Park Downs

Site Management Plan

2024-2033

Appendices

SWT Ecology Services was commissioned by the Banstead Commons Conservators to prepare ten-year management plans for Banstead Commons. This project was kindly sponsored by the Reigate and Banstead Community Infrastructure Levy Fund.

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Report amendments			
1.0	Original report		
1.1	Update in line with comments from BCC (received 12/02/2024)		
1.2	Update in line with further comments from BCC (received 07/04/2024)		

The contents of this report were correct at the time of the site visit. The report is provided for the sole use of the named client and is confidential.

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Contents

For full Site Management Plan see separate document

Appendices

Appendix 1: Site background

Climate

The climate is typical of central southern England, moist and temperate with mild winters. Prevailing winds are from the south-west, and in most years rainfall ranges between 550 millimetres and 650 millimetres. Normal average temperatures are 17°C in July and 5°C in January. Sunshine levels are amongst the highest in Britain, while the number of snow days is comparatively low.

It should be noted that recent analyses of climate trends by the Met Office indicated the following changes in climate in south-east England (Jenkins, 2009):

- Warming of the global climate system is unequivocal, with global average temperatures having risen by nearly 0.8 ºC since the late 19th century and rising at about 0.2 ºC/decade over the past 25 years
- Annual mean precipitation over England and Wales has not changed significantly since records began in 1766. Seasonal rainfall is highly variable but appears to have decreased in summer and increased in winter, although with little change in the latter over the last 50 years. All regions of the UK have experienced an increase over the past 45 years in the contribution to winter rainfall from heavy precipitation events; in summer all regions except NE England and N Scotland show decreases
- Sea-surface temperatures around the UK coast have risen over the past three decades by about 0.7 ºC
- Sea level around the UK rose by about 1mm/yr in the 20th century, corrected for land movement. The rate for the 1990s and 2000s has been higher than this

Topography

The north boundary of the site starts at 150 m above sea level and slopes to the south, with the lowest point in the southeast corner of the site at 100 m above sea level.

Hydrology

As the site sits on the white chalk subgroup it is considered a highly productive aquifer. Principal aquifer in UK up to 450 m thick and yielding 50 to 100 L/s from large diameter boreholes and up to 300 L/s from edited systems. Hard to very hard, good quality water.

History / Archaeology

The previous work plan is from 2006 and the most recent monitoring report is from 2019. The conservators took custody of the land in 1893 and have been appointed in their current form since the twentieth century. Prior to this the area was common land with full commoner rights.

Aerial mapping from google earth goes back to 1945. This shows that previously the whole site was grassland. Since then, areas of the site have become wooded.

Further information on the site, along with historical information collected is detailed in Appendix 1.

Banstead Commons Conservators

Banstead Commons Conservators was set up as a result of the Metropolitan Commons (Banstead) Supplemental Act of 1893 and related to four areas of common land; Banstead Heath, Banstead Downs, Park Downs and Burgh Heath. The Act conferred a statutory duty upon the Conservators to ensure safe and free public access to the four commons and to protect them from damage and trespass. Further details of the Banstead Commons

Banstead Commons Conservators

Conservators and their activities can be found at; http://www.bansteadcommonsconservators.co.uk/.

Appendix 2: Park Downs HLS agreement mapping

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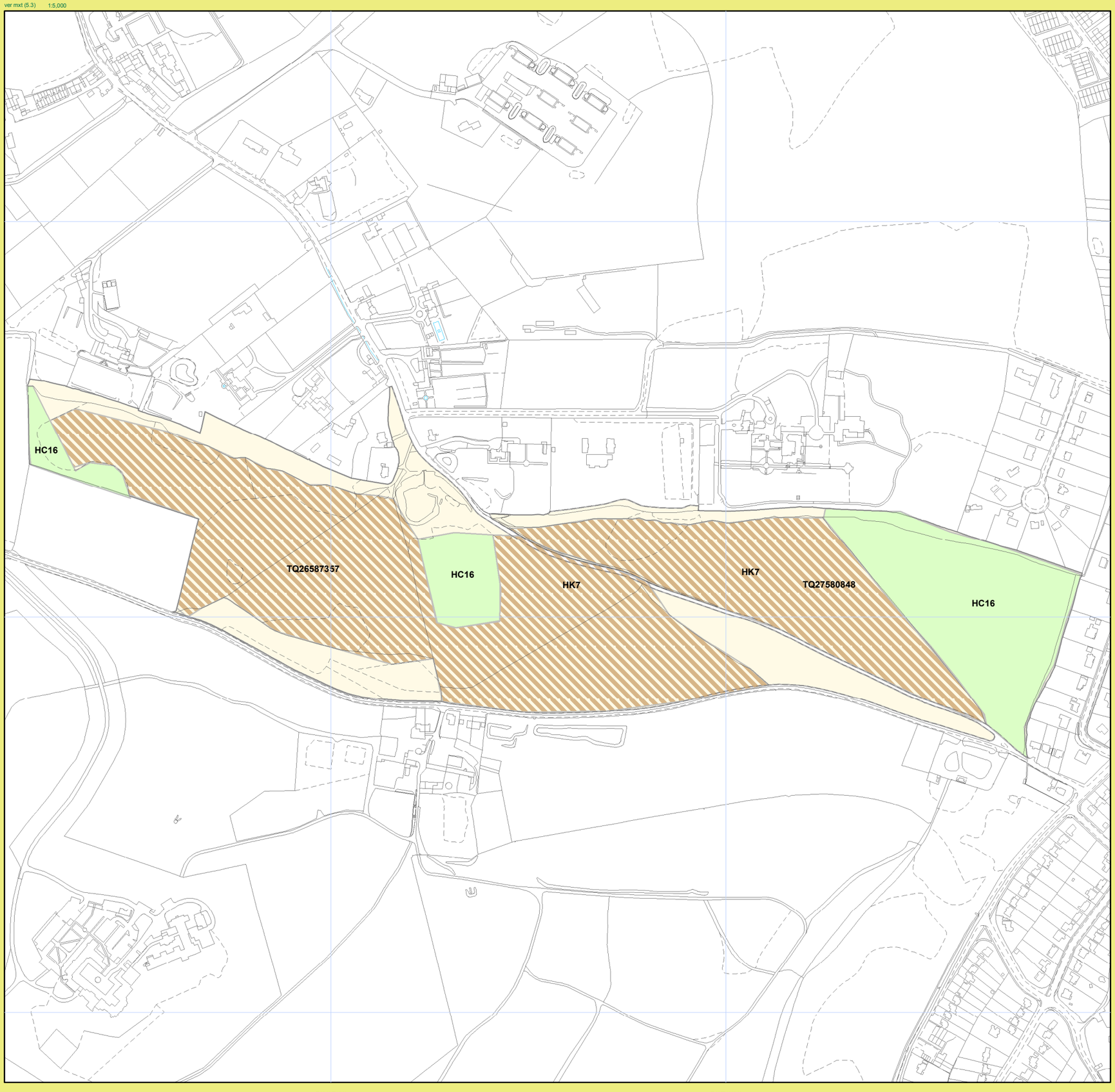

HIGHER LEVEL STEWARDSHIP OPTIONS MAP

Options	Assigned colour		Applicants colour match
HB		Maintenance of hedgerows/ditches of very high environmental value	
HC/OHC		Management of woodland edges/hedgerow buffer strips	
HC/OHC	6*	Protection of trees *Number within circle represents number of trees in parcel	6
HC/UHC/UOHC		Options for woodland	
HD/OHD/ UHD/UOHD		Maintenance of traditional farm buildings/ visibility of archaeological features on moorland	
HD/OHD		Options for historic and landscape features	
HE/OHE		Options for buffer strips and grass margins	
HF/OHF		Options for arable land	
HG/OHG		Options to encourage a range of crop type	
HJ/OHJ		Maintenance of watercourse fencing	
HJ/OHJ/ UHJ/UOHJ		Options to protect soil and water	
HK/OHK		Options for grassland	
HL/OHL/ UHL/UOHL		Options for upland grassland and moorland	
HO		Lowland heathland options	
HP		Inter-tidal and coastal options	
HQ		Wetland options	
	PC GF 4	Capital item	
	SX12345678	RLR field number	
		Holding parcels	

You must write the specific option codes you have selected in black on the map, e.g. HD2, OHF4, HK12, HP3, UHD13, UOHL21.
Options with a 'U' prefix have certain restrictions, refer to handbook.

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Metres

Map provided for the sole purpose of supporting ES Scheme Applications and Agreements.

Application Ref: AG00363472

Options

ERDP/OPTIONS

NATURAL ENGLAND

Map produced 13/02/12

Appendix 3: Methodology

Desk study

The desk study included a search of information already available for the site including past management plans, agri-environment scheme agreements, statutory and non-statutory site information, past surveys and monitoring for the site.

In addition, a data search undertaken by the Surrey Biological Information Centre on behalf of SWT Ecology Services, which was received on 05/01/2023.The desk study included a search of records of protected species and those of conservation concern within 1 km of the survey area, and of statutory and non-statutory designated sites within 2 km of the survey area.

An assessment of the likelihood of species being present within the survey area was made by comparing their habitat requirements with habitats recorded in the survey area. Species that were unlikely to occur were scoped out of the assessment.

Waterbodies within 250m of the survey area boundary were identified using aerial photography and publicly available mapping.

Publicly available information on (DEFRA, n.d.) was also consulted.

Habitat survey

Habitats in the survey area were mapped using the UK habitat classification survey methodology (Butcher, P, R, Norton, & Treweek, 2020).

UK habitat classification survey is a comprehensive system for classifying and mapping habitats within the UK. The aim of the survey is to identify and map habitats using aerial imagery and ground-truthing the information in a consistent and unified way such that this can be used for ecological impact assessment and habitat metrics. The whole survey area was walked by an experienced ecologist and habitats identified, classified and mapped. Each habitat is coded in line with the survey methodology, using secondary codes to define specific features, such as management measures, land use and other specific features. Where these secondary codes are used in the report, the definitions are also provided.

Within each habitat type a record of the vascular plant species was made and an assessment of their abundance recorded. Abundances of each vascular plant species within each habitat type are based on the DAFOR scale, presented below.

- D – Dominant
- A – Abundant
- F – Frequent
- O – Occasional
- R – Rare

Nomenclature of vascular plants followed (Stace, 2019). Common names are presented in the text, with scientific names detailed in Appendix 4.

Fauna species mentioned in this report will be referred to by their common name. Scientific names for these species are detailed in Appendix 5.

The survey included an assessment of the habitats present to determine their suitability for protected species and species of conservation concern. A record was made of any signs of protected species, or species of conservation concern, such as runs, droppings and/or foraging remains.

