



Burgh Heath

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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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 °C since the late 19th century and rising at about 0.2 °C/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 °C.
- 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

Burgh Heath has a near flat topography with a maximum altitude of 180m.

Hydrology

There are four permanent ponds within the site (5.1-5.4 on Figure 1 and described in Table 5 in the Site Management Plan). In addition a seasonally wet depression has been recorded within woodland in the north of the site although this was not observed during the current survey.

A water storage facility is located within the north western corner of the site. This is securely fenced and not included within the scope of this management plan. A previous management plan for the site (Land Management Services, 2014) stated that flushing of these reservoirs causes periodic inundation of part of the woodland in the north.

History / Archaeology

A detailed description of the history of the area and relevant maps can be found in the previous management plan for the site (Land Management Services, 2014) and in (Morgan, 2020). The most relevant points are summarised below.

Maps dating from 1866/7 show the land within the site as Bracken, heath or rough grassland with the area in the north east pockmarked with excavations and hollows marked as old gravel pits. By 1933 scattered deciduous trees are shown throughout the area and the southern tip is shown as woodland. Maps suggest that the conversion of the site to secondary woodland is a feature of the second half of the 20th C, although the 1997 OS revision still shows woodland limited to the eastern boundary.

Banstead Commons Conservators

In the 1860s, the main pond (5.4 on Figure 1) is shown as two separate ponds rather than the single pond today. The other existing ponds including the two Lonesome Ponds (5.1 & 5.2), and Sheepwash Pond (5.3) are also shown.

A small pond, is shown on the 1866/7 map close to what is now the southern boundary of the site. This pond no longer exists.

Old maps indicated that the reservoirs in the north west of the site had been constructed by 1894.

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

Appendix 2: 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 1.

Fauna species mentioned in this report will be referred to by their common name. Scientific names for these species are detailed in Appendix 2.

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 survey was undertaken by Claire Gibbs BSc (Hons) MSc MCIEEM – Principal Ecologist on 6th June 2023 under suitable weather conditions.

BNG condition assessment

BNG assessment requires information on the condition of the habitat. This was undertaken on 06/06/2023 by Claire Gibbs BSc (Hons) MSc MCIEEM – Principal 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 (Natural England, 2023). Habitat condition assessment forms are presented in Appendix 3. 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 mixed deciduous woodland = 1.1-1.8
- Lowland dry acid grassland = 2.1
- Other neutral grassland = 3.1-3.5
- Modified grassland = 4.1-4.2
- Eutrophic standing waters (ponds) = 5.1-5.4

Biodiversity net gain assessment

Biodiversity net gain is calculated and interpreted following eight principles and rules, as defined in (Natural England, 2023). 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.

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, 2023) accessed on 06/09/2023. 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. The habitat condition assessment was undertaken June which is considered to be optimal.

Based on the above, a full appraisal of the plant species and habitats present was 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 3: Vascular plant species recorded on 06/06/23

Scientific name	Common name	Habitat/s	Abundance in habitat type
<i>Acer campestre</i>	Field Maple	Lowland mixed deciduous woodland	O
<i>Acer platanoides</i>	Norway Maple	Lowland mixed deciduous woodland	R
<i>Acer pseudoplatanus</i>	Sycamore	Lowland mixed deciduous woodland	O/LF
<i>Achillea millefolium</i>	Yarrow	Other neutral grassland	R
<i>Aegopodium podagraria</i>	Ground-elder	Lowland mixed deciduous woodland	R/LF
<i>Aesculus hippocastanum</i>	Horse-chestnut	Lowland mixed deciduous woodland	O
<i>Agrostis capillaris</i>	Common Bent	Lowland dry acid grassland Other neutral grassland	O O
<i>Alisma plantago-aquatica</i>	Water-plantain	Eutrophic standing waters	R/LF
<i>Alliaria petiolata</i>	Garlic Mustard	Lowland mixed deciduous woodland	R
<i>Allium ursinum</i>	Ramsons	Lowland mixed deciduous woodland	R/LA
<i>Alopecurus pratensis</i>	Meadow Foxtail	Other neutral grassland	R
<i>Anisantha sterilis</i>	Barren Brome	Other neutral grassland	R
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Other neutral grassland	R
<i>Anthriscus sylvestris</i>	Cow Parsley	Other neutral grassland	LF
<i>Arrhenatherum elatius</i>	False Oat-grass	Other neutral grassland	O/LF
<i>Artemisia vulgaris</i>	Mugwort	Other neutral grassland	R
<i>Arum maculatum</i>	Lords-and-Ladies	Lowland mixed deciduous woodland	O
<i>Asplenium scolopendrium</i>	Hart's-tongue	Lowland mixed deciduous woodland	R
<i>Betula pendula</i>	Silver Birch	Lowland mixed deciduous woodland	O/LF
<i>Brachypodium sylvaticum</i>	False Brome	Lowland mixed deciduous woodland	R
<i>Buddleja davidii</i>	Butterfly-bush	Lowland mixed deciduous woodland	R
<i>Carex pendula</i>	Pendulous Sedge	Lowland mixed deciduous woodland	O
<i>Carex remota</i>	Remote Sedge	Lowland mixed deciduous woodland	R

Scientific name	Common name	Habitat/s	Abundance in habitat type
<i>Carex sylvatica</i>	Wood Sedge	Lowland mixed deciduous woodland	O
<i>Castanea sativa</i>	Sweet Chestnut	Lowland mixed deciduous woodland	R
<i>Centaurea nigra</i>	Common Knapweed	Lowland dry acid grassland Other neutral grassland	O O
<i>Circaea lutetiana</i>	Enchanter's-nightshade	Lowland mixed deciduous woodland	O
<i>Cirsium arvense</i>	Creeping Thistle	Other neutral grassland	R
<i>Cirsium palustre</i>	Marsh Thistle	Other neutral grassland	R
<i>Corylus avellana</i>	Hazel	Lowland mixed deciduous woodland	O
<i>Cotoneaster bullatus</i>	Hollyberry Cotoneaster	Lowland mixed deciduous woodland	R
<i>Crataegus monogyna</i>	Hawthorn	Lowland mixed deciduous woodland	O
<i>Dactylis glomerata</i>	Cock's-foot	Other neutral grassland Modified grassland	O O
<i>Dryopteris dilatata</i>	Broad Buckler-fern	Lowland mixed deciduous woodland	R
<i>Dryopteris filix-mas</i>	Male Fern	Lowland mixed deciduous woodland	O
<i>Elytrigia repens</i>	Common Couch	Other neutral grassland	R
<i>Epilobium montanum</i>	Broad-leaved Willowherb	Other neutral grassland	R
<i>Fagus sylvatica</i>	Beech	Lowland mixed deciduous woodland	O
<i>Festuca rubra agg.</i>	Red Fescue	Lowland dry acid grassland Other neutral grassland Modified grassland	O O R
<i>Fraxinus excelsior</i>	Ash	Lowland mixed deciduous woodland	O
<i>Galium aparine</i>	Cleavers	Lowland mixed deciduous woodland	O
<i>Galium saxatile</i>	Heath Bedstraw	Lowland dry acid grassland	O
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	Other neutral grassland	R
<i>Geranium robertianum</i>	Herb-Robert	Lowland mixed deciduous woodland	O
<i>Geum urbanum</i>	Wood Avens	Lowland mixed deciduous woodland	O

