

Preliminary Ecological Appraisal

Twycross Zoo, Burton Road, Atherstone

A Report to: Baker Mallett LLP

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Quality Assurance

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Declaration of Compliance

This study has been undertaken in accordance with British Standard 42020:2013 “Biodiversity, Code of Practice for Planning and Development”. The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management’s Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Disclaimer

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Validity of Data

The findings of this study are valid for a period of 24 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified ecologist to assess any changes in the habitats present on site, and to inform a review of the conclusions and recommendations made.

Non-Technical Summary

Project Background

In September 2023, Baker Mallett LLP commissioned Middlemarch to undertake an updated Preliminary Ecological Appraisal of the site of a proposed development at Twycross Zoo, Atherstone. The updated survey is required to encompass the new proposed works boundary following the Preliminary Ecological Appraisal carried out in November 2022. This assessment is required to inform a planning application associated with the demolition of the lemur house, removal of several animal enclosures and clearance of trees and vegetation to make way for the construction of a National Science Conservation Centre.

Scope of Appraisal

To fulfil the above brief, an ecological desk study and a walkover survey (in accordance with Phase 1 Habitat Survey methodology) were undertaken. The survey was carried out on 25th September 2023 by Charline Hue MSc (Senior Ecological Consultant) and Joanne Harper MSc (Ecological Project Officer). An initial review of the ecological data was subsequently carried out to determine the features of ecological importance on site as well as a preliminary assessment of the potential impacts the proposed development could have on these features.

Material Considerations

Based on the current understanding of the site proposals and anticipated impacts the following ecological features have been identified as material considerations:

- **Sites:** River Mease SAC/SSSI
- **Habitats:** ditch, hedgerows, line of trees/scattered trees, plantation broad-leaved woodland, plantation coniferous woodland, pond
- **Species:** amphibians, badgers, bats, birds, other mammals

Recommendations

In order to ensure compliance with wildlife legislation and relevant planning policy and to secure a net gain for biodiversity overall, the following recommendations are made (full details are provided in Chapter 7):

Nature Conservation Sites	Habitats Regulations Assessment – refer to report RT-MME-160474-01.
Further Ecological Surveys	● Great Crested Newt Habitat Suitability Index Assessment – refer to report RT-MME-160474-05 Rev A. ● Preliminary Bat Roost Assessment – refer to report RT-MME-160474-03 Rev A. ● A pre-works Badger check should be undertaken.
Scheme Design	The proposed development should be designed in accordance with the ecological mitigation hierarchy as set out in the National Planning Policy Framework (NPPF), and the National Planning Practice Guidance (NPPG).
Management Plans and Strategies	● A Construction Ecological Management Plan should be produced for the site setting out the safeguards and appropriate working practices that will be employed to minimise adverse effects on biodiversity and ensure compliance with UK Wildlife Legislation. ● A Landscape and Ecology Management Plan should be produced setting out the detailed establishment and management of all on site compensation and enhancement measures.

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1. Introduction

1.1. Project Background

In September 2023, Baker Mallett LLP commissioned Middlemarch to undertake an updated Preliminary Ecological Appraisal at Twycross Zoo, Atherstone. The updated survey is required to encompass the new proposed works boundary following the Preliminary Ecological Appraisal carried out in November 2022. This report supersedes the 2022 report. This assessment is required to inform a planning application associated with the demolition of the lemur house, removal of several animal enclosures and clearance of trees and vegetation to make way for the construction of a National Science Conservation Centre. Middlemarch has previously carried out a number of surveys for Baker Mallett LLP at this site, those from 2022 were in connection with the current project. The findings of these surveys are detailed in the following reports:

- Preliminary Ecological Appraisal, 2019, report RT-MME-131054-01;
- Preliminary Bat Roost Assessment, 2019, report RT-MME-131054-02;
- Preliminary Ecological Appraisal, 2019, report RT-MME-150735-01;
- Preliminary Bat Roost Assessment, 2019, report RT-MME-150735-02;
- Preliminary Arboricultural Assessment, 2022, report RT-MME-159277-01;
- Preliminary Ecological Appraisal, 2022, report RT-MME-159277-04; and,
- Preliminary Bat Roost Assessment, 2022, report RT-MME-159277-05.

Middlemarch has also been commissioned to undertake an updated Preliminary Bat Roost Assessment (report RT-MME-160474-03 Rev A) as well as the following assessments for Baker Mallett LLP at this site in connection with the construction of the National Science Conservation Centre:

- Habitats Regulation Assessment Stage 1 Screening, report RT-MME-160474-01;
- Biodiversity Metric Assessment, report RT-MME-160474-04; and,
- Great Crested Newt Habitat Suitability Index Assessment, report RT-MME-160474-05 Rev A.

The purpose of the Preliminary Ecological Appraisal is to identify the features of ecological importance on site and provide a preliminary assessment of the potential impacts the proposed development could have on these features.

1.2 Site Description and Context

Table 1.1 provides a brief summary of the site and its surroundings.

Attribute	Description
Location	Twycross Zoo, Burton Road, Atherstone
National Grid Reference	SK 31559 06068
Site Area (ha)	2.19
Topography	Generally flat, slightly sloping to the south.

Table 1.1: Summary of Site and Surroundings (continues)

Attribute	Description
Land Cover (on site)	The site forms the south-west corner of the larger site of Twycross Zoo and a stretch of land immediately south of the current zoo boundary. Approximately one third of the site was composed of semi-improved grassland with scattered scrub. The remaining land comprised a mosaic of dense scrub, amenity grass, conifer plantation, broad-leaved woodland, scattered and groups of planted trees, hedgerow, pond, hardstanding paths and animal enclosures, the latter mainly containing bark chippings and grasses.
Land Cover (site surrounds)	Twycross Zoo dominates the landscape to the north/north-east of the proposed development area with the wider area comprising intensively managed arable farmland dotted with small farmsteads and residential properties. The M42 lies around 3 km to the west.

Table 1.1 (continued): Summary of Site and Surroundings

1.3 Documentation Provided

The conclusions and recommendations made in this report are based on information provided by the client regarding the scope of the project. Documentation made available by the client is listed in Table 1.2.

Document / Drawing Number	Author
Combined Landscape Masterplan P22009-00-001-DZ-0110-02	Dearadh Zú
Soft Landscape Strategy P22009-00-001-DZ-400-00	Dearadh Zú
Proposed Site Plan / TWZ-HLM-00-00-DR-L-00001	HLM Architects
Proposed Soft Landscape (Draft) / TWZ-HLM-00-00-DR-L-45001	HLM Architects

Table 1.2: Documentation Provided by Client

2. Methods

2.1 Desk study

An ecological desk study was undertaken between November and December 2022 to determine the presence of any designated nature conservation sites and protected species in proximity to the site. This involved contacting appropriate statutory and non-statutory organisations which hold ecological data relating to the survey area. Middlemarch then assimilated and reviewed the desk study data provided by these organisations.

The consultees for the desk study were:

- Natural England - MAGIC website for statutory conservation sites;
- Warwickshire Biological Records Centre; and,
- Leicestershire and Rutland Environmental Records Centre.

The desk study included a search for:

- Landscape Scale Conservation Initiatives;
- European statutory nature conservation sites in the UK (now referred to as the 'National Site Network') within a 5 km radius of the site (extended to 10 km for any statutory site designated for bats);
- UK statutory sites within a 2 km radius; and,
- Non-statutory sites and protected/notable habitats and species records within a 1 km radius.

The data collected from the consultees are discussed in Chapter 3. In compliance with the terms and conditions relating to its commercial use, the full desk study data are not provided within this report.

The desk study also included a review of relevant local planning policy with regard to biodiversity and nature conservation (see Appendix 1).

2.2 Phase 1 Habitat Survey

A field survey was conducted following the Phase 1 Habitat Survey methodology of the Joint Nature Conservation Committee¹ and the Institute of Environmental Assessment². Phase 1 Habitat Survey is a standard technique for classifying and mapping British habitats. The aim is to provide a record of habitats that are present on site. During the survey, a Habitat Condition Assessment was carried out to determine the ecological status of each habitat recorded. The condition assessment was assessed using published criteria in Panks *et al.* (2022)³, the details of which are presented in Section 8.

¹ Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey: A technique for environmental audit (reprint)*. Joint Nature Conservation Committee, Peterborough.

² Institute of Environmental Assessment. (1995). *Guidelines for Baseline Ecological Assessment*, Institute of Environmental Assessment. E&FN Spon, An Imprint of Chapman and Hall. London.

³ Panks, S., White, N., Newsome, A., Nash, M., Potter, J., Heyton, M., Mayhew, E., Alvarez, M., Russell, T., Cashon, C., Goddard, F., Scott, S.J., Heaven, M., Scott, S.H., Treweek, J., Butcher, B. and Stone, D. (2022) *The Biodiversity Metric 3.1 – Auditing and accounting for biodiversity: Technical Supplement*. Natural England.

During the survey, the presence or potential presence of protected species was noted where observed. This included a review of suitable habitat opportunities or field signs of notable species groups (amphibians, bats, birds, terrestrial and aquatic invertebrates, terrestrial and aquatic mammals, plants and reptiles).

The original survey was carried out on 15th November 2022 and updated on 25th September 2023 by Charline Hue (Senior Ecological Consultant) and Joanne Harper (Ecological Project Officer). Table 2.1 details the weather conditions at the time of the survey.

Parameter \ Condition	15/11/2022	25/09/2023
Temperature (°C)	12	18
Cloud (%)	100	0-30
Wind (Beaufort)	F2-3	F1-3
Precipitation	Rain	Nil

Table 2.1: Weather Conditions During Field Survey

Field Survey Constraints and Limitations

No constraints or limitations affected the level of the updated survey effort.

2.3 Preliminary Evaluation

The Preliminary Evaluation is an initial review of the ecological data to determine which features are likely to be a material consideration for the proposed development at the site. A material consideration is an ecological feature that by virtue of its legal status, its inclusion in any national policy or plan, rarity or contribution to local ecological networks, is worthy of further consideration in the planning system. Typical material considerations include statutory or non-statutory nature conservation sites, species protected by law, Habitat and Species of Principal Importance in England as defined by the Natural Environment and Rural Communities (NERC) Act 2006 or other ecological corridors and biodiversity opportunities areas outlined in local policy.

3. Desk Study

3.1 Landscape Initiatives

There are currently no landscape initiatives within proximity to the survey area.

3.2 Nature Conservation Sites

Statutory and non-statutory nature conservation sites located in proximity to the survey area are summarised in Table 3.1.

