on numberplates is being caused, at least in part, by reduced activity, flight and dispersal of insects, which may be a response to combinations of climate change, habitat fragmentation and pesticide contaminated landscapes that reduce the occurrence of genes associated with long distant flight. Of course, reduced activity of flying insects would itself be indicative of reduced pollination rates for plants at a distance from quality habitats, reduced prey availability for flying insectivores, reduced ability of species to respond to climate change and reduced ability to recolonize after an extinction event, and may be associated with declines in insect populations at a landscape scale.

Synthesis and Application

The Bugs Matter survey successfully quantified a difference in the number of insects sampled on vehicle numberplates over time from baseline data established in 2004. The approach has the potential to provide an efficient, standardised and scalable approach to monitor insect population trends across local, regional and global scales, to add to the growing body of evidence for trends in insect populations and to provide a coarse metric of the functional provision by insects within ecosystems.

We are currently investigating how we could use AI algorithms to automatically count the number of insects on number plates. This would use a virtual template within the app., similar to those used to automatically read credit card details, and return the count in real-time to the user. This would negate the requirement for a splatometer making it quicker and easier for citizen scientists to count and record

data. In 2021, a high proportion of people who downloaded the app. did not submit any data. The need for a physical splatometer is thought to be one barrier to participation, and removing this requirement may help to increase numbers of participants in future years and to reduce the operating costs of the survey.

An increasing number of studies are accumulating evidence of insect declines, and associated consequence for ecosystem functions, including the reductions in genetic diversity, β -diversity and species evenness that are associated with the failure of species to disperse and colonise or recolonise habitats in a fragmented landscape (Vasiliev et al., 2021). It is important to recognise that these patterns and trends are often nuanced, and that local conditions and choice of analytical approach may mean that results reported locally or regionally may not reflect patterns everywhere. Over-simplified reporting by the media of negative trends from short time series data such as those presented here, risks missing some of the nuances and limitations of research. Whilst there is growing evidence of potentially catastrophic declines in insect diversity and abundance, care must be taken to not extrapolate too far, with potential consequences for undermining public confidence in research. We recognise and stress that the results we have reported here do not constitute a trend, and advocate strongly for data collection over extended timeframes to enable conclusions about trends in insect populations to be drawn. We believe that the widespread adoption of the Bugs Matter survey facilitated by the Bugs Matter app can provide a replicable and scalable approach for the generation of an enhanced evidence-base that can be used to assess trends and drive positive action for insects and other invertebrates.

Increasing sample size both by increasing the number of citizen scientist participants and the number of journeys undertaken would provide greater confidence in the reliability of our data as a robust indicator of patterns in insect abundance. Similarly, cross-validating our results with other monitoring schemes for insect abundance, such as the Rothamsted Insect Survey (RIS) (Fox et al., 2013) or the UK Pollinator Monitoring Scheme (<https://www.ceh.ac.uk/our-science/projects/uk-pollinator-monitoring-scheme>), or the results of long-term Malaise trapping studies (Hallmann et al., 2017), would provide another means to calibrate and critique the patterns in our data. There is potential for the survey method to have global application and relevance, and deployed at a national scale, it can provide data at resolutions appropriate to the scale at which the ecosystem services provided by insects operate. By continuing to promote participation in the survey in subsequent years, insect conservationists can capitalise on the opportunity to gather long-term data and build the evidence base for insect abundance at UK county and national scale.

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Author contributions

This project was led and managed by PTM, who contributed much of the text for this report along with guidance for the statistical analyses. LB led on the collation of variables, statistical analysis and report writing, whilst RS performed initial data cleaning and formatting and the analysis of the participation data. AR and AS were part of the project team in 2019, AR leading on GIS and data assimilation, and AR on citizen scientist participation. PTM and AR designed the original brief and specification for the Bugs Matter app., and MS and AW provided helpful comments and input on an earlier draft of the manuscript.