A record was also made of any fauna that was incidentally recorded.

The presence, location and distribution of any non-native invasive species was noted.

Notable observations were recorded during the survey as target notes.

The date and weather conditions are detailed in Table 1. The survey was undertaken by Harriet Baber BSc (Hons) - Senior Ecologist.

Table 1: Survey dates and weather conditions

Date of survey	Survey time	Temp °C	Cloud (%)	Rain	Wind[1]
12.06.23	09:25	19	30%	No rain	1 - Light air

BNG condition assessment

BNG assessment requires information on the condition of the habitat. This was undertaken on 12/06/2023 by Harriet Baber BSc (Hons) - Senior Ecologist, who has the relevant skills and knowledge to assess condition for the habitats encountered. The report review process includes an assessment by a more senior ecologist to ensure that the condition assessment has been undertaken in line with best practice.

The condition assessment was undertaken in line with the methods set out in (Panks, et al., Biodiversity Metric 3.1: Auditing and Accounting for Biodiversity: Technical Suplement, 2022b). Habitat condition assessment forms are presented in Appendix 6. Each habitat compartment is assigned a condition in line with guidance, and are assigned as good, fairly good, moderate, fairly poor and poor. For some habitats, the condition has been pre-determined, such as rhododendron and Bramble scrub.

For ease of reference, habitat compartments in Figure 1 have been numbered as per below.

- Lowland calcareous grassland = 1.1-1.6
- Woodland = 2.1-2.5
- Mixed scrub = 3.1

Note that this BNG condition assessment is separate and different from the condition assessment undertaken by Natural England as part of the assessment of condition of SSSIs. The NE assessment uses different, more detailed criteria although there is some overlap.

Biodiversity net gain assessment

Biodiversity net gain is calculated and interpreted following eight principles and rules, as defined in (Panks, et al., Biodiversity Metric 3.1: Auditing and Accounting for Biodiversity - User Guide, 2022). This is further supported by (CIEEM, CIRIA, IEMA, 2019) and (BSI, 2021) that detail, among other things, how to implement biodiversity net gain good practice principles within each stage of a development project's life cycle.

[1] Beaufort scale

Baseline biodiversity units

Calculating baseline biodiversity units requires information on a habitat's area, distinctiveness, condition, and strategic significance. The habitat areas and habitat condition are based on the habitat survey methods detailed above.

Distinctiveness refers to the relative scarcity of the habitat and its importance for nature conservation. The distinctiveness categories are pre-determined by the metric.

Strategic significance is assessed against information in the local plan or policies for that habitat and its location. This is considered separately for each habitat type.

The data were inputted into the biodiversity net gain metric (Natural England, 2021), accessed on 28/06/2023. The completed metric accompanies this report.

Biodiversity gains available

The available gains were calculated by assuming that all habitats will be managed to reach a target habitat condition of good. This information was input into the biodiversity net gain metric to determine the number of available biodiversity units.

Limitations

Ecological surveys

Habitat surveys can be undertaken at any time of year, with the optimal season being between March and September, when most plant species are visible. Where feasible, all efforts were made to schedule the habitat survey in optimal weather conditions and time of year. Nevertheless, field surveys usually fail to record all species present for various reasons, including the seasonal absence of some species, and short survey duration. Rare or cryptic species are often missed in short surveys.

Habitat condition assessments should be undertaken at the optimal time of year for the habitat, which for this site was in June which is considered to be optimal.

Based on the above, a full appraisal of the plant species and habitats present could be undertaken at the time of the survey.

As the primary purpose of the investigation was to assess the habitats present and their suitability to support protected species and species of conservation concern, the desk study, combined with the field survey, were sufficient to complete this aspect of the assessment.

Biodiversity net gain assessment

BNG uses habitats as a proxy for biodiversity and is a simplification of the real world. Ecological function must also be considered to manage this limitation and this is detailed throughout relevant sections of the report and the avoid, minimise, restore and compensate principles must be applied throughout all stages of the development for habitats and species alike.

The BNG values presented would only be achievable following the creation and implementation of a bespoke Habitat Management Plan, which must cover a time period specific to the time to target condition stated by the metric (up to 30 years).

Appendix 4: Vascular plant species recorded on 12/06/2023

Scientific name	Common name	Habitat/s	Abundance in habitat type
Acer platanoides	Norway Maple	W1f,H3h	O,O
Acer psuedoplatanus	Sycamore	W1f,W1f,G2a, H3h	F,F,O,F
Achillea millefolium	Yarrow	G2a	O
Aegopodium podagraria	Ground Elder	W1f	R
Aesculus hippocastanum	Horse-chestnut	W1f	O
Agrimonia eupatoria	Agrimony	W1f,G2a,W1f, G2a	R,O,R,R
Agrostis gigantea	Black Bent	W1f	F
Agrostis stolonifera	Creeping Bent	G2a	F
Allaria petiolata	Garlic Mustard	W1f,W1F	O,O
Anacamptis pyramidalis	Pyramidal Orchid	G2a,G2a	O, O
Anthoxanthum odoratum	Sweet Vernal Grass	G2a	F
Anthriscus sylvestris	Cow Parsley	W1f	R
Aquilegia vulgaris	Columbine	G2a	R
Arctium minus	Lesser Burdock	W1f	R
Argentina anserina	Silverweed	G2a	R
Arrhenathrum elatius	False Oat-grass	W1f,G2a,G2a, G2a, G2a	F,F,F,F, F
Bellis perennis	Daisy	G2a	O
Berberis vulgaris	Barberry	W1f	R
Betula pendula	Silver Birch	W1f,G2a,W1f, G2a,H3h	O,R,F,R,A
Brachypodium sylvaticum	False Brome	W1f	O
Brachypodium sylvaticum	Wood Brome	W1f	O
Briza media	Quaking Grass	G2a	R
Plantago major	Greater Plantain	G2a	R
Bromus erectus	Upright Brome	G2a,G2a,G2a	O,A, F

Scientific name	Common name	Habitat/s	Abundance in habitat type
Bromus steriis	Barren Brome	W1f	O
Bryonia dioica	White Bryony	G2a	R
Buddleja davidii	Butterfly-bush	H3h	R
Calystegia sepium	Hedge Bindweed	W1f	O
Capsella bursa-pastoris	Shepherd's-purse	G2a	R
Carex divulsa	Grey Sedge	W1f,W1f	O,R
Carex flacca	Glaucous Sedge	G2a,G2a,G2a	O,O,R
Carex pendula	Pendulous Sedge	W1f	O
Carex sylvatica	Wood-sedge	W1f	R
Centaurea nigra	Common Knapweed	W1f, G2a,G2a, G2a, G2a	O,F,F,R, O
Cerastium glomeratum	Sticky Mouse-ear	G2a,G2a	O,F
Chamaenerion angustifolium	Rosebay Willowherb	G2a	O
Cirsium arvense	Creeping Thistle	G2a	O
Cirsium vulgare	Spear Thistle	G2a,G2a,G2a	O,O,F
Clematis vitalba	Traveler's-joy	W1f,G2a,G2a, H3h, W1g7	R,O,R,O,O
Convolvulus arvensis	Field Bindweed	G2a	R
Cornus sanguinea	Dogwood	W1f,G2a,W1f, G2a,G2a,H3h	F,O,O,R,A,F
Corylus avellana	Hazel	W1f,W1f,	F,F
Crataegus monogyna	Hawthorn	W1f,W1f,G2a, H3h	F,A,O,A
Dactylis glomerata	Cock's-foot	W1f,G2a,G2a, G2a, G2a	F,A,A,O,O
Discorea communis	Black Bryony	W1f	R
Dryopteris affinis	Scaly Male Fern	W1f,W1f	R,R
Epilobium hirsutum	Greater Willowherb	W1f	R
Epilobium parviflorum	Hoary Willowherb	W1f	O
Euonymus europaea	Spindle	W1f,W1f,H3h	O,O,F
Eupatorium cannabinum	Hemp Agrimony	H3h	F

Scientific name	Common name	Habitat/s	Abundance in habitat type
Euphrasia officinalis	Common Eyebright	G2a	R
Euphrasia sp,	Eyebright	G2a	R
Fagus sylvatica	Beech	W1f,W1f	F,O
Festuca ovina	Sheep's Fescue	G2a,G2a,G2a	A,F,F
Festuca rubra	Red Fescue	G2a	O
Fillipendula vulgaris	Dropwort	G2a,G2a,G2a	F,A,R
Fragaria vesca	Wild Strawberry	G2a,G2a	O,R
Fraxinus excelsior	Ash	W1f, G2a,W1f	O,R,F
Galium aparine	Cleavers	W1f, G2a,W1f	O,R,F
Galium mollugo	Hedge Bedstraw	W1f, G2a,G2a,G2a, G2a	R,F,F,F, F
Galium verum	Lady's Bedstraw	G2a,G2a	O,R
Geranium dissectum	Cut-leaved Crane's-bill	G2a	R
Geranium robertianum	Herb-Robert	W1f	O
Geum urbanum	Wood Avens	G2a,W1f	O,O
Glechoma hederacea	Ground Ivy	W1f	R
Hedera helix	Common Ivy	W1f,W1f	A,A
Helianthemum nummularium	Common Rock-rose	G2a	A
Helminthotheca echiodes	Bristly Ox-tongue	W1f	R
Heracleum sphondylium	Hogweed	W1f,W1f, G2a	R,O, R
Holcus lanatus	Yorkshire-fog	W1f,G2a,G2a, G2a,G2a	F,A,A,O,O
Hordeum brachyantherum	Meadow Barley	G2a	R
Hyacinthoides x massartiana	Hybrid Bluebell	W1f	R
Hypericum androsaemum	Tutsan	G2a	R
Hypericum hirsutum	Hairy St John's-wort	G2a,G2a, G2a	R,R, O