Scientific name	Common name	Habitat/s	Abundance in habitat type
<i>Glechoma hederacea</i>	Ground-ivy	Other neutral grassland	R
<i>Glyceria fluitans</i>	Floating Sweet-grass	Eutrophic standing waters	R
<i>Hedera helix</i>	Common ivy	Lowland mixed deciduous woodland	O
<i>Hedera</i> spp. (likely <i>Hibernica</i>)	Ivy cultivar (likely Atlantic ivy)	Lowland mixed deciduous woodland	LF
<i>Heracleum sphondylium</i>	Hogweed	Lowland mixed deciduous woodland	R
<i>Holcus lanatus</i>	Yorkshire-fog	Lowland dry acid grassland Other neutral grassland Modified grassland	O O O
<i>Hyacinthoides non-scripta</i>	Bluebell	Lowland mixed deciduous woodland	O
<i>Hypericum androsaemum</i>	Tutsan	Lowland mixed deciduous woodland	R
<i>Hypochaeris radicata</i>	Cat's-ear	Lowland dry acid grassland Other neutral grassland	O O
<i>Ilex aquifolium</i>	Holly	Lowland mixed deciduous woodland	O/LA
<i>Iris pseudacorus</i>	Yellow Iris	Eutrophic standing waters	LF
<i>Jacobaea vulgaris</i>	Common Ragwort	Other neutral grassland	R
<i>Juncus effusus</i>	Soft Rush	Eutrophic standing waters	O
<i>Juncus inflexus</i>	Hard Rush	Eutrophic standing waters	R
<i>Lamiastrum galeobdolon</i> spp. <i>argentatum</i>	Variegated Yellow Archangel	Lowland mixed deciduous woodland	R/LA
<i>Lemna minor</i>	Common Duckweed	Eutrophic standing waters	LA
<i>Leucanthemum vulgare</i>	Oxeye Daisy	Other neutral grassland	R
<i>Ligustrum vulgare</i>	Wild Privet	Lowland mixed deciduous woodland	R
<i>Lolium perenne</i>	Perennial Rye-grass	Other neutral grassland Modified grassland	O F
<i>Lonicera periclymenum</i>	Honeysuckle	Lowland mixed deciduous woodland	O
<i>Luzula campestris</i>	Field Wood-rush	Lowland dry acid grassland	O

Scientific name	Common name	Habitat/s	Abundance in habitat type
<i>Lysimachia nemorum</i>	Yellow Pimpernel	Eutrophic standing waters	O
<i>Melica uniflora</i>	Wood Melick	Lowland mixed deciduous woodland	R
<i>Mentha aquatica</i>	Water Mint	Eutrophic standing waters	R
<i>Menyanthes trifoliata</i>	Bogbean	Eutrophic standing waters	R/LA
<i>Mysostis sylvatica</i>	Wood Forget-me-not	Lowland mixed deciduous woodland	R
<i>Pentaglottis sempervirens</i>	Green Alkanet	Lowland mixed deciduous woodland	R
<i>Phyllitis scolopendrium</i>	Hart's-tongue Fern	Lowland mixed deciduous woodland	R
<i>Plantago lanceolata</i>	Ribwort Plantain	Other neutral grassland	O
<i>Plantago major</i>	Greater Plantain	Other neutral grassland	R
<i>Poa trivialis</i>	Rough Meadow-grass	Lowland dry acid grassland Other neutral grassland Modified grassland	O O O
<i>Potentilla anserina</i>	Silverweed	Other neutral grassland	R
<i>Prunus avium</i>	Wild Cherry	Lowland mixed deciduous woodland	O
<i>Prunus laurocerasus</i>	Cherry Laurel	Lowland mixed deciduous woodland	O/LA
<i>Prunus spinosa</i>	Blackthorn	Lowland mixed deciduous woodland	R
<i>Pteridium aquilinum</i>	Bracken	Lowland mixed deciduous woodland	O/LA
<i>Quercus robur</i>	Pedunculate Oak	Lowland mixed deciduous woodland	F
<i>Ranunculus acris</i>	Meadow Buttercup	Lowland dry acid grassland Other neutral grassland	O R
<i>Ranunculus repens</i>	Creeping Buttercup	Lowland dry acid grassland Other neutral grassland Modified grassland	O O O
<i>Reynoutria japonica</i>	Japanese Knotweed	Lowland mixed deciduous woodland	R
<i>Rhododendron ponticum</i>	Rhododendron	Lowland mixed deciduous woodland	R
<i>Ribes rubrum</i>	Red Currant	Lowland mixed deciduous woodland	R
<i>Rosa canina</i>	Dog-rose	Lowland mixed deciduous woodland	R

Scientific name	Common name	Habitat/s	Abundance in habitat type
<i>Rubus fruticosus</i> agg.	Bramble	Lowland mixed deciduous woodland	O
<i>Rumex acetosa</i>	Common Sorrel	Lowland dry acid grassland Other neutral grassland	O O
<i>Rumex crispus</i>	Curled Dock	Other neutral grassland	R
<i>Rumex obtusifolius</i>	Broad-leaved Dock	Other neutral grassland	R
<i>Rumex sanguineus</i>	Wood Dock	Lowland mixed deciduous woodland	O
<i>Salix caprea</i>	Goat Willow	Lowland mixed deciduous woodland	O
<i>Salix cinerea</i>	Grey Willow	Lowland mixed deciduous woodland	O
<i>Salix fragilis</i>	Crack-willow	Lowland mixed deciduous woodland	O
<i>Sambucus nigra</i>	Elder	Lowland mixed deciduous woodland	O
<i>Schedonorus giganteus</i>	Giant Fescue	Lowland mixed deciduous woodland	O
<i>Solanum dulcamara</i>	Bittersweet	Eutrophic standing waters	R
<i>Sorbus aria</i>	Common Whitebeam	Lowland mixed deciduous woodland	R
<i>Sorbus aucuparia</i>	Rowan	Lowland mixed deciduous woodland	O
<i>Stachys sylvatica</i>	Hedge Woundwort	Lowland mixed deciduous woodland	O
<i>Stellaria graminea</i>	Lesser Stitchwort	Lowland dry acid grassland Other neutral grassland	O O
<i>Symphoricarpos albus</i>	Snowberry	Lowland mixed deciduous woodland	R
<i>Taxus baccata</i>	Yew	Lowland mixed deciduous woodland	O
<i>Tilia x europaea</i>	Lime	Lowland mixed deciduous woodland	R
<i>Trifolium repens</i>	White Clover	Other neutral grassland	R
<i>Typha latifolia</i>	Bulrush	Eutrophic standing waters	R
<i>Ulex europaeus</i>	Gorse	Lowland mixed deciduous woodland	R
<i>Ulmus glabra</i>	Wych Elm	Lowland mixed deciduous woodland	R
<i>Ulmus procera</i>	English Elm	Lowland mixed deciduous woodland	R
<i>Urtica dioica</i>	Common Nettle	Lowland mixed deciduous woodland Other neutral grassland	O O
<i>Veronica montana</i>	Wood Speedwell	Lowland mixed deciduous woodland	R

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Scientific name	Common name	Habitat/s	Abundance in habitat type
<i>Vicia sativa</i>	Common Vetch	Other neutral grassland	R
<i>Vicia sepium</i>	Bush Vetch	Lowland mixed deciduous woodland	R