Site Name	Designation	Proximity to the Survey Area	Description
European Statutory Sites			
River Mease	SAC, SSSI	4,385 m north-north-east	The River Mease is noted for its population of spined loach <i>Cobitis taenia</i> . It is a small tributary of the River Trent and has retained a reasonable degree of channel diversity compared to other similar rivers containing spined loach. It has extensive beds of submerged plants along much of its length. The Mease is also noted for its bullhead <i>Cottus gobio</i> populations. Bed sediments are generally not as coarse as other sites selected for the species. The patchy cover from submerged macrophytes is also important for the species. White-clawed crayfish <i>Austropotamobius pallipes</i> and otter <i>Lutra lutra</i> are also present.
Non-statutory Sites			
Twycross Zoo Oak	cLWS	240 m north-east	This mature common oak was recorded with a girth of 4.61 m in 2014. It also had major deadwood within the crown. It therefore meets LWS criteria.
Norton Lane Hedgerow	cLWS	630 m north-west	Species-rich hedgerow along the northern side of Norton Lane, well maintained and thick. Species included gorse, grey willow, ash, English oak, hazel, field maple, blackthorn, hawthorn, rose and holly.
Twycross Zoo Wetland Nature Reserve (continues)	cLWS	690 m east	The lower part of a series of ponds south of the Zoo, recently created, with the upper ponds nearest the zoo intended to filter grey water from the zoo. The lower ponds are dominated by either reed-mace or reed sweet-grass, with fringes of tall herbs. Although eutrophic, the water appears clean and the filtration system working.

Table 3.1: Summary of Nature Conservation Sites (continues)

Site Name	Designation	Proximity to the Survey Area	Description
Non-statutory Sites			
Twycross Zoo Wetland Nature Reserve (continued)	cLWS	690 m east	A path winds through the ponds, bordered by species-rich grassland, presumably originating from wild-flower seed - knapweed, ox-eye daisy, cowslip, wild carrot, bird's-foot trefoil, musk mallow, yellow rattle, meadow buttercup. Comprises a large number of LWS grassland indicators such as marsh marigold and blue sedge.
Lea Farm Pond and Reed Bed	pLWS	690 m south-east	Large pond and reedbed (0.6 ha) with farm track bisecting the two. Large stand of common reed around the banks of the pond. Presence of coots with chicks on the pond during the 2011 survey. No signs of submerged vegetation. Site very overgrown to the south of the bare earth track, which was compacted with occasional ruderals. Edges of pond and reedbed to the south with elder, bramble, ragwort, lords and ladies, hogweed, common nettle, rosebay willowherb and pineappleweed. Site surrounded by hedgerow to the south and east, wooded area of ash and English oak to the north. Slow flowing silty stream on the western boundary.
Hedgerows, Twycross Zoo	LWS	730 m east	The site contains four hedgerows with trees, three of them are species-rich and all with native species.
Orton Lane Field Oak	cLWS	920 m north-north-east	Veteran English oak in arable field measured at 4.80 m girth. In excellent condition, with deadwood. Bifurcate at 1.5 m (assessed in 2011).
Key: SAC: Special Area of Conservation SSSI: Site of Special Scientific Interest LWS: Local Wildlife Site pLWS: potential/proposed Local Wildlife Site cLWS: candidate Local Wildlife Site			

Table 3.1 (continued): Summary of Nature Conservation Sites

No Sites of Special Scientific Interest (SSSIs) are located within a 2 km radius of the survey area; however, the survey area does fall within a SSSI Impact Risk Zone for River Mease (SSSI and SAC) which is located 4,385 m north-north-west.

3.3 Habitats

Table 3.2 summarises known priority or notable habitats within a 1 km radius of the site.

Habitat Type	No. of Records	Location of Nearest Record
Deciduous woodland	8	260 m north-east
Lowland heathland	1	950 m east

Table 3.2: Summary of Priority/Notable Habitats

3.4 Protected / Notable Species

Table 3.3 and the following text provide a summary of protected and notable species records within a 1 km radius of the study area. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Survey Area	Species of Principal Importance?	Legislation / Conservation Status
Amphibians					
Smooth newt <i>Lissotriton vulgaris</i>	1	2019	330 m north-east	-	WCA 5 S9(5)
Common frog <i>Rana temporaria</i>	2	2014	620 m south-east	-	WCA 5 S9(5)
Common toad <i>Bufo bufo</i>	1	1999	620 m south-east	✓	WCA 5 S9(5)
Great crested newt <i>Triturus cristatus</i>	2	2021	640 m north-east	✓	ECH 2, ECH 4, WCA 5
Birds					
Green sandpiper <i>Tringa ochropus</i>	1	2015	660 m east	-	WCA1i
Hobby <i>Falco subbuteo</i>	2	2007	660 m east	-	WCA1i
Osprey <i>Pandion haliaetus</i>	1	2004	660 m east	-	WCA1i
Peregrine <i>Falco peregrinus</i>	2	2007	660 m east	-	WCA1i
Red Kite <i>Milvus milvus</i>	2	2018	660 m east	-	WCA1i
Black redstart <i>Phoenicurus ochruros</i>	1	2008	Potentially within a 1 km radius*	-	WCA1i
Flowering Plant					
Bluebell <i>Hyacinthoides non-scripta</i>	3	2018	330 m north-east	✓	WCA 8 S13(2)

Table 3.3: Summary of Protected/Notable Species Records (continues)

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Survey Area	Species of Principal Importance?	Legislation / Conservation Status
Mammals - Bats					
Brown long-eared bat <i>Plecotus auritus</i>	4	2011	170 m north-east	✓	ECH 4, WCA 5, WCA 6
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	1	2010	650 m east	✓	ECH 4, WCA 5, WCA 6
Common pipistrelle <i>Pipistrellus pipistrellus</i>	1	2010	650 m east	-	ECH 4, WCA 5, WCA 6
Daubenton's bat <i>Myotis daubetonii</i>	1	2010	650 m east	-	ECH 4, WCA 5, WCA 6
Noctule <i>Nyctalus noctula</i>	1	2010	650 m east	✓	ECH 4, WCA 5, WCA 6
Mammals - Other					
Badger <i>Meles meles</i>	3	2018	†	-	WCA 6, PBA
Reptiles					
Grass snake <i>Natrix helvetica</i>	1	2004	820 m north-east	✓	WCA 5 S9(1), WCA 5 S9(5)
Key: †: Badger records are confidential and therefore proximity is not provided within the report. ECH 2: Annex II of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation. ECH 4: Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest in need of strict protection. WCA 1i: Schedule 1 Part 1 of Wildlife and Countryside Act 1981 (as amended). Birds protected by special penalties at all times. WCA 5: Schedule 5 of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). WCA 5 S9(1): Schedule 5 Section 9(1) of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). Protection limited to intentional killing, injury or taking. WCA 5 S9(5): Schedule 5 Section 9(5) of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). Protection limited to selling, offering for sale, processing or transporting for purpose of sale, or advertising for sale, any live or dead animal, or any part of, or anything derived from, such animal. WCA 6: Schedule 6 of Wildlife and Countryside Act 1981 (as amended). Animals which may not be killed or taken by certain methods. WCA 8 S13(2): Schedule 8 Section 13(2) of Wildlife and Countryside Act 1981 (as amended). Protection limited to selling, offering for sale, possessing or transporting for purpose of sale, or advertising for sale, any live or dead plant, or any part of, or anything derived from, such plant. Species of Principal Importance: Species of Principal Importance for Nature Conservation in England.					

Table 3.3 (continued): Summary of Protected/Notable Species Records

Eleven bird Species of Principal Importance have been recorded within 1 km of the survey area including skylark *Alauda arvensis*, corn bunting *Emberiza calandra*, yellowhammer *Emberiza citrinella*, reed bunting *Emberiza schoeniclus*, yellow wagtail *Motacilla flava* and grey partridge *Perdix perdix*.

The desk study also provided records of one invertebrate species listed as a Species of Principal Importance within 1 km of the site consisting of small heath butterfly *Coenonympha pamphilus*.

Within the Leicester, Leicestershire and Rutland Biodiversity Action Plan 2016-2026, species with local action plans include all bats, black redstart, swallow *Hirundo rustica*, swift *Apus apus* and house martin *Delichon urbicum*.

3.5 Invasive Species

The desk study returned no records of invasive species within a 1 km radius of the study area. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

4. Survey Results

4.1 Introduction

A Phase 1 Habitat Survey Drawing (C160474-02-01 Rev A), illustrating the location and extent of all habitat types recorded on site, is provided in Chapter 8. Detailed habitat descriptions and a summary of the condition assessment for each habitat type using Panks *et al.* (2022)³ is also included in Chapter 8.

4.2 Habitats

Table 4.1 details the types, extent and ecological condition of the habitats which were recorded on site during the field survey visit. Photographs taken during the field survey are presented in Chapter 9.

Habitat	Area (ha) / Length (km)	Condition	Photo Reference
Plantation broad-leaved woodland (TN1)	0.113 ha	Moderate	Plate 9.1
Line of trees (TN2)	0.154 km	Poor	Plate 9.10
Line of conifers (TN3)	0.057 km	Poor	Plate 9.3 and 9.14
Species-rich hedgerow (TN4)	0.073km	Moderate	Plates 9.3 and 9.4
Plantation coniferous woodland (TN5)	0.117 ha	Moderate	Plate 9.2
Dense scrub (TN6, 10, 42 & 43)	0.458 ha	Poor	Plates 9.3, 9.4, 9.7, 9.14 and 9.16
Wet ditch (TN7)	0.077 km	Moderate	Plate 9.4
Pond (TN8)	0.020 ha	Moderate	Plate 9.5
Species-poor native hedgerow (TN9)	0.111 km	Moderate	Plates 9.6 and 9.7
Species-rich native hedgerow (TN11 & 12)	0.260 km	Good	Plate 9.8
Amenity grassland (TN13)	0.132 ha	Moderate	Plate 9.3
Amenity grassland/ other habitat (TN14, 15 & 18)	0.326 ha	Poor	Plates 9.6 and 9.10
Bare ground (TN16)	0.006 ha	Poor	-
Plantation broad-leaved woodland (TN17)	0.037 ha	Poor	Plates 9.6 and 9.9
Semi-improved neutral grassland (TN19)	0.620 ha	Moderate	Plates 9.8, 9.11 and 9.12

Table 4.1: Summary of Habitats Recorded on Site (continues)

Habitat	Area (ha) / Length (km)	Condition	Photo Reference
Scattered scrub (TN20)	37 No.	N/A – included within appropriate habitat	Plates 9.8 and 9.11
Species-rich native hedgerow (TN21)	0.027 km	Poor	-
Hardstanding (TN22)	0.290 ha	N/A	Plates 9.6, 9.8 and 9.10
Buildings (TN23)	0.010 ha	N/A	Plates 9.9 and 9.17
Plantation broad-leaved woodland (TN24)	0.011 ha	Moderate	-
Fence (TN25)	1.020 km	N/A	Plates 9.6, 9.10, 9.17 and 9.18
Scattered tree (TN26, 27, 29, 30, 31, 32, 35, 36, 44, 46, 47)	15 No.	Good	Plate 9.6
Scattered tree (TN28, 33, 45 and 48)	10 No.	Moderate	-
Scattered tree (TN34 and 49)	7 No.	N/A	Plate 9.6
Dense scrub (TN37)	0.023 ha	Moderate	-
Poor semi-improved grassland (TN38)	0.008 ha	Poor	Plate 9.18
Introduced shrub (TN39)	0.012 ha	N/A	Plates 9.13 and 9.17
No access (TN40)	0.003 ha	N/A	-
Wall (TN41)	0.042 km	N/A	Plates 9.15 and 9.17

Table 4.1 (continued): Summary of Habitats Recorded on Site

4.3 Protected / Notable Species

Table 4.2 summarises the suitability of the site for protected/notable species and any species/evidence of species that were recorded during the survey. The time of year at which the survey is undertaken will affect species or field signs directly recorded during the survey.