Scientific name	Common name	Habitat/s	Abundance in habitat type
Hypericum perforatum	Perforate St John's-wort	W1f,G2a,G2a ,G2a,G2a	R,O,R,R, R
Hypochaeris radicata	Cat's-ear	W1f,G2a	R,O
Ilex aquifolium	Holly	W1f	O
Jacobaea erucifolia	Hoary Ragwort	G2a,G2a	R,R
Jacobaea vulgaris	Common Ragwort	W1f,G2a	R,R
Lamiastrum galeobdolon subsp. argentatum	Variegated Yellow Archangel	W1f	O
Lapsana communis	Nipplewort	G2a,W1f	O,R
Lathyrus pratensis	Meadow Vetchling	G2a	R
Leucanthemum vulgare	Ox-eye Daisy	G2a, G2a	R, R
Ligustrum ovalifolium	Wild Privet	W1f,W1f	O,O
Linum catharticum	Fairy Flax	G2a	R
Lolium perenne	Perennial Rye-grass	G2a	F
Lonicera periclymenum	Honeysuckle	W1f,W1f	O,O
Lotus corniculatus	Common Bird's-foot Trefoil	G2a,G2a, G2a	O,A,O
Luzula campestris	Field Wood-rush	G2a	R
Medicago lupulina	Black Medick	G2a	O
Melica uniflora	Wood Melick	W1f	R
Myosotis sp	Forget-me-not	W1f,W1f, G2a	R,R,R
Odontites vernus	Red Barstia	G2a	O
Origanum majorana	Wild Marjoram	G2a,G2a,G2a, G2a	F,A,R,F
Papaver rhoeas	Field Poppy	G2a	O
Pastinaca sativa	Wild Parsnip	W1f,G2a,W1f, G2a,G2a	F,F,O,F,R
Pentaglottis sempervirens	Green Alkanet	G2a	R
Pilosella officinarum	Mouse-ear Hawkweed	G2a,G2a	R,R
Plantago lancolata	Ribwort Plantain	W1f,G2a,G2a,G2a	O,F,A,O

Scientific name	Common name	Habitat/s	Abundance in habitat type
Poa trivialis	Rough Meadow-grass	G2a,G2a	O,O
Polygala vulgaris	Common Milkwort	G2a	R
Potentilla reptans	Creeping Cinquefoil	G2a	O
Primula vulgaris	Primrose	G2a	R
Prunus avium	Wild Cherry	H3h	R
Prunus cerasifera	Cherry Plum	W1f,W1F	R,R
Prunus spinosa	Blackthorn	W1f,W1f,H3h	F,O,O
Pyrola rotundifolia	Round Leaved Wintergreen	G2a	R
Quercus robur	Pedunculate Oak	W1f,G2a,W1f, H3h	A,O,A,F
Ranunculus acris	Meadow Buttercup	W1f,G2a,G2a	O,F,F
Ranunculus repens	Creeping Buttercup	G2a,G2a	O,O
Reseda lutea	Wild Mignonette	G2a	R
Rhinanthus angustifolius	Greater Yellow-rattle	G2a, G2a,G2a,G2a	A,F,O, O
Ribes rubrum	Red Currant	W1f	R
Rosa arvensis	Field Rose	W1f, G2a,W1f	O,R,R
Rosa canina	Dogrose	G2a	R
Rosa sp	Rose	G2a,H3h	R,F
Rubus fruticosus agg.	Bramble	W1f,G2a,W1f, G2a,H3h	F,O,A,O,A
Rubus idaeus	Raspberry	W1f,W1f	R,R
Rumex acetosa	Common Sorrel	G2a,G2a,G2a	O,F,O
Rumex crispus	Curled Dock	G2a, W1f,	R,R
Rumex sanguineus	Wood Dock	W1f	R
Salix caprea	Goat Willow	G2a	O
Sambucus nigra	Elder	W1f,G2a,W1f	O,O,F
Sanguisorba officinalis	Salad Burnet	G2a,G2a,G2a	O,F,O
Scorzoneroides autumnalis	Autumn Hawkbit	G2a,G2a, G2a	O,R,A
Scrophularia nodosa	Common Figwort	W1f	R

Scientific name	Common name	Habitat/s	Abundance in habitat type
Silene vulgaris	Bladder Campion	W1f,W1f,G2a	R,O,R
Solanum dulcumara	Bittersweet	W1f	R
Sonchus asper	Prickly Sow Thistle	W1f	R
Sorbus aria agg	Whitebeam	W1f,W1f	R,R
Sorbus aucuparia	Rowan	W1f	R
Stachys sylvatica	Hedge Woundwort	W1f, W1f	R,O
Stellaria graminea	Lesser Stitchwort	G2a	R
Stellaria media	Common Chickweed	G2a	O
Symphytum x uplandicum	Russian Comfrey	W1f, G2a,G2a	O,R,O
Taraxacum officinale agg.	Dandelion	W1f,G2a,W1f	R,O,R
Taxus baccata	Yew	W1f, W1g7	O,D
Thymus polytrichus	Wild Thyme	G2a	R
Tragopogon pratensis	Goat's-beard	G2a,G2a, G2a	O,O, R
Trifolium campestre	Hop Trefoil	G2a	O
Trifolium pratense	Red Clover	W1f,G2a,G2a	R,O,O
Trifolium repens	White Clover	G2a,G2a	F, R
Urtica dioica	Common Nettle	W1f,G2a,W1f	R,O F
Veronica chamaedrys	Germander Speedwell	W1f,G2a,G2a	R,O,O
Veronica officinalis	Heath Speedwell	G2a,G2a	O,A
Viburnum lantana	Wayfaring Tree	W1f,G2a,H3h,	O,R,R
Viburnum opulus	Guelder-rose	W1f	R
Vicia sativa	Common Vetch	G2a,G2a, G2a	R,R,R
Viola raviniana	Common Dog-violet	W1f	R

Appendix 5: Scientific names of fauna species referred to in the report

Amphibians

- *Bufo bufo* – Common Toad
- *Lissotriton vulgaris* - Smooth Newt
- *Rana temporaria* - Common Frog
- *Triturus cristatus* – Great Crested Newt

Bats

- *Pipistrellus pipistrellus* - Common Pipistrelle
- *Plecotus auritus* – Brown Long-eared

Birds

- *Troglodytes troglodytes* - Wren
- *Columba palumbus* - Woodpigeon
- *Milvus milvus* - Red Kite
- *Tyto alba* - Barn Owl
- *Falco tinnunculus* - Kestrel
- *Curruca communis* - Whitethroat
- *Alauda arvensis* – Skylark
- *Cuculus canorus* – Cuckoo
- *Passer montanus* – Tree Sparrow
- *Sturnus vulgaris* – Starling
- *Turdus philomelos* – Song Thrush

Mammals (except bats)

- *Arvicola amphibius* – European Water Vole
- *Erinaceus europaeus* – West European Hedgehog
- *Lepus europaeus* – Brown Hare
- *Lutra lutra* – European Otter
- *Meles meles* – Eurasian Badger
- *Micromys minutus* – Harvest Mouse
- Muscardinus avellanarius – Hazel Dormouse
- *Mustela erminea* - Stoat
- *Mustela putorius* - Polecat
- *Sorex minutus* - Pigmy Shrew

Reptiles

- *Anguis fragilis* – Slow-worm
- *Natrix helvetica* – Grass Snake
- *Vipera berus* – Adder
- *Zootoca vivipara* – Common Lizard

Invertebrates

- *Cupido minimus* - Small Blue
- *Helix pomatia* - Roman Snail
- *Hesperia comma* - Silver-spotted Skipper
- *Lucanus cervus* - Stag Beetle
- *Polyommatus coridon* - Chalk-hill Blue
- *Satyrium w-album* - White-letter Hairstreak
- *Thecla betulae* - Brown Hairstreak

Appendix 6: Habitat condition forms

Habitat	Compartment number	Condition	Justification (Panks, et al., Biodiversity Metric 3.0: Auditing and Accounting for Biodiversity: Technical Suplement , 2021b)
Habitat Code: G2a - Lowland calcareous grassland **Additional Codes:** 11 - Scattered trees, 13 - Scattered dwarf shrubs	1.1	Good	1. The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present - Pass 2. Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. – Pass 3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens. – Pass 4. Cover of Bracken less than 20% and cover of scrub (including Bramble) less than 5%.– Pass 5. Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species (as listed on Schedule 9 of WCA4) are present, this criterion is automatically failed. - Pass 6. There are 10 or more vascular plant species per m2 present, including forbs that are characteristic of the habitat type. – Pass
Habitat Code: G2a - Lowland calcareous grassland **Additional Codes:** 10 - Scattered scrub	1.3	Poor	1. The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present - Fail 2. Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. – Fail

Habitat	Compartment number	Condition	Justification (Panks, et al., Biodiversity Metric 3.0: Auditing and Accounting for Biodiversity: Technical Suplement , 2021b)
			3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens. – Pass 4. Cover of Bracken less than 20% and cover of scrub (including Bramble) less than 5%.– Fail 5. Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species (as listed on Schedule 9 of WCA4) are present, this criterion is automatically failed. - Pass 6. There are 10 or more vascular plant species per m2 present, including forbs that are characteristic of the habitat type. – Pass
Habitat Code: g2a - Lowland calcareous grassland	1.6	Good	1. The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present - Pass 2. Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. – Pass 3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens. – Pass 4. Cover of Bracken less than 20% and cover of scrub (including Bramble) less than 5%.– Pass 5. Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species (as listed on Schedule 9 of WCA4) are present, this criterion is automatically failed. - Pass

Habitat	Compartment number	Condition	Justification (Panks, et al., Biodiversity Metric 3.0: Auditing and Accounting for Biodiversity: Technical Suplement , 2021b)
			6. There are 10 or more vascular plant species per m2 present, including forbs that are characteristic of the habitat type. – Pass
Habitat Code: W1f - Lowland mixed deciduous woodland	2.1	Moderate	1. Good (3) - Three age classes present 2. Good (3) - No significant browsing damage evident in woodland(2). 3. Poor (1) - Rhododendron or Laurel present, or other invasive species > 10% cover. 4. Good (3) - Five or more native tree or shrub species found across woodland parcel. 5. Good (3) - > 80% of canopy trees and >80% of understory shrubs are native. 6. Good (3) - 10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply. 7. Good (3) - All three classes present in woodland; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth. 8. Moderate (2) - 11% to 25% mortality and/or crown dieback or low risk pest or disease present. 9. Moderate (2) - Recognisable NVC plant community present. 10. Good (3) - Three or more storeys across all survey plots or a complex woodland. 11. Poor (1) - No veteran trees present in woodland. 12. Moderate (2) - Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities. 13. Good (3) - No nutrient enrichment or damaged ground evident.
Habitat Code: W1f - Lowland mixed deciduous woodland	2.2, 2.3 and 2.4	Moderate	1. Moderate (2) - Two age classes present 2. Good (3) - No significant browsing damage evident in woodland(2). 3. Moderate (2) - Rhododendron or Laurel not present, other invasive species < 10% cover. 4. Good (3) - Five or more native tree or shrub species found across woodland parcel. 5. Good (3) - > 80% of canopy trees and >80% of understory shrubs are native. 6. Good (3) - 10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply. 7. Moderate (2) - One or two classes only present in woodland.