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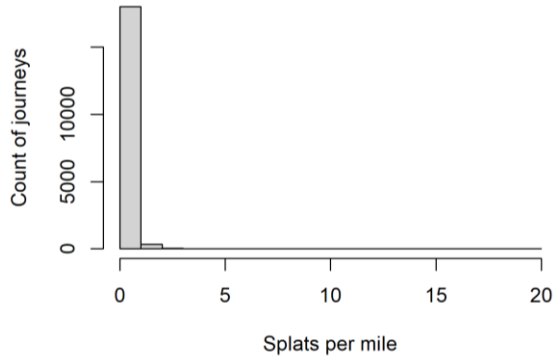
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Appendices

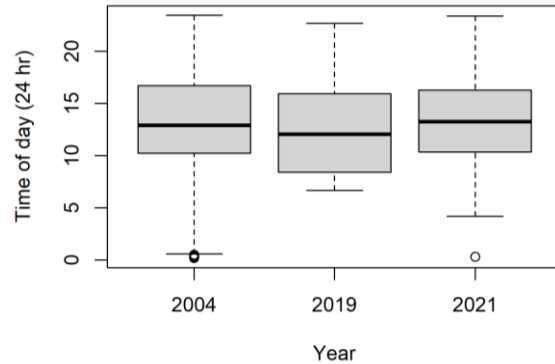
Appendix 1. A histogram of the splat rate (splats per mile) data.



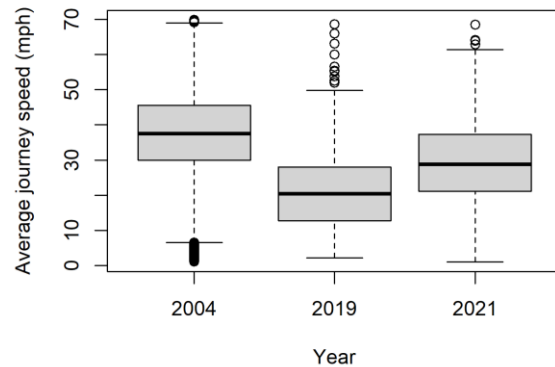
Appendix 2. The number of journeys conducted by each vehicle type in each survey year.

	2004	2019	2021
Car	12547	307	2812
HGV	257	89	75
MPV	338	13	318
Sports car	619	41	50
SUV	33	149	10
Van	672	0	53

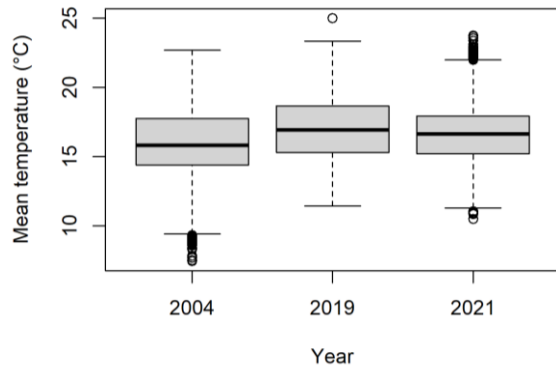
Appendix 3. Box and whisker plot showing the spread of the time of day of journey data from the Bugs Matter survey of insects on car number plates in in each of the survey years. A Kruskal-Wallis test showed a significant difference in the time of day at which journeys were undertaken between the survey years ($H(1) = 33.253$, $p < 0.001$).



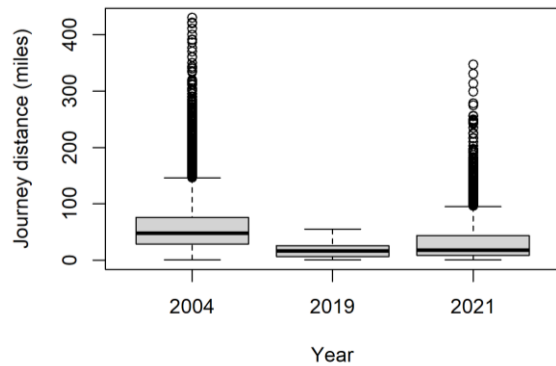
Appendix 4. Box and whisker plot showing the spread of the average journey speed data from the Bugs Matter survey of insects on car number plates in in each of the survey years. A Kruskal-Wallis test showed a significant difference in the average journey speed between the survey years ($H(1) = 1677.517$, $p < 0.001$).