Species/Group	Description
Amphibians	The pond in the west of the survey area contained suitable aquatic habitat opportunities for common amphibians during the breeding season. The dense scrub encircling the pond, the ditch, the neighbouring patch of woodland and semi-improved neutral grassland to the south provide suitable terrestrial habitat for amphibians, with good dispersal opportunities present around the southern periphery of the site. Piles of stones and log/brush piles in the semi-improved neutral grassland in the south of the survey area provide refugia/hibernacula.

Table 4.2: Summary of Species/Species Evidence Recorded on Site (continues)

Species/Group	Description
Aquatic mammals	The ditch in proximity to the pond provides some suitable habitat for aquatic mammals but lacks connectivity to other watercourses in the wider landscape. Therefore, it is considered to be sub-optimal for use by aquatic mammals.
Bats	There is potential for roosting bats in buildings and trees within the survey area; more details are provided within the updated Preliminary Bat Roost Assessment (PRA), please refer to report RT-MME-160474-03 Rev A. The woodlands, dense scrub, lines of trees and hedgerows were all noted to provide excellent foraging/dispersal opportunities for bats across the site and along the western and southern boundaries. The neutral grassland to the south with scattered scrub and trees along with the pond provide good foraging habitat. The habitats on site also provide suitable commuting corridor to further suitable habitats in the wider landscape.
Badger	The site is surrounded by mesh fencing; however, a mammal push-under was detected in the south-west of the site (Feature 3), with a trail leading up through the scrub towards the pond. The habitat within the patch of broad-leaved woodland on site provides suitable sett-building and foraging opportunities for badgers. The semi-improved neutral grassland to the south provides suitable foraging and dispersal opportunities.
Birds	The site offers suitable nesting and foraging habitat for a range of common and generalist bird species, as well as hedgerow and scrub specialists. Few birds were observed on site during heavy rain, but species observed included: kestrel <i>Falco tinnunculus</i> , magpie <i>Pica pica</i> , carrion crow <i>Corvus corone</i> and wood pigeon <i>Columba palumbus</i> .
Invertebrates	The woodland, grassland, hedgerow, pond, ditch, dense and scattered scrub habitats are suitable to support a range of common and widespread terrestrial and aquatic invertebrates.
Other mammals	The woodland, scrub, and hedgerow habitats on site offer suitable foraging and refuge opportunities for small mammals, although mesh fencing surrounding the current boundary will prevent some terrestrial mammals from entering the zoo grounds. The grassland, scrub, brash/log piles and hedgerow in the south of the survey area lie beyond the mesh fencing and offer suitable foraging and refuge opportunities for hedgehogs <i>Erinaceus europaeus</i> and rabbits <i>Oryctolagus cuniculus</i> , with connectivity to further habitat within the wider landscape. Rabbits were observed on site.
Reptiles	The pond, grasslands, scrub, brash/log piles and hedgerow in the south and west of the survey area offer suitable foraging and refuge opportunities for reptiles. The active zoo area is considered sub-optimal due to the intensive management of habitats and high levels of human disturbance.

Table 4.2 (continued): Summary of Species/Species Evidence Recorded on Site

4.4 Invasive Species

No plant invasive species were recorded on site.

5. Preliminary Evaluation

5.1 Landscape Initiatives

No landscape initiatives have been identified and are therefore not a material consideration.

5.2 Nature Conservation Sites

European Statutory Sites

In accordance with the Conservation of Habitats and Species Regulations 2017 (As amended) all European Sites have the potential to be a material consideration for a proposed development where there is potential direct or indirect connectivity between the development site and the feature for which the European site is designated. River Mease SAC/SSSI is located within a 5 km radius of the site and so further assessment will be needed to establish any direct or indirect impacts to the SAC/SSSI as a result of the proposed development.

UK Statutory Sites

The site is located within the impact risk zone for River Mease SSSI. SSSI's are statutory nature conservation sites of national importance and therefore River Mease SSSI is capable of being a material consideration for the proposed development.

Non-Statutory Sites

Twycross Zoo Oak (cLWS) is the closest non-statutory site to the survey area, located 240 m north-east of the site, therefore this nature conservation site has the potential to be a notable consideration for the proposed development.

The remaining non-statutory sites are all located over 600 m from the survey area. Given the spatial separation between these sites and the survey area, it is considered unlikely that these nature conservation sites will be adversely impacted by the proposed works.

5.3 Habitats

An evaluation of the importance of each habitat recorded on site is summarised in Table 5.1.

Habitat Type	Material Consideration?	Rationale
Amenity grassland	No*	Amenity grassland is a common, widespread habitat with low ecological value, and it can easily be replaced.
Buildings	No	The buildings are considered to have low ecological value.
Dense scrub	No*	These habitats are quite extensive across the site and contribute to the structural and species diversity and overall 'biodiversity value' of the site. Furthermore, they provide connectivity between other habitats on site and the wider landscape.

Table 5.1: Preliminary Evaluation of Habitats (continues)

Habitat Type	Material Consideration?	Rationale
Ditch	Yes	Dry and wet ditches are important features which contribute to the diversity and overall structure of the site, they provide connectivity between various habitats and the wider landscape and can host a wide range of fauna and flora.
Fence	No	The fences do not provide any opportunities for biodiversity.
Hardstanding	No	The areas of hardstanding do not provide any opportunities for biodiversity.
Hedgerows	Yes	The hedgerows meet the Habitat of Principal Importance criteria and contribute to the habitat diversity and structure within the site. They provide connectivity to other habitats on site and within the wider landscape.
Introduced shrub	No*	The introduced shrub on site does not qualify as a Habitat of Principal Importance. As it contains non-native species and its purpose is ornamental, it is considered to be of low ecological value and can easily be replaced. However, it does contribute to the structural and species diversity and overall 'biodiversity value' of the site.
Line of conifers	No	Non-native trees with limited biodiversity value.
Line of trees/ scattered trees	Yes	The scattered trees increase habitat structure and micro-habitat diversity across the site. The semi-mature and mature trees are also of intrinsic ecological value as they cannot be easily replaced in the short to medium term.
Other habitats: animal enclosures, bare ground	No*	These habitats contain common and ornamental species along with extensive amounts of bare ground, which are considered to be of low ecological value and can easily be replaced. However, they contribute to the structural and species diversity and overall 'biodiversity value' of the site.
Plantation broad-leaved woodland	Yes	Plantation broad-leaved woodland contributes to the structural and species diversity and overall biodiversity value of the site. It also provides connectivity to the wider landscape and support a wide range of faunal species.
Plantation coniferous woodland	Yes	This habitat contributes to the structural and species diversity and overall biodiversity value of the site. It also provides connectivity to the wider landscape.
Pond	Yes	It is not known if the pond on site qualifies as a Habitat of Principal Importance, however ponds are rich in biodiversity. Relative to their size, ponds hold a disproportionately high level of species richness, and often more biodiversity than larger ecosystems such as rivers and lakes. They also provide an essential source of water to terrestrial wildlife and flying insects.

Table 5.1 (continued): Preliminary Evaluation of Habitats (continues)

Habitat Type	Material Consideration?	Rationale
Poor semi-improved grassland	No*	The poor semi-improved neutral grassland on site does not qualify as a Habitat of Principal Importance and contains common, widespread species. However, it contributes to the habitat structure and overall biodiversity of the site and can be host to a range of faunal species.
Semi-improved neutral grassland	No*	The semi-improved neutral grassland on site does not qualify as a Habitat of Principal Importance and contains common, widespread species. However, it contributes to the habitat structure and overall biodiversity of the site and can be host to a range of faunal species.
Scattered scrub	No*	The scattered scrub on site contains common species that are well represented locally and can be easily recreated post development. In addition, it is not a Habitats of Principal Importance or Local BAP habitat. However, these habitats do contribute to the structural and species diversity and overall 'biodiversity value' of the site.
Wall	No	The walls do not provide any opportunities for biodiversity.
Key: *All habitats have the capacity to be important in the context of the site as they contribute to the overall biodiversity value of the site when quantified using a biodiversity metric tool. For example, habitats of high quality and those of low quality with a high spatial coverage can still be of intrinsic importance for achieving biodiversity net gain targets irrespective of whether they are a material consideration (refer to Section 2.3) or not.		

Table 5.1 (continued): Preliminary Evaluation of Habitats

5.4 Protected / Notable Species

An evaluation of the potential presence of protected / notable species on site is summarised in Table 5.2.

Species/Species Group	Material Consideration?	Rationale
Amphibians	Yes*	The site contains a pond considered suitable for use by amphibians as well as adjacent suitable terrestrial habitats. Good connectivity is also present between the pond on site and further ponds within the wider landscape which present suitable breeding and terrestrial habitats for all amphibians. There are records of four amphibian species within a 1 km radius, including great-crested newt and common toad which are Species of Principal Importance. All amphibians afford limited protection under the Wildlife and Countryside Act 1981 (as amended).