Habitat	Compartment number	Condition	Justification (Panks, et al., Biodiversity Metric 3.0: Auditing and Accounting for Biodiversity: Technical Suplement , 2021b)
			8. Moderate (2) - 11% to 25% mortality and/or crown dieback or low risk pest or disease present. 9. Poor (1) - No recognisable NVC community. 10. Moderate (2) - Two storeys across all survey plots. 11. Poor (1) - No veteran trees present in woodland. 12. Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities. 13. Good (3) - No nutrient enrichment or damaged ground evident.
Habitat Code: w1g7 - other woodland; broadleaved	2.5	Moderate	1. Moderate (2) - Two age classes present 2. Good (3) - No significant browsing damage evident in woodland(2). 3. Good (3) – No invasive species present in woodland 4. Poor (1) – Two or less native tree or shrub species across woodland parcel 5. Good (3) - > 80% of canopy trees and >80% of understory shrubs are native. 6. Good (3) - 10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply. 7. Moderate (2) - One or two classes only present in woodland. 8. Good (3) – Tree mortality less than 10%, no pests or diseases and no crown dieback 9. Poor (1) - No recognisable NVC community. 10. Poor (1) – One or less storey across all survey plots 11. Poor (1) - No veteran trees present in woodland. 12. Poor (1) - Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities. 13. Good (3) - No nutrient enrichment or damaged ground evident.
Habitat Code: H3h - Mixed scrub	3.1	Good	1. The scrub is a good representation of the habitat type it has been identified as, based on its UKHab description (where in its natural range). The appearance and composition of the vegetation closely matches the characteristics of the specific scrub type. At least 80% of scrub is native, and there are at least three native woody

Habitat	Compartment number	Condition	Justification (Panks, et al., Biodiversity Metric 3.0: Auditing and Accounting for Biodiversity: Technical Suplement , 2021b)
			species1, with no single species comprising more than 75% of the cover (except Hazel, Common Juniper, Sea Buckthorn or Box, which can be up to 100% cover). - Pass 2. Seedlings, saplings, young shrubs and mature (or ancient or veteran) shrubs are all present. - Pass 3. There is an absence of invasive non-native plant species3 (as listed on Schedule 9 of WCA4) and species indicative of sub-optimal condition5 make up less than 5% of ground cover. - Pass 4. The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat. - Pass 5. There are clearings, glades or rides present within the scrub, providing sheltered edges. - Pass
Habitat Code: G2a - Lowland calcareous grassland	1.2, 1.4, 1.5	Good	1. The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present - Pass 2. Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. – Pass 3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens. – Pass 4. Cover of Bracken less than 20% and cover of scrub (including Bramble) less than 5%.– Pass 5. Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species (as listed on Schedule 9 of WCA4) are present, this criterion is automatically failed. - Pass

Habitat	Compartment number	Condition	Justification (Panks, et al., Biodiversity Metric 3.0: Auditing and Accounting for Biodiversity: Technical Suplement , 2021b)
			6. There are 10 or more vascular plant species per m2 present, including forbs that are characteristic of the habitat type. – Pass

Appendix 7: Relevant legislation

Legislation

Metropolitan Commons and Metropolitan Commons (Banstead) Supplementary Act 1866

This Act covers the four commons; Banstead Downs, Banstead Heath, Burgh Heath and Park Downs. It gives power to the Banstead Commons Conservators to frame byelaws for the commons. The Board of Conservators was set up in 1893. There are eight members on the board, two appointed by the 'owners of the soil', which today is Reigate and Banstead Borough Council, and six elected by 'the vestry of the Parish of Banstead' which today is Reigate and Banstead Borough Council. Conservators serve a term of three years.

The election of new Conservators is managed by Reigate and Banstead Borough Council Democratic Services. The process commences in December and elections take place at the March Executive Meeting each year.

Conservation of Habitats and Species Regulations 2017 (as amended)

Provides for the protection of Natura 2000 sites (SACs, SPAs and Ramsar sites), European Protected Species and habitats. European Protected Species are protected from:

- Deliberate capture, injury or killing
- Deliberate disturbance of a European Protected Species, such that it impairs their ability to breed, reproduce or rear their young, hibernate or migrate or significantly affect their local distribution or abundance
- Deliberately take or destroy effect
- Damage or destroy a breeding site or resting place.
- Keep, transport, sell or exchange any live, dead or part of a European Protected Species

European Protected Species include, but are not limited to:

- Great Crested Newt
- All bat species
- Hazel Dormouse

Wildlife and Countryside Act 1981 (as amended)

Key piece of legislation consolidating existing wildlife legislation to incorporate the requirements of the Bern Convention and Birds Directive. It includes additional protection measures for species listed under the Conservation of Habitats and Species Regulations 2017 (as amended) and includes a list of species protected under the Act. It also provides for the designation and protection of Sites of Special Scientific Interest (SSSI).

Development which would adversely affect a SSSI is not acceptable except only in special cases, where the importance of a development outweighs the impact on the SSSI when planning conditions or obligations would be used to mitigate the impact. Developments likely to impact on a SSSI will likely require an Environmental Impact Assessment (EIA).

Further information on specific legislation relating to species protected under the Wildlife and Countryside Act 1981 (as amended) is detailed below, under Protection of Protected Species and Habitats.

Environment Act (2021)

The Environment Act (2021) makes a provision for biodiversity net gain to be a condition of planning permission in England. Planning applications will need to demonstrate a 10% biodiversity net gain can be met.

Countryside and Right of Way Act 2000

Amends and strengthens the Wildlife and Countryside Act 1981 (as amended). It also details habitats and species for which conservation measures should be promoted.

Natural Environment and Rural Communities Act 2006

Section 40 of the Act places a duty on local planning authorities to conserve and enhance biodiversity in England whilst carrying out their normal functions. Section 41 comprises a list of Habitats of Principal Importance (HPIs) and Species of Principal Importance (SPIs) which should be considered.

The LPA will need to have particular regard to any relevant local nature recovery strategies, and any relevant species conservation strategy or protected site strategy prepared by Natural England.

Hedgerows Regulations 1997

Under these regulations it is an offence to intentionally or recklessly remove, or cause or permits another person to remove, a hedgerow. Important hedgerows are defined in Section 4 of the Regulations. This includes hedgerows that have existed for over 30 years or satisfies at least one criteria listed in Part II of Schedule 1.

Wild Mammals (Protection) Act 1996

Under this act wild mammals are protected from the intentional unnecessary suffering by crushing and asphyxiation.

Biodiversity Opportunity Areas (BOAs)

In order to assist in delivering the government's Biodiversity 2020 strategy, the Surrey Nature Partnership has identified seven BOAs where improved habitat management, habitat restoration and recreation of HPIs is the key focus to enhancing the connectivity of habitats for SPIs to deliver biodiversity objectives at a landscape scale. The location of these is presented in the South East Biodiversity Strategy's website. The project promotes a collaborative approach across a number of regional and local organisations.

Management of sites within or adjacent to BOAs should be designed in consideration of the BOA objectives, which are provided at:

- https://surreynaturepartnership.org.uk/our-work/

Protection of protected species and habitats

Amphibians

Great Crested Newt is protected under the Conservation of Habitats and Species Regulations 2017 (as amended). They are also afforded additional protection under the Wildlife and Countryside Act 1981 (as amended).

Great Crested Newt is also a SPI.

Reptiles

Smooth Snake and Sand Lizard are protected under the Conservation of Habitats and Species Regulations 2017 (as amended). They are afforded additional protection under the Wildlife and Countryside Act 1981 (as amended).

Adder, Grass Snake, Common Lizard and Slow-worm are all protected from killing and injury under the Wildlife and Countryside Act 1981 (as amended). All UK reptile species are SPIs.

Birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). This includes damage and destruction of their nests whilst in use, or construction. Species listed under Schedule 1 of the Act, such as Barn Owl, are afforded protection from disturbance during the nesting season. 50 bird species are listed as SPIs.

Badger

Badger is protected under the Protection of Badgers Act 1992. Under this legislation it is an offence to kill or injure a badger; to damage, destroy or block access to a badger sett; or to disturb badger in its sett. The Act also states the conditions for the Protection of Badgers licence requirements.

Bats

All bat species are protected under the Conservation of Habitats and Species Regulations 2017 (as amended), as detailed above. Bats are further protected under the Wildlife and Countryside Act 1981 (as amended), making it an offence to:

- Deliberately or recklessly damage or destroy any structure or place which bat(s) use for shelter or protection
- Disturb bat(s) while occupying a structure or place which it uses for shelter or protection
- Obstruct access to any structure or place which they use for shelter or protection

Furthermore, seven bat species are SPIs, covered under Section 41 of the NERC Act 2006. These include western Barbastelle, Bechstein's, Noctule, Soprano Pipistrelle, Brown Long-eared, Lesser Horseshoe and Greater Horseshoe.

Hazel Dormouse

Hazel Dormouse is protected under the Conservation of Habitats and Species Regulations 2017 (as amended). It is afforded additional protection under the Wildlife and Countryside Act 1981 (as amended), including obstruction to a place of shelter or rest.

Hazel Dormouse is also a SPI.

Hedgerow

Under the Hedgerows Regulations 1997 it is against the law to remove or destroy certain hedgerows without permission from the LPA, which are also the enforcement body for offences created by the Regulations. LPA permission is normally required before removing hedges that are at least 20 m in length, more than 30 years old and contain certain plant species. The authority will assess the importance of the hedgerow using criteria set out in the regulations. The regulations **do not** apply to hedgerows within the curtilage of, or marking a boundary of the curtilage of, a dwelling house.

Hedgerow is a HPI.

Other mammals

West European Hedgehog, Harvest Mouse and Polecat are all SPIs.

Invertebrates

Fifty-six terrestrial and freshwater invertebrate species are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

A total of 398 invertebrates are Species of Principal Importance.

Non-native invasive plant species

Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is a list of non-native plant species for which Section 14 of the Act applies. It is an offence to plant, or otherwise cause to grow in the wild species listed under Schedule 9 of the act.

Habitats of Principal Importance

Section 41 of the NERC Act 2006 details 56 HPIs, of which the following could be present in south-east England: Lowland calcareous grassland, Lowland dry acid grassland, Lowland meadows, Lowland Heathland, Open Mosaic Habitats on Previously Developed Land, Lowland fens, Lowland raised bog, Reedbeds, Lowland beech and yew woodland, Lowland mixed deciduous woodland and Wet woodland.

Impacts to HPI are of material planning consideration.