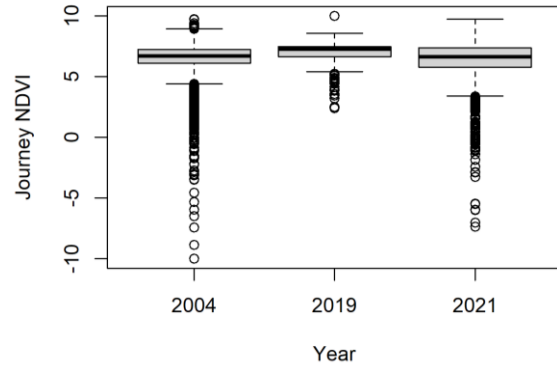
Appendix 5. Box and whisker plot showing the spread of the mean journey temperature data from the Bugs Matter survey of insects on car number plates in in each of the survey years. A Kruskal-Wallis test showed a significant difference in the mean journey temperature between the survey years ($H(1) = 274.594, p = < 0.001$).



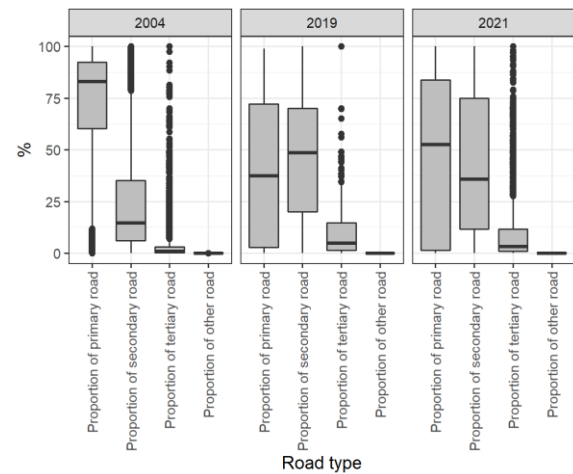
Appendix 6. Box and whisker plot showing the spread of the journey distance data from the Bugs Matter survey of insects on car number plates in in each of the survey years. A Kruskal-Wallis test showed a significant difference in the journey distances between the survey years ($H(1) = 2794.17, p = < 0.001$).



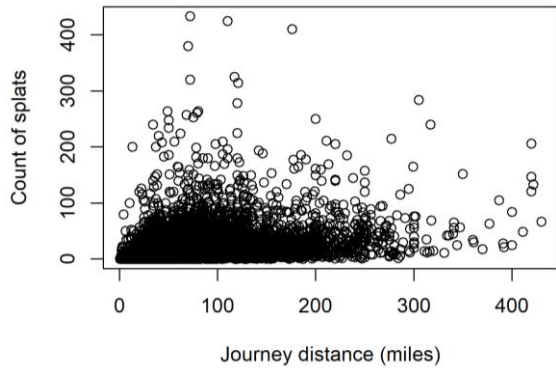
Appendix 7. Box and whisker plot showing the spread of the NDVI data from the Bugs Matter survey of insects on car number plates in in each of the survey years. A Kruskal-Wallis test showed a significant difference in the journey NDVI between the survey years ($H(1) = 144.134, p = < 0.001$).



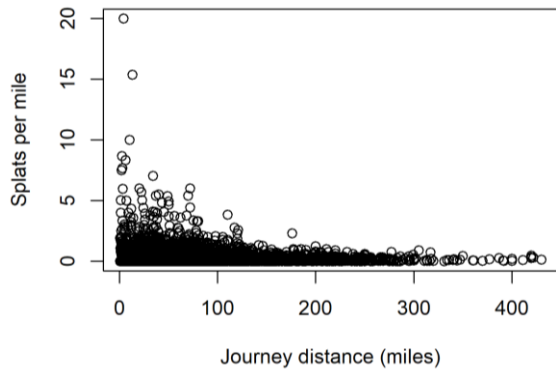
Appendix 8. Box and whisker plot showing the spread of the road type data from the Bugs Matter survey of insects on car number plates in in each of the survey years.