Table 5.2: Preliminary Evaluation of Species (continues)

Species/Species Group	Material Consideration?	Rationale
Aquatic mammals	No	There was no record of aquatic mammals within 1 km of the site. It is considered unlikely that aquatic mammals are present and using the proposed development area due to a lack of suitable habitat and high levels of human disturbance.
Badgers	Yes*	The desk study returned three records of badger within a 1 km radius of the survey site. The site contains suitable habitat in the form of woodland, scrub and grassland. Although no evidence of badger was noted during the survey, it is possible they may colonise the site prior to site mobilisation. Badgers and their setts are protected under the Protection of Badgers Act 1992.
Bats	Yes*	Bat roosting potential was present within the site. Refer to report RT-MME-160474-03 Rev A for further details. The site supports some excellent bat foraging and dispersal routes within and around the site peripheries and to the surrounding landscape. There are records of five bat species within a 1 km radius of the site with a notable commuting corridor afforded by the hedgerow network, which leads to further suitable habitats such as ancient woodlands. Several bat species are Species of Principal Importance, and all afford full protection under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). Bats are also part of the local biodiversity action plan.
Birds	Yes*	The site offers suitable habitat for a range of common and more notable bird species. All nesting birds afford protection under the Wildlife and Countryside Act 1981 (as amended) whilst in nest.
Invertebrates	No	The site offers suitable habitats for a range of common and widespread species of invertebrates.
Other mammals	Yes*	The site offers suitable habitat for hedgehog, which is a Species of Principal Importance and is afforded limited protection under the Wildlife and Countryside Act 1981 (as amended).
Reptiles	No	Although the site offers a large extent of suitable habitats for basking, foraging and refuge for reptiles. A single record of grass snake was provided in the desk study within 1 km of the survey area. The grassland which constitutes the main portion of suitable reptile habitat has only recently become suitable as it used to be intensively managed and used as a car park until late 2010s. Adjacent areas are dominated by intensively managed arable farmland and are considered unsuitable for reptiles.

Table 5.2 (continued): Preliminary Evaluation of Species (continues)

Species/Species Group	Material Consideration?	Rationale
Key: * Features assessed as material consideration based on available evidence such as existing records or habitat suitability. Conclusions should be evaluated if and when further information about the status of the species becomes available.		

Table 5.2 (continued): Preliminary Evaluation of Species

5.5 Invasive Species

The desk study returned no records of invasive plant species within a 1 km radius of the survey area. It should be noted that while invasive species were not identified at the time of survey, this should not be taken as confirmation that they are absent from site, therefore it cannot be excluded that invasive species are present in the survey area.

6. Preliminary Impact Assessment

6.1 Summary of Proposals

The proposed development is associated with the construction of a permanent National Science Conservation Centre, with classrooms, animal enclosures, lodges with associated hard and soft landscaping. This will involve the removal of the existing lemur and tufted deer enclosures, demolition of buildings and clearance of associated vegetation, including semi-mature trees and hedgerows. The pond on site is being retained.

Construction Phase

The following activities are likely to be associated with the proposed development during the construction phase.

- Site clearance and ground preparation;
- Use and movement of heavy goods vehicles and machinery;
- Storage of plant, materials and waste; and,
- Presence of and movement of site personnel.

Operational Phase

The following activities are likely to be associated with the operational phase of the proposed development.

- Permanent siting of buildings, structures and roads;
- Frequent movement of cars and other forms of transportation;
- Use of lighting associated with roads and buildings;
- Presence of and movement of site personnel; and,
- Maintenance of landscaping.

6.2 Landscape Initiatives

No landscape initiatives were present within the surrounding area and therefore no impacts are anticipated. However, associated landscaping as part of the proposed project should aim to provide suitable linkages with the surrounding landscape.

6.3 Nature Conservation Sites

European Statutory Sites

Further assessment work will be required to characterise the type and extent of the potential effects of the proposed development on River Mease SAC/SSSI.

UK Statutory Sites

The site is within the impact risk zone for River Mease SSSI; however, the proposed works do not fall within any of the Impact Risk categories. Due to the spatial separation between this site and the survey area, it is considered unlikely that the proposed works will have an adverse effect on this UK statutory site.

Non-Statutory Sites

Twycross Zoo Oak (cLWS) is the closest non-statutory site to the survey area, located 240 m north-east of the site. However, due to the location of the works and the nature of the intervening habitats, it is not anticipated that this nature conservation feature will be directly or indirectly impacted by the proposed works. The remaining non-statutory sites are all located over 600 m from the survey area. Therefore, it is considered unlikely that these nature conservation sites will be adversely impacted by the proposed works and no further assessment is required.

6.4 Habitats

Table 6.1 below summarises the potential impacts on habitat features that are likely to occur as a result of the construction and operational activities of the proposed development described in Section 6.1 above. Impacts are considered before mitigation. Only habitats considered to be a material consideration in the planning system are included in the impact assessment.

Habitat Type	Summary of Potential Impacts
Ditch	● Habitat loss and fragmentation ● Habitat damage or degradation during construction works, lighting or inappropriate post-construction landscape management
Hedgerows	● Habitat loss and fragmentation ● Habitat damage or degradation during construction works, lighting or inappropriate post-construction landscape management
Line of trees and scattered trees	● Habitat loss and fragmentation ● Habitat damage or degradation during construction works, lighting or inappropriate post-construction landscape management
Plantation broad-leaved woodland	● Habitat loss and fragmentation ● Habitat damage or degradation during construction works, lighting or inappropriate post-construction landscape management
Plantation coniferous woodland	● Habitat loss and fragmentation
Pond	● Contamination of the pond during construction ● Habitat damage or degradation during construction works, lighting or inappropriate post-construction landscape management

Table 6.1: Summary of Potential Impacts on Notable Habitats

6.5 Protected / Notable Species

Table 6.2 below summarises the potential impacts on species/species groups that are likely to occur as a result of the construction and operational activities of the proposed development described in Section 6.1 above. Only species/species groups considered to be a material consideration in the planning system are included in the impact assessment.

Species / Species Group	Summary of Potential Impacts
Amphibians	● Killing or injuring of great crested newt or damage/destruction of great crested newt habitat during construction phase – please refer to report RT-MME-160474-05 Rev A for further details ● Net loss of aquatic and terrestrial habitat opportunities for amphibians
Badgers	● Killing or injury of badger during construction phase ● Physical loss or fragmentation of badger foraging/dispersal habitat ● Habitat fragmentation, degradation or displacement of foraging routes due to light spill and increased human activity
Bats	● Killing or injury of bat and/or damage, disturbance or fragmentation of a bat roost during construction phase – please refer to report RT-MME-160474-03 Rev A for further details on potential impacts for bats ● Physical loss or fragmentation of bat foraging/dispersal habitat ● Habitat fragmentation, degradation or displacement of foraging routes due to light spill
Birds	● Killing or injury of nesting bird and/or damage, disturbance or fragmentation of a bird nest during construction phase ● Physical loss or fragmentation of open foraging habitat
Other mammals	● Killing or injury of hedgehog during construction phase ● Physical loss or fragmentation of hedgehog foraging/dispersal habitat ● Habitat fragmentation, degradation or displacement of foraging routes due to light spill and increased human activity

Table 6.2: Summary of Potential Impacts on Protected/Notable Species

6.6 Invasive Plant Species

No invasive plant species recorded within the boundary of the survey site. However, it is possible that invasive plants were present on site in a dormancy stage and therefore vigilance should be adopted regarding all invasive plant species.

7. Recommendations

All recommendations provided in this section are based on Middlemarch's current understanding of the site proposals, correct at the time the report was compiled. Should the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate.

R1 Habitats Regulations Assessment: The proposed development could potentially directly/ indirectly impact upon the River Mease which is designated as a SAC/SSSI. Please see report RT-MME-160474-01 for further details.

R2 Ecological Surveys: The Preliminary Ecological Appraisal has highlighted the presence or potential presence of a range of protected and notable species. It is recommended that the following species surveys are undertaken:

- Great Crested Newt – A Great Crested Newt Habitat Suitability Index Assessment has been undertaken. The results of this survey are detailed in report RT-MME-160474-05 Rev A.
- Bats – An updated Preliminary Bat Roost Assessment on all buildings and trees likely to be impacted by site proposals has been undertaken. The results of this survey are detailed in report RT-MME-160474-03 Rev A.
- Badger – Given the suitability of the on-site and adjacent habitats for badger there is a risk of this species colonising the site prior to works commencing. It is therefore recommended that a walkover of the site is undertaken prior to site mobilisation to determine the status of badger within the proposed development area.

All further ecological surveys should be undertaken in accordance with best practice methodologies, during the appropriate survey windows. Please refer to Appendix 3.

R3 Scheme Design: The proposed development should be designed in accordance with the ecological mitigation hierarchy as set out in the National Planning Policy Framework (NPPF), and the National Planning Practice Guidance (NPPG). The mitigation hierarchy requires all development schemes to apply the following principles:

- *Avoidance* – the proposed development should seek to avoid/minimise losses of ditches, pond, hedgerows, woodland and trees, in the first instance and incorporate these features in the landscaping layout of the scheme accordingly. This will help to further avoid and minimise impacts to protected and notable species.
- *Mitigation* – where significant harm cannot be wholly or partially avoided, adverse effects should be minimised by design or through the use of effective mitigation measures such as minimising light spill.
- *Compensation* – where unavoidable losses occur and mitigation cannot be provided, compensation for significant residual harm will be required as a last resort or planning permission could be refused. Compensation should include the remediation of lost habitats and/or connectivity, the creation of new habitats of ecological value taking into account local species action plans of the existing Leicester, Leicestershire and Rutland Biodiversity Action Plan 2016-2026 and providing novel compensation solutions to minimise effects on protected or notable species to ensure compliance with UK wildlife legislation.

In accordance with the principles of the Environment Act 2021 the development should also secure an overall net gain for biodiversity. Biodiversity Net Gain is a planning process that aims to leave biodiversity on site in a better state than it was before, going beyond solely avoiding, mitigating and compensating adverse effect on biodiversity and actively seeking to enhance the site's biodiversity value overall. A Biodiversity Metric tool should be used to help guide and quantify the baseline and proposed value of the scheme.

R4 Construction Ecological Management Plan (CEcMP): A Construction Ecological Management Plan should be produced for the site setting out the safeguards and appropriate working practices that will be employed to minimise adverse effects on biodiversity and ensure compliance with UK Wildlife Legislation. The details of the CEcMP will be informed by the final site design and ongoing ecological survey works but should include as a minimum:

- Development standoffs and safeguards for all retained habitats,
- Construction timetables to avoid sensitive periods such as nesting bird season,
- Vigilance regarding potential presence of invasive species,
- Vegetation management measures to minimise the risk to protected or notable species; and,
- Compliance with any specific mitigation measures that will be required to acquire a Development Licence for works affecting protected species.