Appendix 8: Protected species and species of conservation concern desk study results (SBIC, 2023)

Records from site

Scientific name	Common Name	Habitat Regulations [2][3]	WCA [4]	SPI [5]	RDL/ Nationally Rare/ Scarce [6]	BoCC [7]	Ax	AWI	GI	Relevant HPI
Invertebrates										
Lucanus cervus	Stag Beetle		Sch 5 Section 9.5a	✓	✓					Various, Wood pasture & parkland
Erynnis tages	Dingy Skipper			✓	✓					Calcareous grassland, Mixed deciduous woodland
Pyrgus malvae	Grizzled Skipper			✓	✓					Calcareous grassland, Mixed deciduous woodland
Coenonympha pamphilus	Small Heath			✓	✓					Heathland, Acid Grassland, Calcareous grassland
Satyrium w-album	White-letter Hairstreak		Sch 5 Section 9.5a	✓	✓					Mixed deciduous woodland, Hedgerows
Thecla betulae	Brown Hairstreak		Sch 5 Section 9.5a	✓	✓					Hedgerows, Mixed deciduous woodland
Ecliptopera silaceata	Small Phoenix			✓						Mixed deciduous woodland
Tyria jacobaeae	Cinnabar			✓						
Acronicta rumicis	Knot Grass			✓						Various
Tholera decimalis	Feathered Gothic			✓						Various
Eugnorisma glareosa	Autumnal Rustic			✓						Various
Cupido minimus	Small Blue		Sch 5 Section 9.5a	✓	✓					Calcareous grassland
Helix (Helix) pomatia	Roman Snail		Sch 5 Section 9.1(kill/injuring/taking), 9.2, 9.5a		✓					Calcareous grassland
Marpissa muscosa	Fencepost Jumping Spider				✓					Various
Hippodamia variegata	Adonis' Ladybird				✓					
Variimorda villosa	A tumbling beetle				✓					Mixed deciduous woodland, Wood pasture & parkland
Poecilium alni	A longhorn beetle				✓					
Chrysolina sturmi	A leaf beetle				✓					Various
Cryptocephalus hypochaeridis	A pot beetle				✓					Calcareous grassland
Longitarsus anchusae	A leaf beetle				✓					Calcareous grassland
Callicera aurata	Green Callicera				✓					Wood pasture & parkland
Osmia bicolor	Red-tailed Mason Bee				✓					Calcareous grassland
Hesperia comma	Silver-spotted Skipper		Sch 5 Section 9.5a		✓					Calcareous grassland
Polyommatus coridon	Chalk Hill Blue		Sch 5 Section 9.5a		✓					
Gomphocerippus rufus	Rufous Grasshopper				✓					Calcareous grassland
Birds										
Troglodytes troglodytes	Wren					Amber				
Columba palumbus	Wood Pigeon					Amber				
Turdus philomelos	Song Thrush					Amber				Various
Plants										
Hyacinthoides non-scripta	Bluebell		Sch 8				✓	✓		

[2] Conservation of Habitats and Species Regulations 2017
[3] Sch = Schedule
[4] Wildlife and Countryside Act 1981, as amended
[5] Species of Principle Importance
[6] Species listed on the IUCN Red data list
[7] Birds of Conservation Concern

Scientific name	Common Name	Habitat Regulations [23]	WCA [4]	SPI [5]	RDL/ Nationally Rare/ Scarce [6]	BoCC [7]	Ax	AWI	GI	Relevant HPI
Sanicula europaea	Sanicle				✓		✓	✓		
Cruciata laevipes	Crosswort				✓		✓			
Oxalis acetosella	Wood-sorrel				✓		✓	✓		
Fragaria vesca	Wild Strawberry				✓		✓		✓	
Potentilla erecta	Tormentil				✓		✓		✓	
Rubus britannicus	A Bramble				✓					
Orchis anthropophora	Man Orchid			✓	✓		✓		✓	
Euphrasia pseudokerneri	Chalk Eyebright			✓	✓		✓		✓	
Juniperus communis	Juniper			✓	✓		✓			
Rhinanthus angustifolius	Greater Yellow-rattle		Sch 8		✓		✓		✓	
Platanthera chlorantha	Greater Butterfly-orchid				✓		✓	✓		
Campanula rotundifolia	Harebell				✓		✓		✓	
Phyteuma orbiculare	Round-headed Rampion				✓		✓		✓	
Sagina nodosa	Knotted Pearlwort				✓		✓		✓	
Knautia arvensis	Field Scabious				✓		✓		✓	
Gentianella amarella	Autumn Gentian				✓		✓		✓	
Mentha arvensis	Corn Mint				✓		✓			
Euphrasia nemorosa	Common Eyebright				✓		✓		✓	
Plantago media	Hoary Plantain				✓		✓		✓	
Veronica officinalis	Heath Speedwell				✓		✓		✓	
Helianthemum nummularium	Common Rock-rose				✓		✓		✓	
Briza media	Quaking-grass				✓		✓		✓	
Helleborus foetidus	Stinking Hellebore				✓		✓			
Invasive non-native										
Reynoutria japonica	Japanese Knotweed		Sch 9 Part 2							
Rhododendron ponticum	Rhododendron		Sch 9 Part 2 (England & Wales only)							
Parthenocissus quinquefolia	Virginia Creeper		Sch 9 Part 2 (England & Wales only)							
Sciurus carolinensis	Eastern Grey Squirrel		Sch 9 Part 1							Broadleaved woodland; Urban and gardens; Coniferous woodland

Additional records from within 1 km of site

Scientific name	Common Name	Habitat Regulations	WCA	SPI	RDL/ Nationally Rare/ Scarce	BoCC	Ax	AWI	GI	Relevant HPI
Invertebrates										
Limenitis camilla	White Admiral			✓	✓					Mixed deciduous woodland
Thecla betulae	Brown Hairstreak		Sch 5 Section 9.5a	✓	✓					Hedgerows, Mixed deciduous woodland
Erynnis tages	Dingy Skipper			✓	✓					Calcareous grassland, Mixed deciduous woodland
Pyrgus malvae	Grizzled Skipper			✓	✓					Calcareous grassland, Mixed deciduous woodland
Coenonympha pamphilus	Small Heath			✓	✓					Heathland, Acid Grassland, Calcareous grassland

Scientific name	Common Name	Habitat Regulations	WCA	SPI	RDL/ Nationally Rare/ Scarce	BoCC	Ax	AWI	GI	Relevant HPI
Tyria jacobaeae	Cinnabar			✓						
Lucanus cervus	Stag Beetle		Sch 5 Section 9.5a	✓	✓					Various, Wood pasture & parkland
Satyrium w-album	White-letter Hairstreak		Sch 5 Section 9.5a	✓	✓					Mixed deciduous woodland, Hedgerows
Cupido minimus	Small Blue		Sch 5 Section 9.5a	✓	✓					Calcareous grassland
Ennomos fuscantaria	Dusky Thorn			✓						Mixed deciduous woodland
Melanthia procellata	Pretty Chalk Carpet			✓						Calcareous grassland
Tholera decimalis	Feathered Gothic			✓						Various
Atethmia centrago	Centre-barred Sallow			✓						Various
Helix (Helix) pomatia	Roman Snail		Sch 5 Section 9.1(kill/injuring/taking), 9.2, 9.5a		✓					Calcareous grassland
Lasioglossum malachurum	Sharp-collared Furrow Bee				✓					Various
Mordellistena neuwaldeggiana	A tumbling beetle				✓					Mixed deciduous woodland, Wood pasture & parkland
Corticeus bicolor	A darkling beetle				✓					Hedgerows
Platyrhinus resinosus	Cramp-ball Fungus Weevil				✓					
Taphrorychus bicolor	A true weevil				✓					
Lasius brunneus	Brown Tree Ant				✓					Wood pasture & parkland
Apatura iris	Purple Emperor		Sch 5 Section 9.5a		✓					Mixed deciduous woodland
Polyommatus coridon	Chalk Hill Blue		Sch 5 Section 9.5a		✓					
Gomphocerippus rufus	Rufous Grasshopper				✓					Calcareous grassland
Henia vesuviana	A centipede				✓					
Lithobius (Lithobius) muticus	A centipede				✓					
Opilo mollis	A checkered beetle				✓					Various
Nephus quadrimaculatus	A ladybird				✓					
Hesperia comma	Silver-spotted Skipper		Sch 5 Section 9.5a		✓					Calcareous grassland
Platynaspis luteorubra	A ladybird				✓					
Cryptocephalus hypochaeridis	A pot beetle				✓					Calcareous grassland
Podagrica fuscicornis	A leaf beetle				✓					Calcareous grassland
Mitoplinthus caliginosus	Hop Root Weevil				✓					
Asiraca clavicornis	A planthopper				✓					
Hippodamia variegata	Adonis' Ladybird				✓					
Rhopalus (Rhopalus) parumpunctatus	A scentless plant bug				✓					Heathland, Acid grassland
Amphibians										
Bufo bufo	Common Toad		Sch 5 Section 9.5a	✓	✓					Various wetlands
Rana temporaria	Common Frog		Sch 5 Section 9.5a							
Lissotriton vulgaris	Smooth Newt		Sch 5 Section 9.5a							
Reptiles										

Scientific name	Common Name	Habitat Regulations	WCA	SPI	RDL/ Nationally Rare/ Scarce	BoCC	Ax	AWI	GI	Relevant HPI
Anguis fragilis	Slow-worm		Sch 5 Section 9.1(kill/injuring), 9.5a	✓						Various
Zootoca vivipara	Common Lizard		Sch 5 Section 9.1(kill/injuring), 9.5a	✓						Various
Birds										
Emberiza citrinella	Yellowhammer			✓		Red				Hedgerows, Arable field margins, Heathland
Vanellus vanellus	Northern Lapwing			✓	✓	Red				Floodplain grazing marsh, Standing water, Arable field margins
Streptopelia turtur	Turtle Dove			✓	✓	Red				Wood-pasture & parkland, Hedgerows
Cuculus canorus	Common Cuckoo			✓	✓	Red				Various
Alauda arvensis	Skylark			✓		Red				Calcareous & Acid grassland, Arable field margins
Acanthis cabaret	Lesser Redpoll			✓		Red				Woodland
Coccothraustes coccothraustes	Hawfinch			✓	✓	Red				Mixed deciduous/Beech & yew woodland
Locustella naevia	Grasshopper Warbler			✓		Red				
Anthus trivialis	Tree Pipit			✓		Red				Heathland
Muscicapa striata	Spotted Flycatcher			✓		Red				Wood-pasture & parkland, Mixed deciduous woodland
Passer domesticus	House Sparrow			✓		Red				Urban, Hedgerows
Passer montanus	Tree Sparrow			✓	✓	Red				
Phylloscopus sibilatrix	Wood Warbler			✓	✓	Red				Mixed deciduous/Beech & yew woodland
Turdus torquatus	Ring Ouzel			✓	✓	Red				
Milvus milvus	Red Kite		Sch 1 Part 1							Mixed deciduous woodland
Tyto alba	Barn Owl		Sch 1 Part 1							Various
Prunella modularis	Dunnock					Amber				Various
Troglodytes troglodytes	Wren					Amber				
Circus aeruginosus	Marsh Harrier		Sch 1 Part 1		✓	Amber				
Circus pygargus	Montagu's Harrier		Sch 1 Part 1		✓	Red				Various
Pandion haliaetus	Osprey		Sch 1 Part 1		✓	Amber				
Limosa lapponica	Bar-tailed Godwit					Amber				
Falco peregrinus	Peregrine Falcon		Sch 1 Part 1							
Falco subbuteo	Hobby		Sch 1 Part 1							Heathland, Mixed deciduous woodland
Falco tinnunculus	Common Kestrel				✓	Amber				Various
Acanthis flammea	Redpoll				✓	Red				Woodland
Chloris chloris	Greenfinch				✓	Red				
Fringilla montifringilla	Brambling		Sch 1 Part 1							
Linaria cannabina	Linnet				✓	Red				Heathland, Hedgerows, Arable field margins
Loxia curvirostra	Common Crossbill		Sch 1 Part 1							Heathland
Delichon urbicum	House Martin				✓	Red				Urban, Standing water