Appendix 4: Scientific names of fauna species referred to in the report

Amphibians

- *Bufo bufo* – Common Toad
- *Lissotriton helveticus* - Palmate Newt
- *Lissotriton vulgaris* - Smooth Newt
- *Pelophylax kl esculentus* - European Green (Edible) Frog
- *Rana temporaria* - Common Frog
- *Triturus cristatus* – Great Crested Newt

Bats

- *Eptesicus serotinus* – Serotine
- *Myotis brandti* – Brandt's
- *Myotis daubentonii* – Daubenton's
- *Myotis mystacinus* – Whiskered
- *Myotis nattereri* – Natterer's
- *Myotis bechsteinii* – Bechstein's
- *Nyctalus noctula* – Noctule
- *Pipistrellus nathusii* – Nathusius' Pipistrelle
- *Pipistrellus pygmaeus* – Soprano Pipistrelle
- *Pipistrellus pipistrellus* – Common Pipistrelle
- *Plecotus auritus* – Brown Long-eared

Birds

- *Anas platyrhynchos* – Mallard
- *Apus apus* – Common Swift
- *Ardea cinerea* - Grey Heron
- *Corvus corone* – Carrion Crow
- *Erithacus rubecula* – Robin
- *Fringilla coelebs* – Chaffinch
- *Fulica atra* - Coot
- *Gallinula chloropus* - Moorhen
- *Parus major* - Great Tit
- *Phylloscopus collybita* – Chiffchaff
- *Pica pica* – Magpie
- *Picus viridis* – Green Woodpecker
- *Sturnus vulgaris* – Starling
- *Troglodytes troglodytes* - Wren
- *Turdus merula* - Blackbird
- *Turdus philomelos* – Song Thrush

Mammals (except bats)

- *Arvicola amphibius* – European Water Vole
- *Erinaceus europaeus* – West European Hedgehog
- *Lutra lutra* – European Otter
- *Meles meles* – Eurasian Badger
- *Muscardinus avellanarius* – Hazel Dormouse

Reptiles

- *Anguis fragilis* – Slow-worm
- *Natrix helvetica* – Grass Snake
- *Trachemys scripta elegans* - Red-eared Terrapin
- *Vipera berus* – Adder
- *Zootoca vivipara* – Common Lizard

Invertebrates

- *Pacifastacus leniusculus* - Signal Crayfish

Appendix 5: Habitat condition forms

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
Lowland mixed deciduous woodland Habitat Code: w1f	1.1	Moderate	Age distribution of trees	3	3 age classes present
			Wild, domestic and feral herbivore damage	3	No significant browsing damage evident
			Invasive plant species	1	Cherry Laurel occasional and locally frequent
			Number of native tree species	3	More than 5 native tree and shrub species present
			Cover of native tree and shrub species	2	50-80% of trees and shrubs are native – Cherry Laurel
			Open space within woodland	3	Although the woodland is generally quite dark, there are some glades present
			Woodland regeneration	2	Seedlings are lacking
			Tree health	1	Ash die-back >25%
			Vegetation and ground flora	2	Recognisable NVC community but few ancient woodland specialists
			Woodland vertical structure	3	Three or more storeys present
			Veteran trees	1	Few veteran trees
			Amount of dead wood	2	Moderate amount of deadwood present
			Woodland disturbance	2	Small amount of dumped vegetation present
			Total	28	
Lowland mixed deciduous	1.2	Moderate	Age distribution of trees	3	3 age classes present
			Wild, domestic and feral herbivore damage	3	No significant browsing damage evident
			Invasive plant species	1	Cherry Laurel occasional throughout

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
woodland Habitat Code: w1f			Number of native tree species	3	More than 5 native tree and shrub species present
			Cover of native tree and shrub species	2	50-80% of trees and shrubs are native – Cherry Laurel
			Open space within woodland	2	This is a very open area of woodland in parts
			Woodland regeneration	3	All 3 age classes present
			Tree health	2	Ash die-back - moderate
			Vegetation and ground flora	2	Recognisable NVC community but few ancient woodland specialists
			Woodland vertical structure	3	Three or more storeys present
			Veteran trees	3	Good numbers of mature/veteran trees
			Amount of dead wood	2	Moderate amount of deadwood present
			Woodland disturbance	3	No nutrient enrichment or damaged ground evident
			Total	32	
Lowland mixed deciduous woodland Habitat Code: w1f	1.3	Good	Age distribution of trees	3	3 age classes present
			Wild, domestic and feral herbivore damage	3	No significant browsing damage evident
			Invasive plant species	1	Cherry Laurel occasional throughout
			Number of native tree species	3	More than 5 native tree and shrub species present
			Cover of native tree and shrub species	3	>80% of trees and shrubs are native
			Open space within woodland	3	10-20% open space
			Woodland regeneration	3	All 3 age classes present
			Tree health	3	No ash observed in this section

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
			Vegetation and ground flora	2	Recognisable NVC community but few ancient woodland specialists
			Woodland vertical structure	3	Three or more storeys present
			Veteran trees	2	Moderate numbers of mature/veteran trees
			Amount of dead wood	2	Moderate amount of deadwood present
			Woodland disturbance	3	No nutrient enrichment or damaged ground evident
			Total	35	
Lowland mixed deciduous woodland Habitat Code: w1f	1.4	Poor	Age distribution of trees	2	2 age classes present
			Wild, domestic and feral herbivore damage	3	No significant browsing damage evident
			Invasive plant species	1	Cherry Laurel frequent
			Number of native tree species	3	More than 5 native tree and shrub species present
			Cover of native tree and shrub species	1	<50% shrubs are native (Cherry Laurel)
			Open space within woodland	1	<10% open space
			Woodland regeneration	2	Few saplings
			Tree health	2	Ash only rare in this section
			Vegetation and ground flora	1	Bare ground with Cherry Laurel
			Woodland vertical structure	2	Two storeys present
			Veteran trees	2	Moderate numbers of mature/veteran trees
			Amount of dead wood	2	Moderate amount of deadwood present
			Woodland disturbance	3	No nutrient enrichment or damaged ground evident
			Total	25	

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
Lowland mixed deciduous woodland Habitat Code: w1f	1.5	Moderate	Age distribution of trees	3	3 age classes present
			Wild, domestic and feral herbivore damage	3	No significant browsing damage evident
			Invasive plant species	1	Cherry Laurel occasional throughout
			Number of native tree species	3	More than 5 native tree and shrub species present
			Cover of native tree and shrub species	2	50-80% shrubs are native (Cherry Laurel)
			Open space within woodland	1	<10% open space
			Woodland regeneration	3	All 3 age classes present
			Tree health	2	Ash dieback
			Vegetation and ground flora	3	Recognisable NVC community, ancient woodland specialists present
			Woodland vertical structure	3	Three storeys present
			Veteran trees	2	Moderate numbers of mature/veteran trees
			Amount of dead wood	2	Moderate amount of deadwood present
			Woodland disturbance	3	No nutrient enrichment or damaged ground evident
			Total	31	
Lowland mixed deciduous woodland Habitat Code: w1f	1.6	Moderate	Age distribution of trees	2	Not many saplings present
			Wild, domestic and feral herbivore damage	3	No significant browsing damage evident
			Invasive plant species	1	Cherry Laurel occasional throughout and locally frequent
			Number of native tree species	3	More than 5 native tree and shrub species present
			Cover of native tree and shrub species	2	50-80% shrubs are native (Cherry Laurel)