The CEcMP should be submitted to the Local Planning Authority for Approval and implemented in full thereafter.

R5 Landscape and Ecology Management Plan (LEMP): A Landscape and Ecology Management Plan should be produced setting out the detailed establishment and management of all on site compensation and enhancement measures. In accordance with Biodiversity Net Gain Best Practice Principles, and the principles of the Environment Act 2021, the LEMP should cover a period of 30 years from the date of commencement with provisions for long-term monitoring and contingency actions linked to the Biodiversity Net Gain objectives of the project.

The LEMP should be submitted to the Local Planning Authority for approval (typically to discharge planning conditions) and should be implemented in full thereafter.

8. Drawings

Drawing C160474-02-01 Rev A – Phase 1 Habitat Map



Legend

- Site boundary
- Scattered scrub
- Scattered tree
- Dry ditch
- Fence
- Line of broad-leaved trees
- Line of coniferous trees
- Species-poor intact hedgerow
- Species-rich intact hedgerow
- Wet ditch
- Wall
- Amenity grassland
- Bare ground
- Building
- Dense scrub
- Hardstanding
- Introduced shrub
- No access
- Other habitat
- Plantation broad-leaved woodland
- Plantation coniferous woodland
- Poor semi-improved grassland
- Semi-improved neutral grassland
- Standing water
- Target note (feature)
- Target note (habitat)

Project	Twycross Zoo		
Drawing	Phase 1 Habitat Map		
Client	Baker Mallett c/o Twycross Zoo		
Drawing Number	C160474-02-01-RevA	Revision	Rev A
Scale @ A3	1:700	Date	October 2023
Approved By	CH	Drawn By	BD
 MIDDLEMARCH			
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C160474-02-01-RevA

The following tables include full habitat descriptions and summarise the condition assessment for habitats and hedgerows using Panks *et al.*(2022)³.

Area Habitat				Condition Sheet Criteria Score																
Polygon / Line Ref.	Phase 1 Habitat Type	UK Hab Habitat Equivalent	Habitat Description	Condition Sheet Used	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	Total Score	Condition Assessment	
TN1	Plantation broad-leaved woodland	Other broad-leaved woodland w1g7	Small area of broadleaved plantation woodland located in the south-west corner of the current zoo boundary. The trees are a mixture of semi-mature field maple <i>Acer campestre</i> and early-mature white poplar <i>Populus alba</i> . A narrow path ran round the southern boundary of the woodland and turned northwards, to run alongside the line of conifers. The woodland had a dense understorey, species present included hawthorn <i>Crataegus monogyna</i> , hazel <i>Corylus avellana</i> , field maple, ivy <i>Hedera helix</i> , elder <i>Sambucus nigra</i> , holly <i>Ilex aquifolium</i> , sycamore <i>Acer pseudoplatanus</i> , goat willow <i>Salix caprea</i> , clematis <i>Clematis</i> sp., ash <i>Fraxinus excelsior</i> , bramble <i>Rubus fruticosus</i> agg. and rose <i>Rosa</i> spp.	Woodland	2	3	3	3	3	3	2	3	1	2	1	1	3	30	Moderate	
TN2	Line of trees	Line of trees w1g6	Two rows of hornbeam <i>Carpinus betulus</i> approximately 5.5 m high planted on amenity grass either side of hardstanding path, just to west of lemur walkthrough.	Line of trees	P	F	F	F	P	-	-	-	-	-	-	-	-	2	Poor	
TN3	Line of conifers	Line of trees w1g6	A line of Leyland cypresses <i>Cupressus leylandii</i> of approximately 13 m high formed a border for around two thirds of the western red line boundary.	Line of trees	F	P	F	F	P	-	-	-	-	-	-	-	-	2	Poor	
TN4	Species-rich hedgerow	Line of trees w1g6	The line of cypress on the western red line boundary is succeeded by an overgrown hedge, which is becoming a line of trees comprising hawthorn, sycamore, holly, horse chestnut <i>Aesculus hippocastanum</i> , elder and ash.	Line of trees	P	P	F	F	P	-	-	-	-	-	-	-	-	3	Moderate	
TN5	Plantation coniferous woodland	Other coniferous woodland w2c	Planted feature on the east of the lemur walk through, comprising mostly Scots Pine <i>Pinus sylvestris</i> ; other species included cypress, Wilson's honeysuckle <i>Lonicera nitida</i> , hazel, bramble, sycamore, hornbeam, cockspur hawthorn <i>Crataegus crus-galli</i> , dogwood <i>Cornus sanguinea</i> , ash and some planted pampas grass <i>Cortaderia selloana</i> .	Woodland	2	3	3	3	2	3	2	3	1	2	1	1	2	28	Moderate	
TN6	Dense scrub	Dense scrub h3	Dense scrub on the western and north-western red line boundary, comprised mostly bramble, but also included English oak <i>Quercus robur</i> , willow <i>Salix</i> sp., nettle <i>Urtica dioica</i> , teasel <i>Dipsacus fullonum</i> , sycamore, butterfly bush <i>Buddleia davidii</i> , willowherb <i>Epilobium</i> sp., mugwort <i>Artemisia vulgaris</i> , broadleaf dock <i>Rumex obtusifolius</i> , silver birch <i>Betula pendula</i> , vetch <i>Vicia</i> sp., black medick <i>Medicago lupulina</i> , perforated st John's wort <i>Hypericum perforatum</i> , bamboo <i>Bambusa</i> sp., bulrush <i>Typha latifolia</i> , gorse <i>Ulex europaeus</i> and broom <i>Cytisus scoparius</i> .	Scrub	P	F	F	P	F	-	-	-	-	-	-	-	-	2	Poor	
TN7	Wet ditch	Ditch r1	Ditch containing water within the dense scrub to the west, plant species in the ditch and on the banks included bulrush <i>Typha latifolia</i> , willow, great willowherb <i>Epilobium hirsutum</i> , teasel, fleabane <i>Pulicaria dysenterica</i> and ragwort <i>Senecio jacobaea</i> .	Ditch	P	F	P	P	P	F	P	P	-	-	-	-	-	6	Moderate	
TN8	Pond	Pond r1	Man-made pond in the south-west containing water, vegetation in the pond and along the banks included teasel, yarrow <i>Achillea millefolium</i> , bulrush, willow and creeping thistle <i>Cirsium arvense</i> .	Pond	P	F	P	P	P	P	P	P	F	-	-	-	-	8	Moderate	
TN10	Dense scrub	Dense scrub h3	Dense scrub along the southern boundary of current zoo, extends across the area to the west of the tufted deer enclosures. Species present was mostly bramble, but also included elder, cow parsley	Scrub	F	F	P	F	F	-	-	-	-	-	-	-	-	1	Poor	

Area Habitat				Condition Sheet Criteria Score														Total Score	Condition Assessment
Polygon / Line Ref.	Phase 1 Habitat Type	UK Hab Habitat Equivalent	Habitat Description	Condition Sheet Used	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13		
			<i>Anthriscus sylvestris</i> , nettle and ivy. It contained some standing deadwood (Feature 1).																
TN13	Amenity grassland	Modified grassland g4	The grassland immediately east of the ditch, towards the north-west of the survey area was characterised by abundant perennial rye-grass <i>Lolium perenne</i> , frequent creeping buttercup <i>Ranunculus repens</i> , white clover <i>Trifolium repens</i> , fescue <i>Festuca</i> sp., bristly oxtongue <i>Helminthotheca echioides</i> , ribwort plantain <i>Plantago lanceolata</i> , broadleaf dock, yarrow, cut-leaf crane's-bill <i>Geranium dissectum</i> , creeping thistle, vetch, dove's-foot crane's-bill <i>Geranium molle</i> and dandelion <i>Taraxacum officinale</i> agg.	Grassland low distinctive-ness	F	F	P	P	P	P	P	-	-	-	-	-	-	5	Moderate
TN14	Amenity grassland	Modified grassland g4	All the areas of grassland in between paths and animal enclosures were closely mown amenity grassland. Species included perennial rye-grass, creeping buttercup, creeping thistle, yarrow, nettle and abundant white clover. Grassland also contained moss species.	Grassland low distinctive-ness	F	F	P	F	P	P	P	-	-	-	-	-	-	4	Poor
TN15	Amenity grassland	Modified grassland g4	Amenity grassland within the lemur walkthrough is closely mown, intersected by hardstanding paths and coniferous plantation, and had numerous wooden post structures, platforms, stumps and standing deadwood (Feature 5). Ground flora contained a large proportion of moss species. Other species included perennial rye-grass, fescue, creeping buttercup, creeping thistle, white clover and nettle with some small palm trees too.	Grassland low distinctive-ness	F	F	P	F	F	P	P	-	-	-	-	-	-	3	Poor
TN16	Bare ground	Bare ground	Path leading around the tufted deer enclosures along the south of the existing zoo boundary, heavily used bare ground.	Urban	F	F	P	-	-	-	-	-	-	-	-	-	-	1	Poor
TN17	Plantation broad-leaved woodland	Other broad-leaved woodland w1g7	Thirty early-mature to mature, hybrid black poplars <i>Populus nigra</i> subsp. situated close together in the tufted deer enclosures forming a plantation woodland, one had recently been felled (Feature 8: tree stump). There was no scrub layer, the ground layer consisted of patchy grass and bare ground, bark chippings, tree stumps and some deadwood.	Woodland	1	1	3	1	1	3	2	3	1	1	1	1	3	22	Poor
TN18	Other habitat	Modified grassland g4	Ground within primate enclosure, included bare ground, bark chippings and common and introduced grass species.	Grassland low distinctive-ness	F	F	P	F	F	P	P	-	-	-	-	-	-	3	Poor
TN19	Semi-improved neutral grassland	Other neutral grassland g3	Semi-improved neutral grassland was to the south of the current zoo boundary. Interspersed with scattered scrub and trees, species included timothy grass <i>Phleum pratense</i> , broadleaf dock, teasel, creeping buttercup, creeping thistle, nettle, perennial rye-grass, dandelion, cleavers <i>Galium aparine</i> , ragwort, white clover, cock's foot <i>Dactylus glomerata</i> , yarrow, cow parsley, vetch, dove's foot crane's-bill, willowherb, bristly oxtongue and moss species. On the day of the original survey, the grassland was very wet in parts, with a long, shallow, damp depression running almost parallel and just north of the lower path (Feature 4). This seemed to be an old path with stone strips on either side (Feature 3). This narrow and wet area contained species such as soft rush <i>Juncus effusus</i> , with puddles of water scattered along. The grassland also contained scattered brash piles (Feature 6). Towards the south-west corner was a mound of bare earth with little colonising vegetation (Feature 7).	Grassland Medium distinctive-ness	P	P	P	P	F	F	-	-	-	-	-	-	-	4	Moderate