Scientific name	Common Name	Habitat Regulations	WCA	SPI	RDL/ Nationally Rare/ Scarce	BoCC	Ax	AWI	GI	Relevant HPI
Anthus pratensis	Meadow Pipit					Amber				Heathland, Acid grassland, Meadows
Motacilla cinerea	Grey Wagtail				✓	Amber				Rivers, Standing water
Motacilla flava	Yellow Wagtail				✓	Red				
Oenanthe oenanthe	Northern Wheatear					Amber				
Phoenicurus phoenicurus	Common Redstart					Amber				
Saxicola rubetra	Whinchat				✓	Red				
Poecile palustris	Marsh Tit				✓	Red				Mixed deciduous woodland
Regulus ignicapilla	Firecrest		Sch 1 Part 1							Mixed deciduous/Beech & yew woodland
Turdus iliacus	Redwing		Sch 1 Part 1		✓	Amber				Various
Turdus pilaris	Fieldfare		Sch 1 Part 1		✓	Red				Various
Dryobates minor	Lesser Spotted Woodpecker				✓	Red				Mixed deciduous/Wet woodland, Wood-pasture & parkland
Strix aluco	Tawny Owl				✓	Amber				Mixed deciduous woodland, Wood-pasture & parkland
Accipiter nisus	Eurasian Sparrowhawk				✓	Amber				
Turdus philomelos	Song Thrush					Amber				Various
Anas platyrhynchos	Mallard				✓	Amber				
Anser anser	Greylag Goose		Sch 1 Part 2			Amber				Various wetlands
Apus apus	Common Swift				✓	Red				Urban
Chroicocephalus ridibundus	Black-headed Gull				✓	Amber				
Larus argentatus	Herring Gull				✓	Red				Various
Larus canus	Common Gull					Amber				Standing water, Rivers
Larus fuscus	Lesser Black-backed Gull					Amber				
Larus glaucoides	Iceland Gull				✓	Amber				
Larus marinus	Great Black-backed Bull				✓	Amber				Standing water, Rivers
Gallinago gallinago	Common Snipe				✓	Amber				
Scolopax rusticola	Woodcock				✓	Red				Mixed deciduous/Wet woodland
Ardea cinerea	Grey Heron				✓					
Columba oenas	Stock Dove					Amber				
Columba palumbus	Wood Pigeon					Amber				

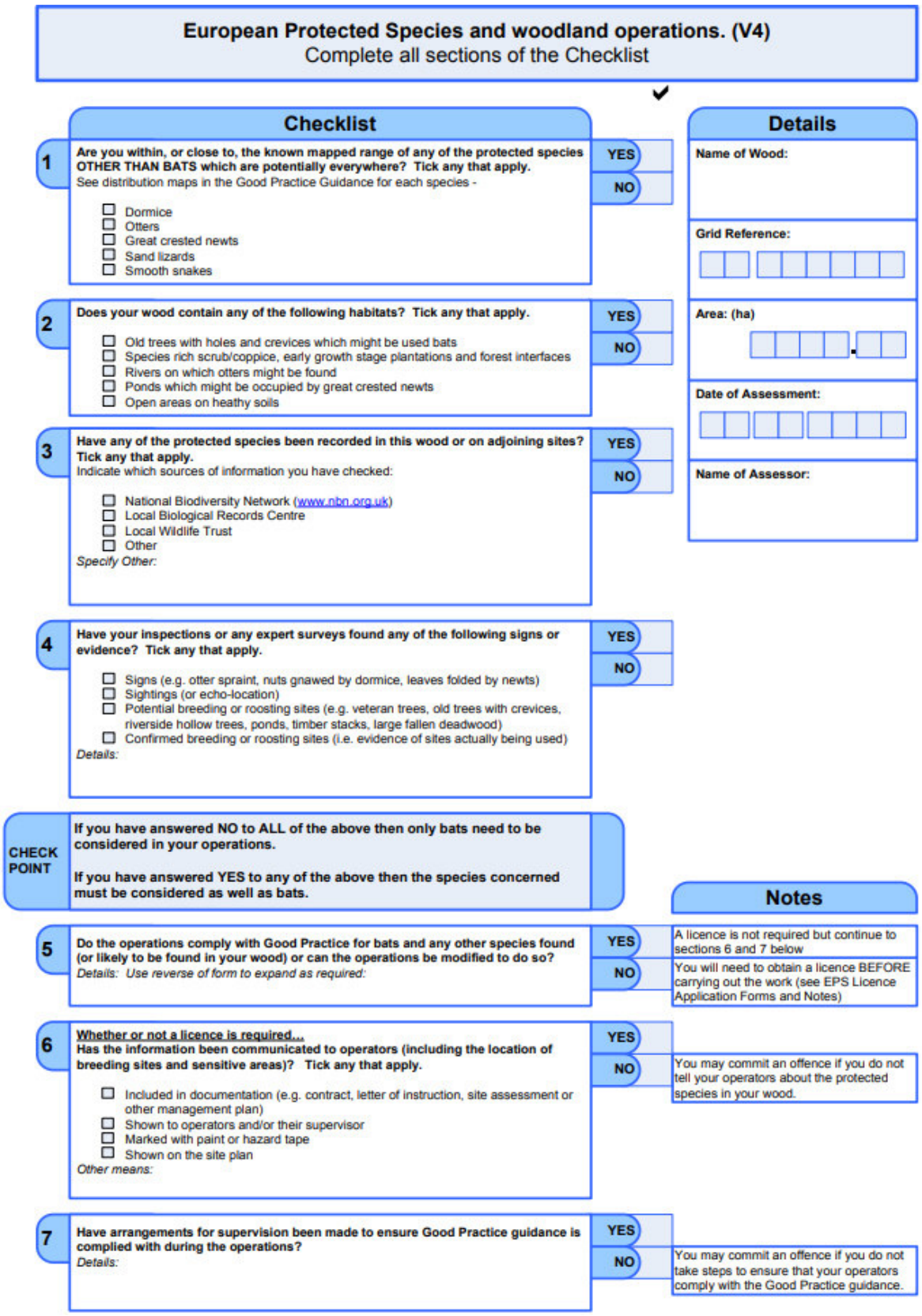
Scientific name	Common Name	Habitat Regulations	WCA	SPI	RDL/ Nationally Rare/ Scarce	BoCC	Ax	AWI	GI	Relevant HPI
Streptopelia decaocto	Collared Dove				✓					
Acrocephalus schoenobaenus	Sedge Warbler					Amber				
Corvus frugilegus	Rook				✓	Amber				
Pyrrhula pyrrhula	Bullfinch					Amber				
Ficedula hypoleuca	Pied Flycatcher				✓	Amber				
Phylloscopus trochilus	Willow Warbler					Amber				Heathland, Wet woodland
Sturnus vulgaris	Common Starling				✓	Red				Urban
Curruca communis	Common Whitethroat					Amber				
Turdus viscivorus	Mistle Thrush				✓	Red				Mixed deciduous woodland, Wood-pasture & parkland
Phalacrocorax carbo	Great Cormorant				✓					
Mammals										
Erinaceus europaeus	West European Hedgehog			✓	✓					Urban and gardens; Improved grassland; Arable and horticulture; Broadleaved woodland; Coniferous woodland; Unimproved grassland
Plecotus auritus	Brown Long-eared Bat	Sch 2	Sch 5 Section 9.4b-c, 9.5a	✓						Various
Chiroptera	A bat	Sch 2	Sch 5 Part 9.4b, 9.4c, 9.5, Sch 6							
Mustela erminea	Stoat		Sch 6ZA							
Pipistrellus pipistrellus	Common Pipistrelle	Sch 2	Sch 5 Section 9.4b-c, 9.5a							
Sorex minutus	Eurasian Pygmy Shrew		Sch 6							Unimproved grassland; Improved grassland; Bog; Broadleaved woodland; Urban and gardens; Dwarf shrub heath; Fen, marsh and swamp; Hedgerows
Plants										
Cephalanthera damasonium	White Helleborine			✓	✓		✓			
Ophrys insectifera	Fly Orchid			✓	✓		✓			
Ajuga chamaepitys	Ground-pine		Sch 8	✓	✓		✓		✓	
Euphrasia pseudokerneri	Chalk Eyebright			✓	✓		✓		✓	
Orchis anthropophora	Man Orchid			✓	✓		✓		✓	
Hyacinthoides non-scripta	Bluebell		Sch 8				✓	✓		
Teucrium botrys	Cut-leaved Germander		Sch 8				✓			
Rhinanthus angustifolius	Greater Yellow-rattle		Sch 8		✓		✓		✓	
Sanicula europaea	Sanicle				✓		✓	✓		
Cichorium intybus	Chicory				✓		✓		✓	
Buxus sempervirens	Box				✓		✓			
Knautia arvensis	Field Scabious				✓		✓		✓	
Geranium sylvaticum	Wood Crane's-bill				✓					
Oxalis acetosella	Wood-sorrel				✓		✓	✓		
Ranunculus flammula	Lesser Spearwort				✓		✓			