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
			Open space within woodland	1	<10% open space
			Woodland regeneration	2	No saplings present
			Tree health	2	Ash dieback
			Vegetation and ground flora	2	Recognisable NVC community, ancient woodland specialists not present
			Woodland vertical structure	3	Three storeys present
			Veteran trees	2	Moderate numbers of mature/veteran trees
			Amount of dead wood	3	Good amounts of deadwood present
			Woodland disturbance	3	No nutrient enrichment or damaged ground evident
			Total	29	
			Lowland mixed deciduous woodland Habitat Code: w1f	1.7	Poor
Wild, domestic and feral herbivore damage	3	No significant browsing damage evident			
Invasive plant species	1	Cherry Laurel abundant			
Number of native tree species	3	More than 5 native tree and shrub species present			
Cover of native tree and shrub species	1	>50% Cherry Laurel			
Open space within woodland	1	<10% open space			
Woodland regeneration	2	No saplings present			
Tree health	2	Ash dieback			
Vegetation and ground flora	2	Recognisable NVC community, ancient woodland specialists not present			
Woodland vertical structure	2	Two storeys present			

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
			Veteran trees	1	No veteran trees
			Amount of dead wood	2	Moderate amounts of deadwood present
			Woodland disturbance	2	Some dumped grass clippings
			Total	24	
Lowland mixed deciduous woodland Habitat Code: w1f	1.8	Poor	Age distribution of trees	2	Not many saplings present
			Wild, domestic and feral herbivore damage	3	No significant browsing damage evident
			Invasive plant species	1	Cherry Laurel abundant
			Number of native tree species	3	More than 5 native tree and shrub species present
			Cover of native tree and shrub species	2	50-80% shrubs are native (Cherry Laurel)
			Open space within woodland	1	<10% open space
			Woodland regeneration	2	Few saplings present
			Tree health	3	Not much ash here
			Vegetation and ground flora	3	Recognisable NVC community, ancient woodland specialists present
			Woodland vertical structure	2	Two storeys present
			Veteran trees	1	No veteran trees
			Amount of dead wood	1	Low amount of deadwood present
			Woodland disturbance	1	Significant damaged ground evident
			Total	25	
	2.1	Poor	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	Fail	Due to recent mowing only one indicator species was recorded.

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
Lowland dry acid grassland Habitat Code: g1a			the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland type are consistently present		
			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	<20% is over 7cm
			Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens	Fail	<1% bare ground
			Cover of Bracken is less than 20% and cover of scrub (including Bramble) is less than 5%	Pass	No Bracken or scrub is present
			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 WCA). Are present this criterion is automatically failed.	Pass	
			There are 10 or more vascular plant species per m ² present, including forbs that are characteristic of the habitat type (not including negative indicators).	Fail	However, this area had just been mown making some species less visible
Other neutral grassland Habitat Code: g3c	3.1	Moderate	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 type are consistently present	Pass	
			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	All the grassland is >7cm

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
			Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens	Fail	<1% bare ground
			Cover of Bracken is less than 20% and cover of scrub (including Bramble) is less than 5%	Fail	Approx. 20% Bracken present
			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 WCA). Are present this criterion is automatically failed.	Pass	
			There are 10 or more vascular plant species per m ² present, including forbs that are characteristic of the habitat type (not including negative indicators). This criterion is vital for achieving good condition	Pass	10 species (not including broad-leaved dock)
Other neutral grassland Habitat Code: g3c	3.2	Moderate	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 type are consistently present	Pass	
			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	
			Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens	Pass	
			Cover of Bracken is less than 20% and cover of scrub (including Bramble) is less than 5%	Fail	Approx. 20% Bracken present

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
			<p>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.</p> <p>If any invasive non-native plant species (as listed on Schedule 9 of WCA). Are present this criterion is automatically failed.</p>	Pass	
			<p>There are 10 or more vascular plant species per m² present, including forbs that are characteristic of the habitat type (not including negative indicators).</p> <p>This criterion is vital for achieving good condition</p>	Fail	7 species
Other neutral grassland Habitat Code: g3c	3.3	Poor	<p>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 type are consistently present</p>	Pass	
			<p>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.</p>	Fail	All the grassland is >7cm
			<p>Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens</p>	Fail	No bare ground
			<p>Cover of Bracken is less than 20% and cover of scrub (including Bramble) is less than 5%</p>	Pass	No Bracken or scrub
			<p>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.</p>	Fail	Frequent ground elder indicating recent disturbance

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
			If any invasive non-native plant species (as listed on Schedule 9 of WCA). Are present this criterion is automatically failed.		
			There are 10 or more vascular plant species per m ² present, including forbs that are characteristic of the habitat type (not including negative indicators). This criterion is vital for achieving good condition	Fail	
Other neutral grassland Habitat Code: g3c	3.4	Moderate	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 type are consistently present	Pass	
			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	Path running through provides a variation in height
			Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens	Pass	
			Cover of Bracken is less than 20% and cover of scrub (including Bramble) is less than 5%	Fail	Bracken >20%
			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 WCA). Are present this criterion is automatically failed.	Pass	
			There are 10 or more vascular plant species per m ² present, including forbs that are characteristic of the habitat type (not including negative indicators). This criterion is vital for achieving good condition	Fail	

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
Other neutral grassland Habitat Code: g3c	3.5	Poor	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 type are consistently present	Fail	Due to abundance of Bracken
			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	Path running through provides a variation in height
			Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens	Fail	
			Cover of Bracken is less than 20% and cover of scrub (including Bramble) is less than 5%	Fail	Bracken >20%
			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 WCA). Are present this criterion is automatically failed.	Pass	
			There are 10 or more vascular plant species per m ² present, including forbs that are characteristic of the habitat type (not including negative indicators). This criterion is vital for achieving good condition	Fail	
Modified grassland Habitat Code: g4	4.1	Moderate	There are 6-8 vascular plant species per m ² present, including at least 2 forbs (this may include those listed in footnote 1)	Fail	Very low diversity
			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	All recently cut

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
			Cover of scrub (including Bramble) is less than 20%	Pass	
			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.	Pass	
			Cover of bare ground is between 1% and 10%, including localised areas, for example, rabbit warrens	Fail	No bare ground
			Cover of Bracken is less than 20%	Pass	
			There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA)	Pass	
g4: Modified grassland	4.2	Moderate	There are 6-8 vascular plant species per m ² present, including at least 2 forbs (this may include those listed in footnote 1)	Fail	Very low diversity
			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	
			Cover of scrub (including Bramble) is less than 20%	Pass	
			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.	Pass	
			Cover of bare ground is between 1% and 10%, including localised areas, for example, rabbit warrens	Fail	

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
			Cover of Bracken is less than 20%	Pass	
			There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA)	Pass	
r1a: Eutrophic standing waters (woodland pond)	5.1	Poor	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	Fail	Scum on surface of water
			There is semi-natural habitat (moderate distinctiveness or above) completely surrounding the pond, for at least 10m from the pond edge for its entire perimeter.	Fail	Wide heavily used path on eastern boundary, housing estate on western boundary
			Less than 10% of water surface is covered with Duckweed or filamentous algae	Fail	Frequent Duckweed
			The pond is not artificially connected to other waterbodies, e.g. agricultural ditches or artificial pipework.	Pass	
			Pond levels can fluctuate naturally throughout the year. No agricultural ditches or artificial pipework	Pass	
			There is an absence of listed non-native plant and animal species	Pass	None observed
			The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Pass	None observed
r1a: Eutrophic standing waters (woodland pond)	5.2	Poor	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	Fail	Scum on surface of water in parts
			There is semi-natural habitat (moderate distinctiveness or above) completely surrounding the pond, for at least 10m from the pond edge for its entire perimeter.	Fail	Wide heavily used path on eastern boundary, housing estate on western boundary
			Less than 10% of water surface is covered with Duckweed or filamentous algae	Fail	More than 10% Duckweed