Area Habitat				Condition Sheet Criteria Score																
Polygon / Line Ref.	Phase 1 Habitat Type	UK Hab Habitat Equivalent	Habitat Description	Condition Sheet Used	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	Total Score	Condition Assessment	
TN20	Scattered scrub	Scattered scrub	Scattered scrub of English oak, elder, bramble, black walnut <i>Juglans nigra</i> , willow and field maple were interspersed across the semi-improved neutral grassland (TN19), and particularly either side of the lower former path.	Assessed within TN19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A	
TN22	Hardstanding	Developed land, sealed surface u1b	Hardstanding pathways made of tarmac, concrete or hardened earth and pebbles.	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A	
TN23	Building	Buildings u1b5	Several buildings on site including the Lemur house and small wooden sheds.	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A	
TN24	Plantation broad-leaved woodland	Other broad-leaved woodland; w1g7	Small recently planted woodland in the north-east corner including field maple, hazel <i>Corylus avellana</i> , silver birch, spindle <i>Euonymus europaeus</i> , blackthorn <i>Prunus spinosa</i> and dogwood.	Woodland	1	3	3	3	3	3	1	3	1	1	1	1	2	26	Moderate	
TN25	Fence	Built linear feature	Various fences across the site. The general zoo boundary fence was about 2 m high. A mammal push-under was present along the mesh fence in the south-west corner with mammal path toward the pond visible (Feature 2). Other fences included wooden posts and wooden palisade.	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A	
TN26	Scattered trees	Scattered tree	Semi-mature field maple: one of the scattered trees across the site within grasslands and hedgerows (T12).	Individual trees	P	P	F	P	P	P	-	-	-	-	-	-	-	5	Good	
TN27	Scattered trees	Scattered tree	Early-mature oak tree: one of the scattered trees across the site within grasslands and hedgerows (T13).	Individual trees	P	P	F	P	P	P	-	-	-	-	-	-	-	5	Good	
TN28	Scattered trees	Scattered tree	Scattered red oak <i>Quercus rubra</i> trees (T16, T17 and T18).	Individual trees	F	P	F	P	F	P	-	-	-	-	-	-	-	3	Moderate	
TN29	Scattered trees	Scattered tree	Early-mature, multi-stemmed hawthorn <i>Crataegus monogyna</i> : one of the scattered trees across the site within grasslands and hedgerows (T19).	Individual trees	P	P	F	P	P	P	-	-	-	-	-	-	-	5	Good	
TN30	Scattered trees	Scattered tree	Early-mature, multi-stemmed ash tree: one of the scattered trees across the site within grasslands and hedgerows (T20).	Individual trees	P	P	F	P	P	P	-	-	-	-	-	-	-	5	Good	
TN31	Scattered trees	Scattered tree	Mature ash tree with apical and lateral dieback, but offering conservation value to wildlife (T21).	Individual trees	P	P	P	P	P	P	-	-	-	-	-	-	-	6	Good	
TN32	Scattered trees	Scattered tree	Mature hybrid black poplar <i>Populus nigra</i> subsp.: one of the scattered trees across the site within grasslands and hedgerows (T22).	Individual trees	F	P	P	P	P	P	-	-	-	-	-	-	-	5	Good	
TN33	Scattered trees	Scattered tree	Two semi-mature field maples: one of the scattered trees across the site within grasslands and hedgerows (T23 & T24).	Individual trees	P	P	F	F	P	P	-	-	-	-	-	-	-	4	Moderate	
TN34	Scattered trees	Scattered tree	Small cherry tree <i>Prunus avium</i> : one of the scattered trees across the site within grasslands and hedgerows.	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A	
TN35	Scattered trees	Scattered tree	Mature hybrid black poplar with some visible storm damage and minor dead wood in the crown: one of the scattered trees across the site within grasslands and hedgerows (T25).	Individual trees	F	P	P	P	P	P	-	-	-	-	-	-	-	5	Good	
TN36	Scattered trees	Scattered tree	Early mature beech <i>Fagus sylvatica</i> : one of the scattered trees across the site within grasslands and hedgerows (T26).	Individual trees	P	P	F	P	P	P	-	-	-	-	-	-	-	5	Good	

Area Habitat			Condition Sheet Criteria Score																
Polygon / Line Ref.	Phase 1 Habitat Type	UK Hab Habitat Equivalent	Habitat Description	Condition Sheet Used	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	Total Score	Condition Assessment
TN37	Dense scrub	Dense scrub h3	Two small areas of dense scrub in the south of the neutral grassland (TN19), species included bramble, field maple, ash, hawthorn and English oak.	Scrub	P	F	P	P	F	-	-	-	-	-	-	-	-	3	Moderate
TN38	Poor semi-improved grassland	Other neutral grassland	Small strips of poor semi-improved grassland around the tiger enclosure, seemed unmanaged. Species included fescue, nettle, cow parsley, broadleaf dock, perennial rye-grass, white clover, vetch, dandelion, ragwort and cock's foot.	Grassland Medium distinctive-ness	F	P	P	P	F	F	-	-	-	-	-	-	-	3	Poor
TN39	Introduced shrub	Introduced shrub	Small areas of introduced shrub present near the tiger enclosure, species included bamboo, paperplant <i>Fatsia japonica</i> , European fan palm <i>Chamaerops humilis</i> and other ornamental species.	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
TN41	Wall	Built linear feature	Some brick walls and a tall concrete wall were present around some enclosures.	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
TN42	Dense scrub	Dense scrub h3	Small area of dense scrub just south of the tiger enclosure, species included beech, bramble, hybrid black poplar, wild cherry, elder, holly, nettle and broadleaf dock.	Scrub	P	F	P	F	F	-	-	-	-	-	-	-	-	2	Poor
TN43	Dense scrub	Dense scrub h3	Small area of managed dogwood scrub along the northern site boundary.	Scrub	F	F	P	F	F	-	-	-	-	-	-	-	-	1	Poor
TN44	Scattered trees	Scattered tree	Three semi- to early-mature field maples with dense ivy on the stems and crown (G6).	Individual trees	P	P	F	P	P	P	-	-	-	-	-	-	-	5	Good
TN45	Scattered trees	Scattered tree	Four semi- to early-mature cherry trees with sparse foliage on some branches (G10).	Individual trees	P	F	F	F	P	P	-	-	-	-	-	-	-	3	Moderate
TN46	Scattered trees	Scattered tree	Two semi- to early-mature ash trees with conjoined canopy and light ivy on stems and crown (G12).	Individual trees	P	P	F	P	P	P	-	-	-	-	-	-	-	5	Good
TN47	Scattered trees	Scattered tree	Semi- to early-mature English oak and sycamore (G13).	Individual trees	P	P	F	P	P	P	-	-	-	-	-	-	-	5	Good
TN48	Scattered trees	Scattered tree	Semi-mature whitebeam <i>Sorbus aria</i> : one of the scattered trees across the site within grasslands and hedgerows.	Individual trees	P	F	F	P	P	P	-	-	-	-	-	-	-	4	Moderate
TN49	Scattered trees	Scattered tree	Small group of six young, black poplar trees.	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
Key: P – Criteria passed F – Criteria failed <u>Woodland Condition Assessment</u> 3 (points) = Good 2 (points) = Moderate 1 (point) = Poor Total Score: >32 = Good 26-32 = Moderate <26 = Poor																			

Table 8.1: Habitat Descriptions and Condition Assessments

Hedgerows				Condition Sheet Criteria Score										Condition Assessment
Ref.	Phase 1 Habitat Type	UK Hab Habitat Equivalent	Description	A1	A2	B1	B2	C1	C2	D1	D2	E1*	E2*	
TN9	Species-poor hedgerow	Native Hedgerow h2a	Hedgerows along the tufted deer enclosure area. These hedgerows were dominated by beech, but also included elder, bramble, ivy, holly and field maple.	F	F	P	P	F	P	P	P	-	-	Moderate
TN11	Species-rich hedgerow	Native Species-rich Hedgerow h2a	Commencing from the southwest corner and running along the southern edge of the existing zoo boundary, the hedge was overgrown with scrub at the south and interrupted by one gate entrance. It included a ditch feature along its northern side, part of it was wet at the time of survey. It had some semi-mature to mature scattered trees within. Species included oak, ash, dog rose <i>Rosa canina</i> , hawthorn, blackthorn, field maple, hazel, holly, bramble, elder, wild service tree <i>Sorbus torminalis</i> , sycamore, hazel and a patch of gorse <i>Ulex europaeus</i> . Parallel with the tufted deer enclosures, the hedge became more overgrown.	P	P	P	P	P	P	P	P	-	-	Good
TN12	Species-rich hedgerow	Native species-rich hedgerow h2a	Extending along the southern boundary of the survey area, the hedge was composed of hawthorn, ash, ivy, holly, elder and blackthorn.	P	P	F	P	P	P	P	P	-	-	Good
TN21	Species-rich hedgerow	Native species-rich hedgerow h2a	Recently planted hedge in the north-eastern corner of the survey area, species included dogwood, hawthorn, field maple, blackthorn, elder and hazel.	F	F	F	F	F	P	P	P	-	-	Poor
Key: *Applicable to hedgerows with trees only														

Table 8.2: Hedgerow Descriptions and Condition Assessments

9. Photographs



Plate 9.1: Plantation broad-leaved woodland (TN1)

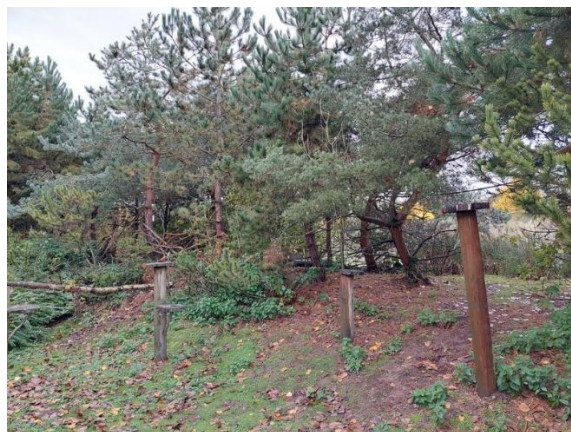


Plate 9.2: Plantation coniferous woodland (TN5)