Scientific name	Common Name	Habitat Regulations	WCA	SPI	RDL/ Nationally Rare/ Scarce	BoCC	Ax	AWI	GI	Relevant HPI
Fragaria vesca	Wild Strawberry				✓		✓		✓	
Carlina vulgaris	Carline Thistle				✓		✓		✓	
Phyteuma orbiculare	Round-headed Rampion				✓		✓		✓	
Gentianella amarella	Autumn Gentian				✓		✓		✓	
Cruciata laevipes	Crosswort				✓		✓			
Euphrasia nemorosa	Common Eyebright				✓		✓		✓	
Veronica officinalis	Heath Speedwell				✓		✓		✓	
Helianthemum nummularium	Common Rock-rose				✓		✓		✓	
Vulpia unilateralis	Mat-grass Fescue				✓		✓			
Helleborus foetidus	Stinking Hellebore				✓		✓			
Potentilla erecta	Tormentil				✓		✓		✓	
Thesium humifusum	Bastard-toadflax				✓		✓		✓	
Cuscuta epithymum	Dodder				✓		✓		✓	
Allium ampeloprasum	Wild Leek				✓					
Myriophyllum verticillatum	Whorled Water-milfoil				✓		✓			
Solidago virgaurea	Goldenrod				✓		✓	✓	✓	
Succisa pratensis	Devil's-bit Scabious				✓		✓		✓	
Plantago media	Hoary Plantain				✓		✓		✓	
Euphorbia exigua	Dwarf Spurge				✓		✓			
Briza media	Quaking-grass				✓		✓		✓	
Bromus secalinus	Rye Brome				✓		✓			
Invasive non-native										
Reynoutria japonica	Japanese Knotweed		Sch 9 Part 2							
Rhododendron ponticum	Rhododendron		Sch 9 Part 2 (England & Wales only)							
Allium triquetrum	Three-cornered Garlic		Sch 9 Part 2 (England & Wales only)							
Lamiastrum galeobdolon subsp. argentatum	Variegated Yellow Archangel		Sch 9 Part 2 (England & Wales only)							
Alopochen aegyptiaca	Egyptian Goose		Sch 9 Part 1							
Branta canadensis	Canada Goose		Sch 9 Part 1							
Psittacula krameri	Ring-necked Parakeet		Sch 9 Part 1							
Sciurus carolinensis	Eastern Grey Squirrel		Sch 9 Part 1							Broadleaved woodland; Urban and gardens; Coniferous woodland
Impatiens glandulifera	Himalayan Balsam		Sch 9 Part 2 (England & Wales only)							
Cotoneaster horizontalis	Wall Cotoneaster		Sch 9 Part 2 (England & Wales only)							
Parthenocissus quinquefolia	Virginia Creeper		Sch 9 Part 2 (England & Wales only)							

Scientific name	Common Name	Habitat Regulations	WCA	SPI	RDL/ Nationally Rare/ Scarce	BoCC	Ax	AWI	GI	Relevant HPI
Elodea canadensis	Canadian Waterweed		Sch 9 Part 2 (England & Wales only)							
Allium paradoxum	Few-flowered Leek		Sch 9 Part 2							

Appendix 9: European protected species checklist

EPS checklist V3 (publishing.service.gov.uk)



European Protected Species and woodland operations. (V4)
Complete all sections of the Checklist

Checklist

1 **Are you within, or close to, the known mapped range of any of the protected species OTHER THAN BATS which are potentially everywhere? Tick any that apply.** YES / NO
See distribution maps in the Good Practice Guidance for each species -

- ☐ Dormice
- ☐ Otters
- ☐ Great crested newts
- ☐ Sand lizards
- ☐ Smooth snakes

2 **Does your wood contain any of the following habitats? Tick any that apply.** YES / NO

- ☐ Old trees with holes and crevices which might be used bats
- ☐ Species rich scrub/coppice, early growth stage plantations and forest interfaces
- ☐ Rivers on which otters might be found
- ☐ Ponds which might be occupied by great crested newts
- ☐ Open areas on heathy soils

3 **Have any of the protected species been recorded in this wood or on adjoining sites? Tick any that apply.** YES / NO
Indicate which sources of information you have checked:

- ☐ National Biodiversity Network (www.nbn.org.uk)
- ☐ Local Biological Records Centre
- ☐ Local Wildlife Trust
- ☐ Other

Specify Other:

4 **Have your inspections or any expert surveys found any of the following signs or evidence? Tick any that apply.** YES / NO

- ☐ Signs (e.g. otter spraint, nuts gnawed by dormice, leaves folded by newts)
- ☐ Sightings (or echo-location)
- ☐ Potential breeding or roosting sites (e.g. veteran trees, old trees with crevices, riverside hollow trees, ponds, timber stacks, large fallen deadwood)
- ☐ Confirmed breeding or roosting sites (i.e. evidence of sites actually being used)

Details:

CHECK POINT

If you have answered NO to ALL of the above then only bats need to be considered in your operations.

If you have answered YES to any of the above then the species concerned must be considered as well as bats.

5 **Do the operations comply with Good Practice for bats and any other species found (or likely to be found in your wood) or can the operations be modified to do so?** YES / NO
Details: Use reverse of form to expand as required:

6 **Whether or not a licence is required...**
Has the information been communicated to operators (including the location of breeding sites and sensitive areas)? Tick any that apply. YES / NO

- ☐ Included in documentation (e.g. contract, letter of instruction, site assessment or other management plan)
- ☐ Shown to operators and/or their supervisor
- ☐ Marked with paint or hazard tape
- ☐ Shown on the site plan

Other means:

7 **Have arrangements for supervision been made to ensure Good Practice guidance is complied with during the operations?** YES / NO
Details:

Details

Name of Wood:

Grid Reference:

Area: (ha)

Date of Assessment:

Name of Assessor:

Notes

A licence is not required but continue to sections 6 and 7 below

You will need to obtain a licence BEFORE carrying out the work (see EPS Licence Application Forms and Notes)

You may commit an offence if you do not tell your operators about the protected species in your wood.

You may commit an offence if you do not take steps to ensure that your operators comply with the Good Practice guidance.

Appendix 10: Basic biosecurity protocols

Basic biosecurity advice for site visits

You should consider biosecurity at the earliest stage when planning any field work, from surveying an area to removing non-native species. Some biosecurity measures can be as simple and as quick as making sure your equipment (including any sampling or survey equipment), footwear, PPE, and vehicle is clean.

1. If practical do not take vehicles onto premises, keep to established tracks and park vehicles on hard standing.
2. Arrive at the site with clean equipment, footwear and vehicle.
3. Ensure equipment and footwear is clean (visually from soil and debris) before leaving the site.
4. Ensure vehicle is kept clean - in particular, remove any accumulated mud before leaving the site.
5. Make use of facilities provided on the site to clean footwear/equipment.
6. Keep access to a minimum.
7. Where possible avoid areas of livestock or known disease.

Plan visits so that the highest risk site is visited last (NNSS: GB Non-native Species Secretariat, 2023).

Appendix 11: Bat box information pack

Bat Conservation Trust

www.bats.org.uk

Bat Box Information Pack

Bats are amazing animals that are important to ecosystems in the UK and worldwide. We have 18 species of bat in the UK, all of which are protected under European law. Bat populations in the UK have declined dramatically over the past century due to persecution and habitat loss. However, some UK bat species have recently shown some signs of increasing so there is hope.


© Andrew Dumbleton

Bat boxes are artificial roosts designed to provide bats with alternative resting places or to encourage bats into areas where there are few existing suitable roost sites. There are various designs of bat box; wooden boxes that you can make yourself, ready-assembled external boxes for buildings and trees, and even integrated bat boxes that can be built into walls.

Providing bat boxes can increase opportunities for roosting bats but it can take a while for bat boxes to be used regularly, particularly where a number of suitable alternative roost sites exist. Bat boxes can have an important additional function in encouraging interest and educating members of the public about bat conservation. The correct design and placement of boxes will help increase the likelihood of their uptake by bats.

Bat roost preferences

Bat boxes are now available from many outlets, and in a range of shapes and sizes, so some knowledge of what bat species are in your local area and their preferences will help you choose the best possible box. Some species such as horseshoe bats and grey long-eared bats do not use bat boxes.

Microclimate within a new roost is a very important factor in terms of increasing the chance of successful uptake by bats. In general, they prefer warm spaces in the summer for rearing young and cooler spaces in the winter for hibernation. The box should be draught proof and made from a thermally stable material such as untreated wood, ecostyrocrete, woodcrete, brick or stone. If possible, it's better to provide several internal chambers so that the bats can move around.


©Hugh Clark

Orientation and location

Structures for summer roosting should be positioned where they are sheltered from the wind but unshaded for most of the day. Summer maternity roosts (in the northern hemisphere) should be on a south-easterly to south-westerly aspect. It is always best to provide a number of different options for bats so that they can choose the most appropriate temperature based on their needs. This can be achieved by grouping a number of bat boxes each with a different aspect; two or three boxes is preferable to one, although a single box still has a chance of being used depending on the bat species that use the local area. Three boxes can be arranged around the trunk of larger trees – see below for details about putting up bat boxes.


© Fern Alder

Bat boxes are more likely to succeed in areas where there is a good mixture of foraging habitat, including trees, and a source of water (most maternity roosts are located within a short distance of permanent fresh water such as a stream, pond, river or lake). Bat boxes in areas with few other roosting opportunities are also likely to be more successful.

Bat boxes should also be located close to unlit linear features, such as lines of trees or hedgerows. Bat species use these features for navigation between their roosting sites and feeding grounds and to avoid flying in open and exposed areas. Ensure the bats approach to the box is not impeded, for example by branches – clear away underneath the box so the bats can land easily before crawling up into the box.

Size of the bat box

The most frequently used bat boxes are small and only suitable for crevice-dwelling bat species.

Access

Crevice dwelling bats crawl into their roosts via small gaps around 15-20mm high. Roughened vertical surfaces or landing areas allow better access (by landing and crawling), although horizontal landing perches should be avoided as these are not necessary, may even deter bats and encourage birds to nest within the bat box.


© John Altringham

Other considerations

Bats are nocturnal and adapted to low light conditions. Artificial light sources should not be directed onto bat boxes or flight paths as most bat species find artificial lighting very disturbing.

If possible, make or purchase bat boxes with an entrance slit along the bottom so that accumulated bat waste can drop out of the box or be pushed out as bats emerge. This will also help stop birds nesting in the box and blocking the entrance, which can happen with bat boxes that have entrance holes in the middle.