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
			The pond is not artificially connected to other waterbodies, e.g. agricultural ditches or artificial pipework.	Pass	
			Pond levels can fluctuate naturally throughout the year. No agricultural ditches or artificial pipework	Pass	
			There is an absence of listed non-native plant and animal species	Pass	None observed
			The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Pass	None observed
r1a: Eutrophic standing waters (woodland pond)	5.3	Good	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	Pass	
			There is semi-natural habitat (moderate distinctiveness or above) completely surrounding the pond, for at least 10m from the pond edge for its entire perimeter.	Pass	Surrounded by natural habitat
			Less than 10% of water surface is covered with Duckweed or filamentous algae	Pass	
			The pond is not artificially connected to other waterbodies, e.g. agricultural ditches or artificial pipework.	Pass	
			Pond levels can fluctuate naturally throughout the year. No agricultural ditches or artificial pipework	Pass	
			There is an absence of listed non-native plant and animal species	Pass	None observed
			The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Pass	None observed
r1a:	5.4	Moderate	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	Fail	

Habitat	Compartment number	Condition	Justification (Natural England, 2023)		
			Criteria	Score	Comment
Eutrophic standing waters (non-woodland pond)			There is semi-natural habitat (moderate distinctiveness or above) completely surrounding the pond, for at least 10m from the pond edge for its entire perimeter.	Pass	Surrounded by natural habitat on most sides
			Less than 10% of water surface is covered with Duckweed or filamentous algae	Pass	
			The pond is not artificially connected to other waterbodies, e.g. agricultural ditches or artificial pipework.	Pass	
			Pond levels can fluctuate naturally throughout the year. No agricultural ditches or artificial pipework	Pass	
			There is an absence of listed non-native plant and animal species	Pass	None observed
			The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Fail	Carp are thought to be present
			Emergent, submerged or floating plants (excluding Duckweed) cover at least 50% of pond area which is less than 3m deep	Fail	
			The pond surface is no more than 50% shaded by adjacent trees and scrub	Pass	

Appendix 6: 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 (HPs) and Species of Principal Importance (SPs) 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 HPs is the key focus to enhancing the connectivity of habitats for SPs 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 7: Protected species and species of conservation concern desk study results (SBIC, 2023)

Records from site

Scientific name	Common Name	Habitat Regulations ¹	WCA ²	Protection of Badgers Act 1992	SPI ³	RDL/ Nationally Rare/ Scarce ⁴	BoCC ⁵	Ax ⁶	AWI ⁷	GI ⁸	Relevant HPI
Amphibian											
<i>Bufo bufo</i>	Common Toad		Sch 5 Section 9.5a		✓	✓					Various wetlands
<i>Lissotriton helveticus</i>	Palmate Newt		Sch 5 Section 9.5a								
<i>Lissotriton vulgaris</i>	Smooth Newt		Sch 5 Section 9.5a								
<i>Rana temporaria</i>	Common Frog		Sch 5 Section 9.5a								
<i>Triturus cristatus</i>	Great Crested Newt	Sch 2	Sch 5 Section 9.4b, 9.4c, 9.5a		✓						
Reptile											
<i>Zootoca vivipara</i>	Common Lizard		Sch 5 Section 9.5		✓						Various
Bird											
<i>Anas platyrhynchos</i>	Mallard					✓	Amber				
<i>Ardea cinerea</i>	Grey Heron					✓					
<i>Fulica atra</i>	Common Coot					✓					
<i>Gallinula chloropus</i>	Moorhen					✓	Amber				
Mammal											
<i>Chiroptera</i>	A bat	Sch 2	Sch 5 Part 9.4b, 9.4c, 9.5, Sch 6								
<i>Eptesicus serotinus</i>	Serotine	Sch 2	Sch 5 Part 9.4b, 9.4c, 9.5, Sch 6			✓					Mixed deciduous woodland, Wood-pasture & parkland, Urban
<i>Myotis</i>	A myotis	Sch 2	Sch 5 Part 9.4b, 9.4c, 9.5, Sch 6								Various
<i>Nyctalus leisleri</i>	Lesser Noctule	Sch 2	Sch 5 Part 9.4b, 9.4c, 9.5, Sch 6			✓					
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	Sch 2	Sch 5 Part 9.4b, 9.4c, 9.5, Sch 6								
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	Sch 2	Sch 5 Part 9.4b, 9.4c, 9.5, Sch 6		✓						Various
<i>Sorex araneus</i>	Eurasian Common Shrew		Sch 6								Broadleaved woodland; Coniferous woodland; Dwarf shrub heath; Unimproved grassland; Bog; Urban and gardens; Fen, marsh and swamp; Improved grassland; Hedgerows
Higher and Lower Plants; Vascular Plant											
<i>Calluna vulgaris</i>	Heather					✓		✓		✓	
<i>Cruciata laevipes</i>	Crosswort					✓		✓			
<i>Eleocharis acicularis</i>	Needle Spike-rush					✓		✓		✓	
<i>Fragaria vesca</i>	Wild Strawberry					✓		✓		✓	
<i>Hyacinthoides non-scripta</i>	Bluebell		Sch 8					✓	✓		
<i>Nymphoides peltata</i>	Fringed Water-lily					✓		✓			
<i>Oxalis acetosella</i>	Wood-sorrel					✓		✓	✓		
<i>Pilularia globulifera</i>	Pillwort				✓	✓		✓			
<i>Potentilla erecta</i>	Tormentil					✓		✓		✓	

Banstead Commons Conservators

Scientific name	Common Name	Habitat Regulations ¹	WCA ²	Protection of Badgers Act 1992	SPI ³	RDL/ Nationally Rare/ Scarce ⁴	BoCC ⁵	Ax ⁶	AWI ⁷	GI ⁸	Relevant HPI
<i>Rubus britannicus</i>	A Bramble					✓					
<i>Sanicula europaea</i>	Sanicle					✓		✓	✓		
<i>Stratiotes aloides</i>	Water-soldier					✓		✓			
<i>Viola tricolor</i>	Wild Pansy					✓		✓			
Invasive Non-native Species											
<i>Allium triquetrum</i>	Three-cornered Garlic		Sch 9 Part 2 (England & Wales only)								
<i>Crassula helmsii</i>	New Zealand Pigmyweed		Sch 9 Part 2								
<i>Lamiastrum galeobdolon subsp. argentatum</i>	Variegated Yellow Archangel		Sch 9 Part 2 (England & Wales only)								
<i>Rhododendron ponticum</i>	Rhododendron		Sch 9 Part 2 (England & Wales only)								
<i>Sciurus carolinensis</i>	Eastern Grey Squirrel		Sch 9 Part 1								Broadleaved woodland; Urban and gardens; Coniferous woodland