Plate 9.3: Amenity grassland (TN13), dense scrub (TN6), line of cypresses (TN3) and hedgerow (TN4)



Plate 9.4: Ditch (TN7), dense scrub (TN6) and hedgerow (TN4)



Plate 9.5: Pond (TN8)



Plate 9.6: Hedge (TN9), amenity grassland (TN14), plantation woodland (TN17) and scattered trees (TN49 and 32)



Plate 9.7: Dense scrub (TN10) with standing dead wood (F1)

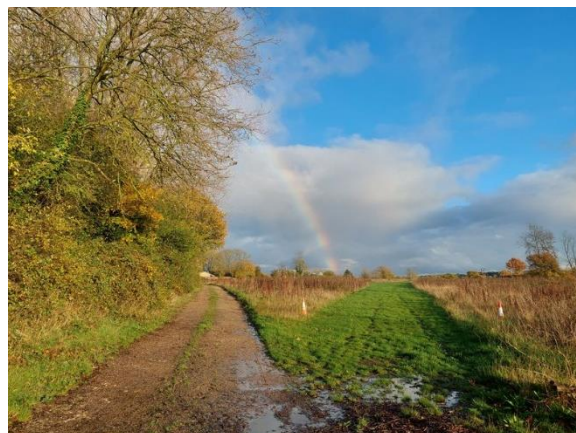


Plate 9.8: Hedge (TN11), semi-improved neutral grassland (TN19)



Plate 9.9: Plantation broad-leaved woodland (TN17) and building (TN23)



Plate 9.10: Amenity grassland in the lemur walkthrough (TN15, F5) and line of trees (TN2)



Plate 9.11: Semi-improved neutral grassland (TN19)



Plate 9.12: Wet area of grassland with stones (TN19, F3 and F4)



Plate 9.13: Introduced shrub (TN39)



Plate 9.14: Dense scrub (TN6) and line of trees (TN3)



Plate 9.15: Wall (TN41)



Plate 9.16: Amenity grassland (TN13) and dense scrub (TN43)



Plate 9.17: Introduced shrub (TN39), building (TN23), fence (TN25) and wall (TN41)



Plate 9.18: Poor semi-improved grassland (TN38) and fence (TN25)

Appendix 1

General Biodiversity Legislation and Policy

The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations 2017) and the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (the Habitats Regulations 2019)

The Habitats Regulations 2017 (as amended) transposed the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) (known as the Nature Directives) into English and Welsh law. Changes have been made to parts of the Habitats Regulations 2017 so that they operate effectively from 1 January 2021. The changes are made by the Habitats Regulations 2019, which transfer functions from the European Commission to the appropriate authorities in England and Wales.

All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

The obligations of a competent authority in the 2017 Regulations for the protection of sites or species do not change. A competent authority is a public body, statutory undertaker, minister or department of government, or anyone holding public office.

The Habitats Regulations 2019 have created a 'National Site Network' on land and at sea, including both the inshore and offshore marine areas in the UK. The National Site Network includes:

- Existing Special Areas of Conservation (SACs), which are designated due to their importance to the habitats and species listed in Annexes I and II of the Habitats Directive;
- Existing Special Protection Areas (SPAs), which are designated due to their importance for wild birds in accordance with the Wild Birds Directive; and,
- New SACs and SPAs designated under these Regulations.

SACs and SPAs in the UK no longer form part of the European Union's Natura 2000 ecological network. Any references to Natura 2000 in the 2017 Regulations and in guidance now refers to the new National Site Network. However, guidance provided by Freeths (2020)⁴ recommends that SACs and SPAs can continue to be referred to as "European sites" / "European marine sites".

Designated Wetlands of International Importance (known as Ramsar sites) do not form part of the National Site Network. Many Ramsar sites overlap with SACs and SPAs and may be designated for the same or different species and habitats. All Ramsar sites remain protected in the same way as SACs and SPAs.

The 2019 Regulations establish management objectives for the National Site Network. The network objectives are to:

- Maintain or, where appropriate, restore habitats and species listed in Annexes I and II of the Habitats Directive to a favourable conservation status; and,

⁴ Freeths (2020). *The Habitats Regulations Assessment regime after 31 December 2020 – how will it look?* Available: <https://www.freeths.co.uk/2020/10/22/the-habitats-regulations-assessment-regime-after-31-december-2020-how-will-it-look/?cmpredirect>

- Contribute to ensuring, in their area of distribution, the survival and reproduction of wild birds and securing compliance with the overarching aims of the Wild Birds Directive.

The appropriate authorities must also have regard to the:

- Importance of protected sites;
- Coherence of the National Site Network; and,
- Threats of degradation or destruction (including deterioration and disturbance of protected features) on SPAs and SACs.

The network objectives contribute to the conservation of UK habitats and species that are also of pan-European importance, and to the achievement of their favourable conservation status within the UK.

The Wildlife and Countryside Act (WCA) 1981 (as amended)

The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Habitat Regulations 2017 and the Habitats Regulations 2019, offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).

Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species.

The Countryside and Rights of Way (CROW) Act 2000

The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife legislation detailed in the WCA. It places a duty on government departments and the National Assembly for Wales to have regard for biodiversity, and provides increased powers for the protection and maintenance of SSSIs. The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

The Natural Environment and Rural Communities (NERC) Act 2006

Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all of their functions. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity. These lists superseded Section 74 of the CROW Act 2000.

The Hedgerow Regulations 1997

The Hedgerow Regulations make provision for the identification of important hedgerows which may not be removed without permission from the Local Planning Authority.

Species and Habitats of Material Consideration for Planning in England

Previous planning policy (and some supporting guidance which is still current, e.g. ODPM Circular 06/2005, now under revision), refers to UK BAP habitats and species as being a material consideration in the planning process. Equally many local plans refer to BAP priority habitats and species. Both remain as material considerations in the planning process but such habitats and species are now described as Species and Habitats of Principal Importance for Conservation in England, or simply priority habitats and priority species under the UK Post-2010 Biodiversity Framework. The list of habitats and species remains unchanged and is still derived from Section

41 list of the Natural Environmental and Rural Communities (NERC) Act 2006. As was previously the case when it was a BAP priority species hen harrier continues to be regarded as a priority species although it does not appear on the Section 41 list.

National Planning Policy Framework and Practice Guidance

In July 2021, the National Planning Policy Framework (NPPF) was updated, replacing the previous framework published in 2012 and revised in 2018 and 2019. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives.

Chapter 15, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by:

- protecting and enhancing existing sites of biodiversity value;
- minimising impacts on and providing net gains for biodiversity; and,
- establishing coherent ecological networks.

If a proposed development would result in significant harm to the natural environment which cannot be avoided (through the use of an alternative site with less harmful impacts), mitigated or compensated for (as a last resort) then planning permission should be refused. With respect to development on land within or outside of a Site of Special Scientific Interest (SSSI) which is likely to have an adverse effect (either alone or in-combination with other developments) would only be permitted where the benefits of the proposed development clearly outweigh the impacts on the SSSI itself, and the wider network of SSSIs. Development resulting in the loss of deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused unless there are wholly exceptional reasons for the development, and a suitable compensation strategy is provided.

Chapter 15 identifies that development whose primary objective is to conserve or enhance biodiversity should be supported and 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.

Chapter 11, making effective use of the land, sets out how the planning system should promote use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. Substantial weight should be given to the value of using suitable brownfield land within settlements for homes and other identified needs. Opportunities for achieving net environmental gains, including new habitat creation, are encouraged.

In March 2014 the Department for Communities and Local Government released guidance to support the National Planning Policy Framework (NPPF), known as the National Planning Practice Guidance (NPPG). This has been produced to provide guidance for planners and communities which will help deliver high quality development and sustainable growth in England.

The guidance includes a section entitled 'Natural Environment: Biodiversity, geodiversity and ecosystems and green infrastructure', which was updated in July 2019. This document sets out information with respect to the following:

- the statutory basis for seeking to conserve and enhance biodiversity;
- the local planning authority's requirements for planning for biodiversity;
- what local ecological networks are and how to identify and map them;

- how plan-making bodies identify and safeguard Local Wildlife Sites, including Standard Criteria for Local Wildlife Sites;
- the sources of ecological evidence;
- the legal obligations on local planning authorities and developers regarding statutory designated sites and protected species;
- definition of green infrastructure;
- where biodiversity should be taken into account in preparing a planning application;
- how policy should be applied to avoid, mitigate or compensate for significant harm to biodiversity and how mitigation and compensation measures can be ensured;
- definitions of biodiversity net gain including information on how it can be achieved and assessed; and,
- the consideration of ancient woodlands and veteran trees in planning decisions and how potential impacts can be assessed.

The NPPG July 2019 issue also includes a section entitled 'Appropriate assessment: Guidance on the use of Habitats Regulations Assessment' which provides information in relation to Habitats Regulations Assessment processes, contents and approaches in light of case law. This guidance will be relevant to those projects and plans which have the potential to impact on European Sites and European Offshore Marine Sites identified under the Conservation of Habitats and Species Regulations 2017 (as amended).

Local Planning Policy Hinckley and Bosworth Borough Council

Local Plan 2006-2026

The Local Plan 2006-2026 consists of a series of documents that set out detailed policies and specific proposals for guiding future development within the borough up to 2026. The documents include Development Plan Documents (DPDs) which outline the council's policies and carry the most weight for making decisions on planning applications. The documents also include Supplementary Planning Documents (SPDs) which provide further details to the policies.

Core Strategy DPD

The Core Strategy was adopted in December 2009 and is the key strategic document in Local Plan (2006-2026). The Core Strategy sets out the overarching strategy and core policies to guide the future development of the borough up to 2026. None of the policies within the Core Strategy refer to ecology.

Site Allocations and Development Management Policies DPD

The Site Allocations and Development Management Policies Development Plan was formally adopted on the 12th July 2016. The Site Allocations and Development Management Policies Document (DPD) allocates land to deliver the development requirements outlined in the Core Strategy. In addition, it also includes development management policies which apply across the borough and which will be used when determining planning applications. The policies which refer to ecology are:

DM6 Enhancement of Biodiversity and Geological Interest

Development proposals must demonstrate how they conserve and enhance features of nature conservation and geological value including proposals for their long term future management.