Appendix 9. Correlation plot showing the relationship between journey distance (x-axis) and count of splats (y-axis). A Spearman correlation test showed a significant positive correlation between journey distance and count of splats ($\rho = 0.636, p = < 0.001$).

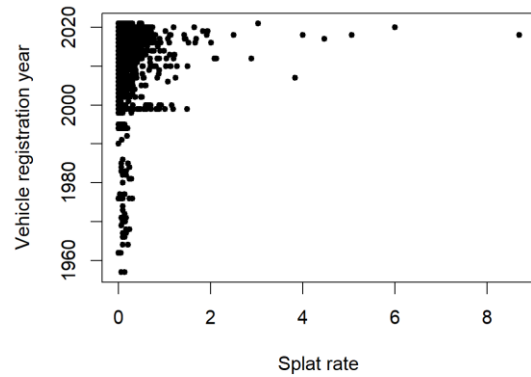


Appendix 10. Correlation plot showing the relationship between journey distance (x-axis) and splat rate (y-axis). A Spearman correlation test showed a weak but significant positive correlation between journey distance and count of splats ($\rho = 0.198$, $p < 0.001$).

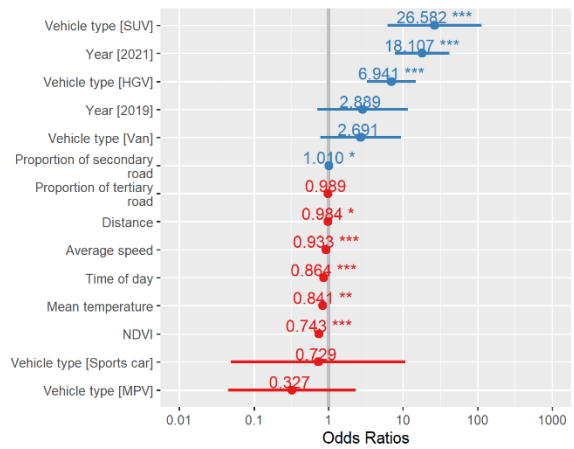


Appendix 11. Correlation plot showing the relationship between splat rate (x-axis) and vehicle registration year (y-axis) (data available only from 2019 and 2021). A simple linear regression on log-transformed splat rate showed a weak positive trend (coef 0.00072, $p = 0.015$) between vehicle

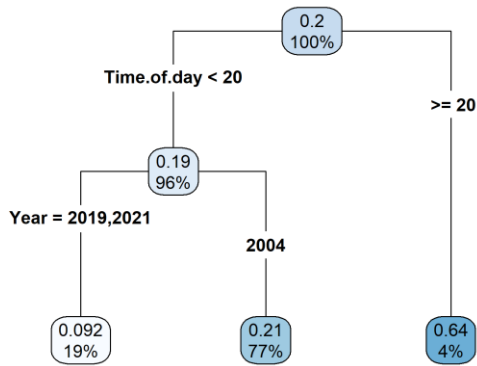
registration year and splat rate.



Appendix 12. Forest plot of odds ratios from the ZINB zero-inflated model of Bugs Matter survey data of insects on car number plates in the UK, showing the change in the odds of a zero-count journey occurring given a one-unit change in the independent variable, while holding other variables in the model constant. Significant relationships between splat rate and independent variables are shown by asterisks (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$). Vehicle types are compared to the reference category of 'conventional cars'. The reference year is 2004.



Appendix 13. The regression tree describing splat rate had two splits, three terminal nodes and a cross-validated error of 0.918.



Appendix 14. Complexity parameter plot and variable importance for the regression tree describing splat rate. Complexity parameter plots show the reduction in the cross validated error with decreasing complexity parameter and increasing tree size. We would see diminishing returns if we continued to grow the trees. Variable importance is calculated as the sum of the goodness of split measures (Gini index) and considers both primary and surrogate splits.