Additional records from within 1km of site

Scientific name	Common Name	Habitat Regulations ¹	WCA ²	Protection of Badgers Act 1992	SPI ³	RDL/ Nationally Rare/ Scarce ⁴	BoCC ⁵	Ax ⁶	AWI ⁷	GI ⁸	Relevant HPI
Invertebrate											
<i>Andrena minutuloides</i>	Plain Mini-miner					✓					Calcareous grassland, Meadows
<i>Andrena tibialis</i>	Grey-gastered Mining Bee					✓					Various
<i>Coenonympha pamphilus</i>	Small Heath				✓	✓					Heathland, Acid Grassland, Calcareous grassland
<i>Cupido minimus</i>	Small Blue		Sch 5		✓	✓					Calcareous grassland
<i>Hylaeus signatus</i>	Large Yellow-face Bee					✓					Calcareous grassland, Urban
<i>Lasioglossum malachurum</i>	Sharp-collared Furrow Bee					✓					Various
<i>Lasioglossum pauxillum</i>	Lobe-spurred Furrow Bee					✓					Acid & Calcareous grassland
<i>Lasius brunneus</i>	Brown Tree Ant					✓					Wood pasture & parkland
<i>Limenitis camilla</i>	White Admiral				✓	✓					Mixed deciduous woodland
<i>Melitta tricincta</i>	Red Bartsia Blunthorn Bee					✓					Calcareous grassland (on Odontites)
<i>Mordellistena variegata</i>	A tumbling beetle					✓					Mixed deciduous woodland, Wood pasture & parkland
<i>Nomada fucata</i>	Painted Nomad Bee					✓					Various
<i>Omaloplia ruricola</i>	Downland Chafer					✓					Calcareous grassland
<i>Polydrusus formosus</i>	A true weevil					✓					
<i>Polyommatus coridon</i>	Chalk Hill Blue		Sch 5			✓					

Scientific name	Common Name	Habitat Regulations ¹	WCA ²	Protection of Badgers Act 1992	SPI ³	RDL/Nationally Rare/Scarce ⁴	BoCC ⁵	Ax ⁶	AWI ⁷	GI ⁸	Relevant HPI
<i>Rhopalus (Rhopalus) parumpunctatus</i>	A scentless plant bug					✓					Heathland, Acid grassland
<i>Satyrrium w-album</i>	White-letter Hairstreak		Sch 5		✓	✓					Mixed deciduous woodland, Hedgerows
<i>Sciocoris (Sciocoris) cursitans</i>	Sandrunner					✓					Calcareous grassland, Acid grassland
<i>Sphecodes reticulatus</i>	Reticulate Blood Bee					✓					Heathland, Acid grassland
<i>Thecla betulae</i>	Brown Hairstreak		Sch 5		✓	✓					Hedgerows, Mixed deciduous woodland
<i>Tyria jacobaeae</i>	Cinnabar				✓						
<i>Variimorda villosa</i>	A tumbling beetle					✓					Mixed deciduous woodland, Wood pasture & parkland
Reptile											
<i>Anguis fragilis</i>	Slow-worm		Sch 5 Section 9.5		✓						Various
<i>Vipera berus</i>	Adder		Sch 5 Section 9.5		✓	✓					Calcareous grassland, Heathland
Bird											
<i>Apus apus</i>	Common Swift					✓	Red				Urban
<i>Chroicocephalus ridibundus</i>	Black-headed Gull					✓	Amber				
<i>Columba palumbus</i>	Wood Pigeon						Amber				
<i>Prunella modularis</i>	Dunnock						Amber				Various
<i>Sturnus vulgaris</i>	Common Starling					✓	Red				Urban
<i>Troglodytes troglodytes</i>	Wren						Amber				
<i>Turdus philomelos</i>	Song Thrush						Amber				Various
Mammal											
<i>Erinaceus europaeus</i>	West European Hedgehog		Sch 6		✓	✓					Urban and gardens; Improved grassland; Arable and horticulture; Broadleaved woodland; Coniferous woodland; Unimproved grassland
<i>Nyctalus noctula</i>	Noctule	Sch 2	Sch 5 Part 9.4b, 9.4c, 9.5, Sch 6		✓						
<i>Pipistrellus</i>	A pipistrelle	Sch 2	Sch 5 Part 9.4b, 9.4c, 9.5, Sch 6								
<i>Pipistrellus nathusii</i>	Nathusius' Pipistrelle	Sch 2	Sch 5 Part 9.4b, 9.4c, 9.5, Sch 6			✓					
<i>Plecotus auritus</i>	Brown Long-eared Bat	Sch 2	Sch 5 Part 9.4b, 9.4c, 9.5, Sch 6		✓						Various
Higher and Lower Plants; Vascular Plant											
<i>Briza media</i>	Quaking-grass					✓		✓		✓	
<i>Cephalanthera damasonium</i>	White Helleborine				✓	✓		✓			
<i>Cichorium intybus</i>	Chicory					✓		✓		✓	
<i>Erica cinerea</i>	Bell Heather					✓		✓		✓	
<i>Euphrasia nemorosa</i>	Common Eyebright					✓		✓		✓	
<i>Filago germanica</i>	Common Cudweed					✓		✓			
<i>Genista anglica</i>	Petty Whin					✓		✓		✓	

Banstead Commons Conservators

Scientific name	Common Name	Habitat Regulations ¹	WCA ²	Protection of Badgers Act 1992	SPI ³	RDL/Nationally Rare/Scarce ⁴	BoCC ⁵	Ax ⁶	AWI ⁷	GI ⁸	Relevant HPI
<i>Geranium sylvaticum</i>	Wood Crane's-bill					✓					
<i>Knautia arvensis</i>	Field Scabious					✓		✓		✓	
<i>Onobrychis viciifolia</i>	Sainfoin					✓		✓		✓	
<i>Phyteuma orbiculare</i>	Round-headed Rampion					✓		✓		✓	
<i>Plantago media</i>	Hoary Plantain					✓		✓		✓	
<i>Rhinanthus angustifolius</i>	Greater Yellow-rattle		Sch 8			✓		✓		✓	
<i>Solidago virgaurea</i>	Goldenrod					✓		✓	✓	✓	
<i>Veronica officinalis</i>	Heath Speedwell					✓		✓		✓	
<i>Viola canina</i>	Heath Dog-violet					✓		✓			
Invasive Non-native Species											
<i>Cotoneaster horizontalis</i>	Wall Cotoneaster		Sch 9 Part 2 (England & Wales only)								
<i>Impatiens glandulifera</i>	Himalayan Balsam		Sch 9 Part 2 (England & Wales only)								
<i>Myriophyllum aquaticum</i>	Parrot's Feather		Sch 9 Part 2 (England & Wales only)								
<i>Parthenocissus quinquefolia</i>	Virginia Creeper		Sch 9 Part 2 (England & Wales only)								
<i>Pelophylax esculentus</i>	Edible Frog		Sch 9 Part 1								
<i>Reynoutria japonica</i>	Japanese Knotweed		Sch 9 Part 2								

¹ Conservation of Habitats and Species regulations 2017

² Wildlife and Countryside Act 1981, as amended

³ Species of Principle Importance

⁴ Species listed on the IUCN Red Data list or identified as Nationally rare or scarce

⁵ Birds of Conservation Concern

⁶ Surrey Axiophytes

⁷ Ancient Woodland Indicator Species

⁸ Grassland Indicator Species

Appendix 8: How to build a Stag Beetle loggery

Build a log pile for stag beetles

Stag beetles are one of the largest insects in the UK. They are in decline across Europe but there are many simple things you can do to help.