Major developments in particular must include measures to deliver biodiversity gains through opportunities to restore, enhance and create valuable habitats, ecological networks and ecosystem services. Proposals where the primary objective is to conserve or enhance biodiversity or geological interest will be permitted where they comply with other relevant policies in the plan. On site features should be retained, buffered and managed favourably to maintain their ecological value, connectivity and functionality in the long-term. The removal or damage of such features shall only be acceptable where it can be demonstrated the proposal will result in no net loss of biodiversity and where the integrity of local ecological networks can be secured. If the harm cannot be prevented, adequately mitigated against or appropriate compensation measures provided, planning permission will be refused.

In addition to the above, where specific identified sites are to be affected the following will be taken into account:

Internationally and Nationally Designated Sites

International and Nationally Designated Sites will be safeguarded. Development which is likely to have any adverse impact on the notified features of a nationally designated site will not normally be permitted. In exceptional circumstances, a proposal may be found acceptable where it can be demonstrated that:

- a) A suitable alternative site with a lesser impact than that proposed is not available; and,
- b) The on-site benefits of the proposal clearly outweigh the impacts on the notified features of the site and where applicable, the overall SSSI or habitat network; and,
- c) All appropriate mitigation measures have been addressed through the development management process; and,
- d) Development likely to result in a significant effect on internationally designated sites will be subject to assessment under the Habitats Regulations and will not be permitted unless adverse effects can be fully avoided, mitigated and/or compensated.

Irreplaceable Habitats

Proposals which are likely to result in the loss or deterioration of an irreplaceable habitat would only be acceptable where:

- e) The need and benefits of the development in that location clearly outweigh the loss; and,
- f) It has been adequately demonstrated that the irreplaceable habitat cannot be retained with the proposed scheme; and
- g) Appropriate compensation measures are provided on site wherever possible and off site where this is not feasible.

Locally Important Sites

Development proposals affecting locally important sites should always seek to contribute to their favourable management in the long term. Where a proposal is likely to result in harm to locally important sites (including habitats or species of principal importance for biodiversity), developers will be required to accord with the following sequential approach:

- h) Firstly, seek an alternative site with a lesser impact than that proposed;

i) Secondly, and if the first is not possible, demonstrate mitigation measures can be taken on site;

j) Thirdly, and as a last resort, seek appropriate compensation measures, on site wherever possible and off site where this is not feasible.

DM7 Preventing Pollution and Flooding

Adverse impacts from pollution and flooding will be prevented by ensuring that development proposals demonstrate that:

a) It will not adversely impact the water quality, ecological value or drainage function of water bodies in the borough;

b) Appropriate containment solutions for oils, fuels and chemicals are provided;

c) All reasonable steps are taken through design, siting and technological solutions to ensure the abatement of obtrusive light to avoid sky glow, glare and light intrusion;

d) It would not cause noise or vibrations of a level which would disturb areas that are valued for their tranquillity in terms of recreation or amenity;

e) Appropriate remediation of contaminated land in line with minimum national standards is undertaken;

f) It will not contribute to poor air quality;

g) It will not result in land instability or further intensify existing unstable land; and

h) The development doesn't create or exacerbate flooding by being located away from areas of flood risk unless adequately mitigated against in line with National Policy.

Appendix 2

Relevant Species Legislation

Bats

Bats and the places they use for shelter or protection (i.e. roosts) receive legal protection under the Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017) and the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (Habitats Regulations 2019). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that bats, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Regulation 41 of the Habitats Regulations 2017, states that a person commits an offence if they:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats; or
- damage or destroy a bat roost (breeding site or resting place).

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2017 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead bats, part of a bat or anything derived from bats, which has been unlawfully taken from the wild.

Changes have been made to parts of the Habitats Regulations 2017 so that they operate effectively from 1st January 2021. The changes are made by the Habitats Regulations 2019, which transfer functions from the European Commission to the appropriate authorities in England and Wales.

All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

The obligations of a competent authority in the 2017 Regulations for the protection of species do not change. A competent authority is a public body, statutory undertaker, minister or department of government, or anyone holding public office.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:

- Section 9(1) of the WCA makes it an offence to *intentionally* kill, injure or take any protected species.
- Section 9(4)(a) of the WCA makes it an offence to *intentionally or recklessly** damage or destroy, or *obstruct access to*, any structure or place which a protected species uses for shelter or protection.
- Section 9(4)(b) of the WCA makes it an offence to *intentionally or recklessly** disturb any protected species *while it is occupying a structure or place which it uses for shelter or protection*.

*Reckless offences were added by the Countryside and Rights of Way (CROW) Act 2000.

As bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected whether or not bats are present.

The reader should refer to the original legislation for the definitive interpretation.

The following bat species are Species of Principal Importance for Nature Conservation in England: barbastelle bat *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros*. Species of Principal Importance for Nature Conservation in England are material considerations in the planning process. The list of species is derived from Section 41 list of the Natural Environment and Rural Communities (NERC) Act 2006.

Badger

Badgers and their setts are protected under the Protection of Badgers Act 1992. The Protection of Badgers Act 1992 is based primarily on the need to protect badgers from baiting and deliberate harm or injury, badgers are not protected for conservation reasons. The following are criminal offences:

- To intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it.
- To wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so.

A badger sett is defined in the legislation as:

- 'Any structure or place that displays signs indicating current use by a badger'.

'Current use' is not synonymous with current occupation and a sett is defined as such (and thus protected) as long as signs of current usage are present. Therefore, a sett is protected until such a time as the field signs deteriorate to such an extent that they no longer indicate 'current usage'.

Badger sett interference can result from a multitude of operations including excavation and coring, even if there is no direct damage to the sett, such as through the disturbance of badgers whilst occupying the sett. Any intentional or reckless work that results in the interference of badger setts is illegal without a licence from Natural England. In England a licence must be obtained from Natural England before any interference with a badger sett occurs.

The reader should refer to the original legislation for the definitive interpretation.

Common amphibians

Common frogs, common toad, smooth newt and palmate newt are protected in Britain under Schedule 5 of the Wildlife and Countryside Act (1981, as amended) with respect to sale only. They are also listed under Annex III of the Bern Convention 1979. Any exploitation of wild fauna specified in Appendix III shall be regulated in order to keep the populations out of danger. The convention seeks to prohibit the use of all indiscriminate means of capture and killing and the use of all means capable of causing local disappearance of, or serious disturbance to, populations of a species.

Common toad is listed as a Species of Principal Importance for Nature Conservation in England.

Great crested newt

Great crested newts (GCN) and the places they use for shelter or protection receive legal protection under the Conservation of Habitats and Species Regulations 2017, (Habitats Regulations 2017) and the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (Habitats Regulations 2019). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that GCN, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Regulation 41 of the Habitats Regulations 2017, states that a person commits an offence if they:

- deliberately capture, injure or kill a GCN;
- deliberately disturb GCN;
- deliberately take or destroy eggs of a GCN; or
- damage or destroy a GCN breeding site or resting place.

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2017 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead GCN, part of a GCN or anything derived from GCN, which has been unlawfully taken from the wild. This legislation applies to all life stages of GCN.

Changes have been made to parts of the Habitats Regulations 2017 so that they operate effectively from 1st January 2021. The changes are made by the Habitats Regulations 2019, which transfer functions from the European Commission to the appropriate authorities in England and Wales.

All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

The obligations of a competent authority in the 2017 Regulations for the protection of species do not change. A competent authority is a public body, statutory undertaker, minister or department of government, or anyone holding public office.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:

- Section 9(1) of the WCA makes it an offence to intentionally kill, injure or take any protected species.
- Section 9(4)(a) of the WCA makes it an offence to intentionally or recklessly* damage or destroy, or obstruct access to, any structure or place which a protected species uses for shelter or protection.
- Section 9(4)(b) of the WCA makes it an offence to intentionally or recklessly* disturb any protected species while it is occupying a structure or place which it uses for shelter or protection.

*Reckless offences were added by the Countryside and Rights of Way (CROW) Act 2000.

The reader should refer to the original legislation for the definitive interpretation.

GCN are listed a Species of Principal Importance for Nature Conservation in England which means they are a material consideration in the planning process. The list of species is derived from Section 41 list of the Natural Environmental and Rural Communities (NERC) Act 2006.

Hedgehog

Hedgehogs receive some protection under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended); this section of the Act lists animals which may not be killed or taken by certain methods, namely traps and nets, poisons, automatic weapons, electrical devices, smokes/gases and various others. Humane trapping for research purposes requires a licence.

Hedgehogs are a Species of Principal Importance for Nature Conservation in England and are thus capable of being material considerations in the planning process.

Nesting Birds

The Conservation of Habitats and Species Regulations 2017, (Habitats Regulations 2017) and the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (Habitats Regulations 2019) places a duty on public bodies to take measures to preserve, maintain and re-establish habitat for wild birds.

Nesting and nest building birds are protected under the Wildlife and Countryside Act WCA 1981 (as amended).

Subject to the provisions of the act, if any person intentionally:

- kills, injures or takes any wild bird;
- takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
- takes or destroys an egg of any wild bird, he shall be guilty of an offence.

Some species (listed in Schedule 1 of the WCA) are protected by special penalties. Subject to the provisions of the act, if any person intentionally or recklessly:

- disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturbs dependent young of such a bird, he shall be guilty of an offence.

Several bird species are Species of Principal Importance for Nature Conservation in England, making them capable of being material considerations in the planning process.

Reptiles

All of the UK's native reptiles are protected by law.

Grass snake *Natrix helvetica* is protected under the Wildlife and Countryside Act 1981 (as amended) from intentional killing or injuring.

All native reptile species are listed as Species of Principal Importance for Nature Conservation in England and as such are material considerations in the planning process.

This is a simplified description of the legislation. In particular, the offences mentioned here may be absolute, intentional, deliberate or reckless. Note that where it is predictable that reptiles are likely to be killed or injured by activities such as site clearance, this could legally constitute intentional killing or injuring.

The reader should refer to the original legislation for the definitive interpretation.

Appendix 3

Survey Calendar

SPECIES SURVEY CALENDAR

This calendar helps identify the seasonal constraints associated with many ecological and protected species surveys.

Recommended survey time

Possible survey time

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Extended Phase 1 Habitat Survey												
Botanical Survey												
Bats (initial bat survey)												
Bats (activity survey)												
Bats (hibernation survey)												
Great Crested Newt (habitat assessment)												
Great Crested Newt (presence/absence survey)												
Reptiles												
Badger												
Water Vole												
Otter												
Birds (winter birds)												
Birds (nesting bird)												
Dormouse												
White Clawed Crayfish												



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