Boxes that may accumulate bat droppings will also need to be cleaned regularly by a licensed bat worker. It is important to remember that bat boxes must not be opened by anyone except a licensed bat worker (see 'monitoring bat boxes' below for more details on licences). In addition, nesting birds must not be disturbed so leave the area immediately upon finding an active nest in a box, and there is the potential for dormice to be found in some woodland boxes, in which case the box must only be checked by a licensed ecologist

Types of bat boxes

Bat boxes come in many forms depending on their materials, function and location. Simple bat boxes are available commercially or can even be home-made. Bat boxes can be divided into the following categories: self-made external bat boxes, ready-made external bat boxes, integrated bat boxes and free standing bat boxes. Advanced forms of artificial roost creation include bat houses, bat barns and internal bat lofts (if you are interested in these please refer to the websites and publications listed at the end of this document).

Self-made external bat boxes

Self-made wooden bat boxes are usually located on trees or the outside walls of buildings. These boxes are usually cubic or rectangular, with a grooved 'bat ladder' and a narrow entrance slit at the bottom. These will last for approximately ten years and can either be bought in kit form, or you can make your own from scratch (there are instructions for the 'The Kent bat box' pictured below in the Appendix at the end of this document – these boxes are also available commercially).

They come in a variety of shapes but key requirements are:


Kent Bat Box

- The wood should be rough sawn for grip and untreated.
- Bats do not like draughts; the entrance slit should be no more than 15-20mm wide and there should be no gaps where the sides and top join - the box should be well put together.
- A box that cannot be opened is best - it will lessen the chances of the bats being harmed through becoming trapped under the opened lid, or disturbed by people opening the top.
- To increase longevity of the box, use screws rather than nails.
- Any screws, hardware or staples used must be exterior grade (galvanized, coated, stainless, etc).

Ready-made external bat boxes

There are a number of ready made external bat boxes suitable for buildings and trees that can be purchased. These boxes can be made from wood, however there are an increasing number of more durable options, such as ecostyrocrete (pictured right). These types of boxes can come in a range of finishes to blend into the buildings façade or indeed to highlight their presence!

Integrated bat boxes

Integral or integrated bat boxes can be built into the walls or masonry of houses and other buildings. The boxes can be embedded such that they do not impair the air-tightness of the building. Many designs are available including some that have bespoke coverings that can match the building façade and / or highlight the boxes presence (see boxes left and below from **Habibat**). The same principles for size, location and access apply.

Ready-made free standing boxes

American style bat houses (larger, multi-chambered boxes) have been successfully used for bat conservation in North America and elsewhere. These large multi-chambered boxes are increasingly being used in the UK for sites where there are few suitable features (such as trees or buildings) for boxes to be attached to, as they can be put up on poles:

http://www.batcon.org/files/RocketBoxPlans.pdf

Commercial designs are now available, such as the 'rocket box' from Habibat (pictured right).

Habibat

Habibat is a partnership between the Bat Conservation Trust, Ecosurv, their partnership bat box companies and Habibats customers. Their aim is to provide bat boxes that work for bats and buildings. A portion of the profits from each Habibat partner company bat box sold is reinvested into the Habibat scheme to improve accommodation for bats in the long run with an aim to implement monitoring and research. The scheme aims to improve knowledge of integrated bat box use and design,and give customers guidance on installation.

If you would like further information on the products and partnership companies, visit the Habibat website: www.habibat.co.uk.

Putting up bat boxes

Most bat species will use higher positioned boxes (around 4m up); assess the risk of working at height when undertaking the installation, then place the box as high as it is safe to do so. This will also help protect bats from vandalism and falling prey to cats. If working in the public realm, try to locate boxes so they are not above public walkways.

Ensure the boxes are appropriately fitted, to avoid the risk of them falling off. The boxes should be checked at least annually and after high winds to ensure they are still securely in place.

On buildings

Place the boxes high up by the eaves on a building, which can also help shelter the box from the weather. As detailed above, the aspect of the box should capture sun for part of the day if the intention is to attract maternity colonies.

Gazebos, garden walls and sheds have been suggested as sites for bat boxes. However, the main danger is that the boxes are not high enough above the ground, the structures may not be robust enough to support the box in high winds and the boxes are too visible to predators or vandals.

On trees

Consideration should be given to tree growth and boxes may need rehanging over time, regularly check boxes to assess this. Use headless or domed nails not fully hammered home to allow the tree growth, again regular checks will ensure that this allowance can be made while still being securely fitted. Iron nails can be used on trees with no commercial value. Copper nails can be used on conifers, but aluminium alloy nails are less likely to damage saws and chipping machinery.

Monitoring bat boxes

Making and putting up bat boxes is a great conservation action but what is even more useful is to know whether they are being used, when and by which species.

How long before bats will use the box?

Sometimes it can take several years for bats to find a new box. Be patient! Slow (or no) uptake may be due to the availability of other roosts locally. Sometimes, however, bats move in within months or even weeks!

How will I know if the box has been successful?

To check if the box is being used, look out for droppings and urine-staining on the vertical 'bat ladder' below the box and listen for 'chattering' during the day, especially during the summer months. You can also watch the box for an hour either side of sunset to observe any bats leaving to feed, or around dawn to see any bats returning to their roost. Bats may be observed by looking up into the box from below, however no light should be used as this may disturbany bats that are present.

Licensing and the law

You can undertake the non-invasive checks above without needing a licence. However, if the box needs to be opened to check it then there must be a suitably licensed bat worker present. Anyone wishing to undertake bat box checks should obtain training in bat handling and identification before applying for a licence. You can find out more about licensing and bats on the Bat Conservation Trust website at: www.bats.org.uk/pages/licensing.html

All bats and their roosts are protected by law and it is an offence to deliberately disturb, handle or kill bats. The relevant legislation in England & Wales is the Wildlife and Countryside Act 1981 and Conservation of Habitats & Species Regulations 2010 (as amended). In Scotland it is the Conservation (Natural Habitats, etc.) Regulations 1994 and in Northern Ireland the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995.

A bed without breakfast?

Bats often use features such as hedgerows, tree lines and watercourses as commuting pathways between roosts and foraging areas. This type of habitat also provides shelter, allowing insects to gather and therefore supports foraging bats. The highest densities of bats occur where insects are most plentiful.

Make sure you maintain or create good foraging habitats for bats by planting a wide range of plants such as flowers that vary not only in colour and fragrance, but also in shape. See BCT's 'Encouraging Bats' leaflet for more information (www.bats.org.uk\publications).

Other useful websites

Bat Conservation Trust www.bats.org.uk
The Bat Conservation Trust (BCT) is working towards a world where bats and people thrive in harmony, to ensure they are around for future generations to enjoy. BCT is the only organisation solely devoted to bat conservation in the UK.

Bat Conservation International www.batcon.org
Bat Conservation International's mission is to conserve the world's bats and their ecosystems to ensure a healthy planet. Based in Austin, Texas, BCI is devoted to conservation, education and research initiatives involving bats and the ecosystems they serve.

Roost roost.bats.org.uk
Roost is a resource developed by the Bat Conservation Trust (BCT) to aid in the gathering of information on bat roost mitigation, compensation and enhancement techniques. The aim is for this site to provide accessible information to support everyone involved in bat conservation and development.

Vincent Wildlife Trust www.vwt.org.uk
The Vincent Wildlife Trust (VWT) is an independent charitable body founded by Vincent Weir in 1975 and has been supporting wildlife conservation ever since. They conserve a range of endangered mammals through management of their own reserves, undertake pioneering research and provide expert advice to others through practical demonstration.

Publications

Gunnell, K., Murphy, B. and Williams, C. (2013) Designing for biodiversity: a technical guide for new and existing buildings (2nd ed.)

Gunnell, K., Grant, G. and Williams C. (2012) Landscape and urban design for bats and biodiversity

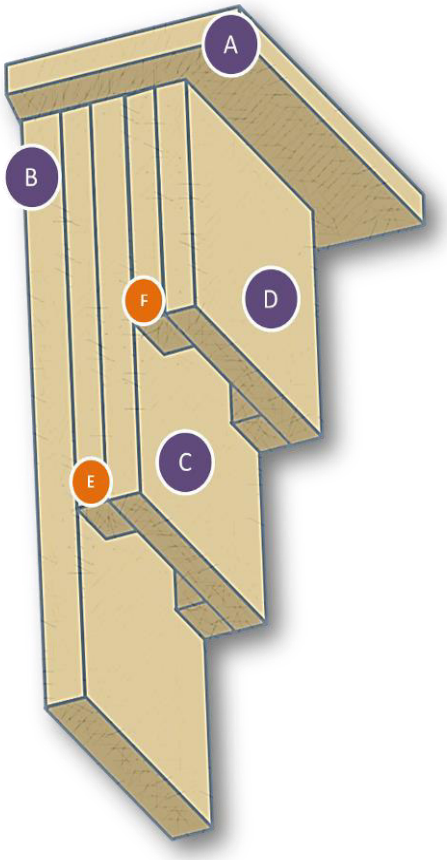
Mitchell-Jones, A.J (2004) Bat mitigation guidelines

Mitchell-Jones, A.J. and McLeish, A.P. (2004) Bat workers' manual (3rd edition)

Tuttle, M.D., Kiser M. and Kiser S (2004) The Bat House Builder's Handbook

Appendix: The Kent bat box (D.I.Y. instructions)

Design and measurements



Simple to construct, self-cleaning and low maintenance, the Kent bat box (designed by the Kent Bat Group) is a great way to encourage bats in your garden or your green space. The box should be rainproof and draught-free.

The only critical measurement is the width of the crevices: between 15-25mm. Other measurements are approximate. Timber should be approximately 20mm thick.

Measurements for one Kent bat box kit would be as follows:

Part	Quantity	Size (mm)
Roof (A)	1	250 x 160 x 20
Back (B)	1	450 x 200 x 20
Centre (C)	1	330 x 200 x 20
Front (D)	1	210 x 200 x 20
Centre Rails (E)	2	330 x 20 x 20
Front Rails (F)	2	210 x 15 x 15
Stand-offs (optional)	2	200 x 20 x 20

Material and Tools

This kit requires approximately 1.6m of rough wood and 25 screws (8 x 1 ½ inches) to assemble. You can rough it up by scraping with a suitable tool – possibly a saw blade or even a screwdriver but make sure you use untreated wood as some preservative chemicals can kill bats.

Pre-drill the holes to prevent the wood splitting. Alternatively you can assemble your bat box kit with nails although they tend to be less robust than boxes made with screws.

The hanging screws may either be at the edges of the front panel or in the side centre block (not in the rails!). Fixing may be by use of brackets, durable nylon cord or wires.

When installing the box, assess the risks of working at height, use the appropriate fittings and assess where the box will be located, in relation to any public access. Regular checks should be made to ensure the box remains securely fitted, especially after high winds.

Photos and illustrations in this document by the Bat Conservation Trust unless otherwise stated.