How you can help stag beetles

Stag beetles don't move far from where they emerge. Although males can fly up to 500m, most female stag beetles don't travel more than 20m and return to where they emerged to lay eggs. This means populations are vulnerable to becoming isolated and if there isn't enough dead wood nearby, dying out all together.

Private gardens are very important habitats for stag beetles. They rely on decaying wood that is in contact with the soil, both to feed on as larvae and in which to lay their eggs.

You can help by building a log pile in your garden to ensure that there is a good supply of suitable dead wood nearby for females to lay their eggs in.

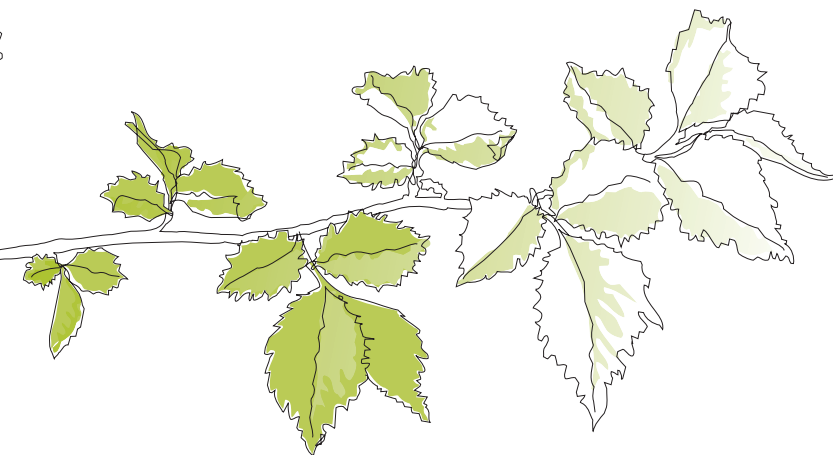


Stag beetle larva

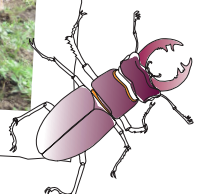
Stag beetle facts

- ▶ They are Britain's largest native terrestrial beetle
- ▶ The larvae develop underground in rotting wood for several years
- ▶ The adult only lives for a few weeks in the summer with the sole purpose of finding a mate
- ▶ Adult beetles don't eat but rely on the fat stores built up during their larval stage
- ▶ The male's antler-like jaws are used to fight off rival males

Images: Peter Cox, Ben Andrew, PTES



Please create a log pile for stag beetles and map it at www.ptes.org/stagbeetle. For more tips please see over.



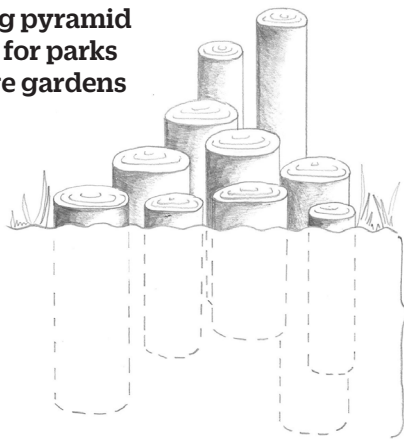
How to make a log pile

- ▶ Log pyramids can be built at any time of year
- ▶ Use wood from any broadleaved tree
- ▶ The logs should be at least the thickness of an adults arm
- ▶ Site the logs in partial shade if possible to prevent them drying out
- ▶ Partially bury the logs in the soil so that they don't dry out
- ▶ Allow plants to grow over the log pyramid to retain moisture and provide shade

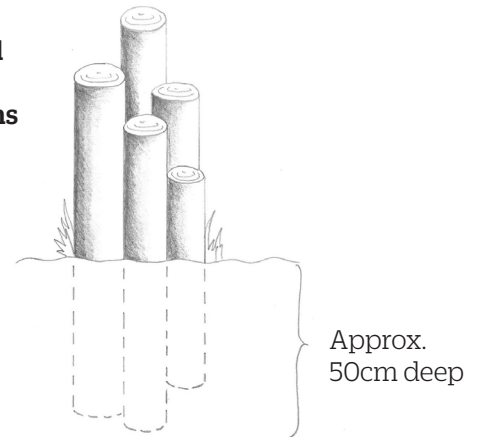
Your log pile will also benefit a range of other species including fungi, dead wood invertebrates and the animals that feed on them. It will be a great place for foraging small mammals, basking reptiles and potentially solitary bees.



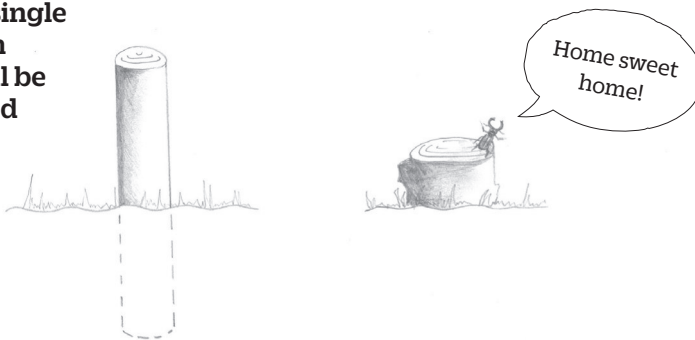
Large log pyramid suitable for parks and large gardens



Log pyramid suitable for small gardens

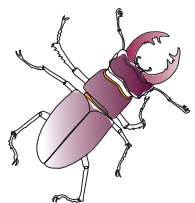


Or, if space is limited, a single log on or in the soil will be appreciated



More tips for stag beetle friendly gardening

- ▶ Leave tree stumps in place if possible; they can become garden features with plants growing over them
- ▶ Try not to use pesticides
- ▶ Keep a lid on your water butt as stag beetles are known to fall in and drown
- ▶ Avoid using polythene sheeting to control weeds. Newly emerging stag beetles can get trapped beneath it in spring and die
- ▶ If you find larvae in the bottom of rotten fence posts and need to move them, dig a hole elsewhere in your garden and put them in together with some of the rotting wood from the original site. Cover loosely with soil



Appendix 9: Bat box information pack



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.

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.



© Andrew Dumbleton

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, ecostyrocete, 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.

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.



© John Altringham

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:



- 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 ecostyrocete (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.



© Sue Burchett

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 rehangng 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!



© Daniel Fellman

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 disturb any 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



©Liz Greenwood

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)

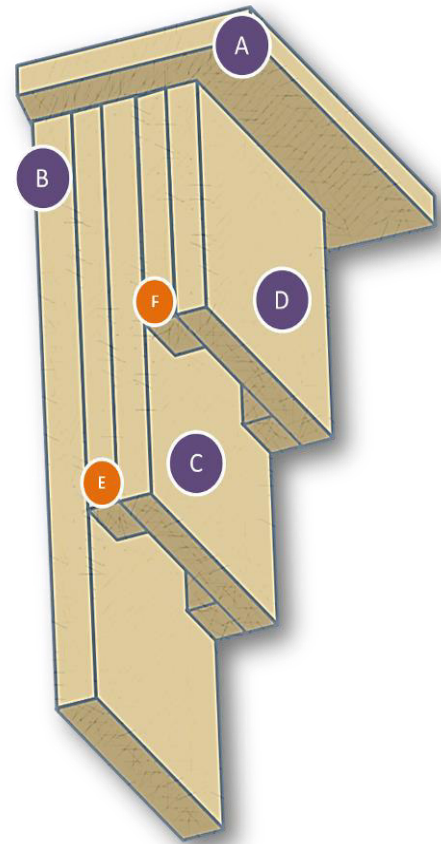
Design and measurements

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.

The Bat Conservation Trust (known as BCT) is a registered charity in England and Wales (1012361) and in Scotland (SC040116).

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Appendix 10

Creating a hibernaculum for amphibians and reptiles

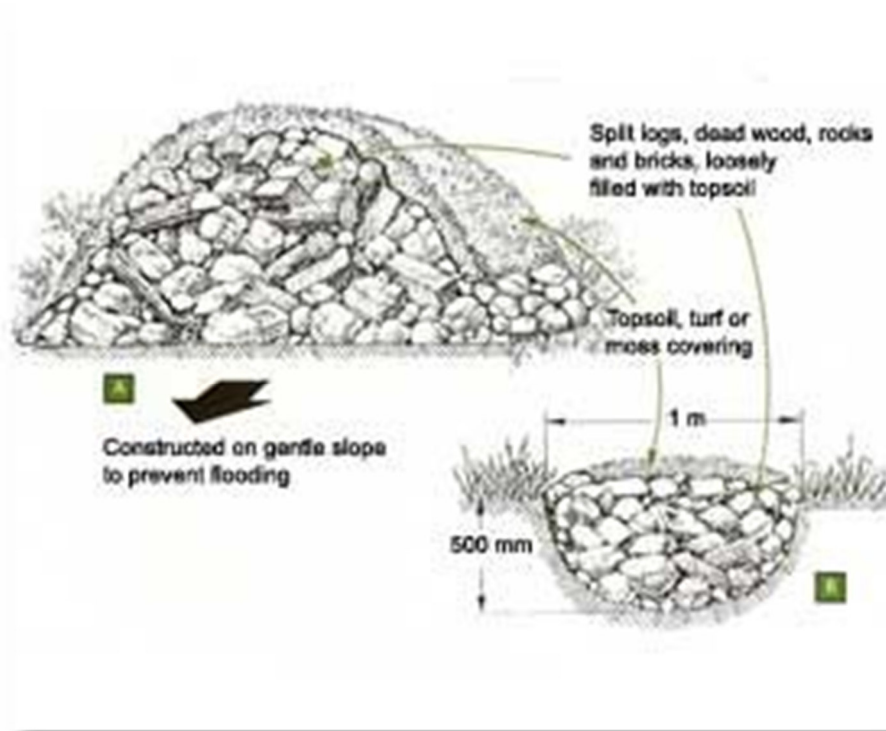
Hibernacula are underground chambers that amphibians and reptiles use through the winter to protect them from the cold.

Reptiles and amphibians will use a range of substrates for hibernacula including piles of rubble, rock, logs and earth banks (with plenty of mammal burrows and ground fissures).

Amphibians require humidity and an artificial hibernaculum should ideally be located near to water, and definitely in sheltered habitat (e.g. in long grass or woodland edge vegetation). They should be free-draining and located in sheltered areas which are neither too dry nor prone to winter flooding or freezing.

To build the hibernaculum, either create a mound or dig a hole containing a mixture of topsoil, rubble, and rough cut logs. Dimensions of the hibernaculum should generally be above 2m length x 1m width x 1m height. Lay bricks, stones, paving slabs or large pieces of concrete over the mound which will create gaps and allow amphibians to access the centre of the mound. A thin layer of soil and brash, can be laid over the top of this, as long as it does not block the hibernaculum access points.

Encourage the growth of vegetation on the north side of the mound to provide extra shelter but prevent vegetation from encroaching onto the south facing side of the mound as sparse vegetation cover here will give animals a suitable location to bask. Periodic thinning of vegetation on the hibernaculum will help prevent a thick root matt developing, which makes it hard for reptiles and insects to burrow into the surface.



Appendix 11: 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	✓	Details
<p>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. See distribution maps in the Good Practice Guidance for each species -</p> <p><input type="checkbox"/> Dormice <input type="checkbox"/> Otters <input type="checkbox"/> Great crested newts <input type="checkbox"/> Sand lizards <input type="checkbox"/> Smooth snakes</p>	<p>YES</p> <p>NO</p>	<p>Name of Wood:</p> <p>Grid Reference:</p> <p>Area: (ha)</p> <p>Date of Assessment:</p> <p>Name of Assessor:</p>
<p>2 Does your wood contain any of the following habitats? Tick any that apply.</p> <p><input type="checkbox"/> Old trees with holes and crevices which might be used bats <input type="checkbox"/> Species rich scrub/coppice, early growth stage plantations and forest interfaces <input type="checkbox"/> Rivers on which otters might be found <input type="checkbox"/> Ponds which might be occupied by great crested newts <input type="checkbox"/> Open areas on heathy soils</p>	<p>YES</p> <p>NO</p>	
<p>3 Have any of the protected species been recorded in this wood or on adjoining sites? Tick any that apply. Indicate which sources of information you have checked:</p> <p><input type="checkbox"/> National Biodiversity Network (www.nbn.org.uk) <input type="checkbox"/> Local Biological Records Centre <input type="checkbox"/> Local Wildlife Trust <input type="checkbox"/> Other Specify Other:</p>	<p>YES</p> <p>NO</p>	
<p>4 Have your inspections or any expert surveys found any of the following signs or evidence? Tick any that apply.</p> <p><input type="checkbox"/> Signs (e.g. otter spraint, nuts gnawed by dormice, leaves folded by newts) <input type="checkbox"/> Sightings (or echo-location) <input type="checkbox"/> Potential breeding or roosting sites (e.g. veteran trees, old trees with crevices, riverside hollow trees, ponds, timber stacks, large fallen deadwood) <input type="checkbox"/> Confirmed breeding or roosting sites (i.e. evidence of sites actually being used) Details:</p>	<p>YES</p> <p>NO</p>	
<p>CHECK POINT</p> <p>If you have answered NO to ALL of the above then only bats need to be considered in your operations.</p> <p>If you have answered YES to any of the above then the species concerned must be considered as well as bats.</p>		Notes
<p>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? Details: Use reverse of form to expand as required:</p>	<p>YES</p> <p>NO</p>	<p>A licence is not required but continue to sections 6 and 7 below</p> <p>You will need to obtain a licence BEFORE carrying out the work (see EPS Licence Application Forms and Notes)</p>
<p>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.</p> <p><input type="checkbox"/> Included in documentation (e.g. contract, letter of instruction, site assessment or other management plan) <input type="checkbox"/> Shown to operators and/or their supervisor <input type="checkbox"/> Marked with paint or hazard tape <input type="checkbox"/> Shown on the site plan Other means:</p>	<p>YES</p> <p>NO</p>	<p>You may commit an offence if you do not tell your operators about the protected species in your wood.</p>
<p>7 Have arrangements for supervision been made to ensure Good Practice guidance is complied with during the operations? Details:</p>	<p>YES</p> <p>NO</p>	<p>You may commit an offence if you do not take steps to ensure that your operators comply with the Good Practice guidance.</p>

Appendix 12: 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).