

## PART 2

### Woodland Management in the presence of bat species – Guidance for compliance with The Conservation (Natural Habitats, &c.) (England and Wales) Regulations 1994 as amended by The Conservation (Natural Habitats, &c.) (England and Wales) (Amendment) Regulations 2007 (the Habitats Regulations).

#### 1. Purpose of document

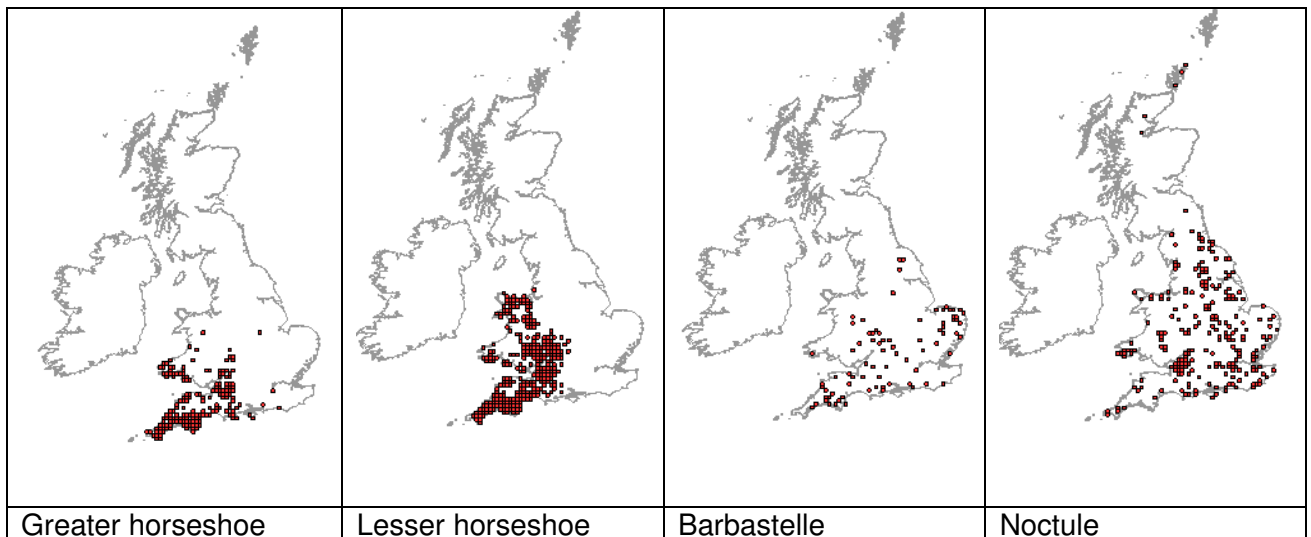
To provide advice for woodland managers and operators on a) how to establish presence of bats particularly their breeding sites or resting places, and b) how to manage woodlands so as to avoid or minimise the risk of committing offences under the Habitats Regulations. All bat species are protected by the Habitats Regulations and are European Protected Species (EPS). Information on long-term habitat management to benefit these species is also provided.

#### 2. Suggested methods of establishing the likely presence of bats

There are a number of ways of determining the likelihood of EPS presence, listed below.

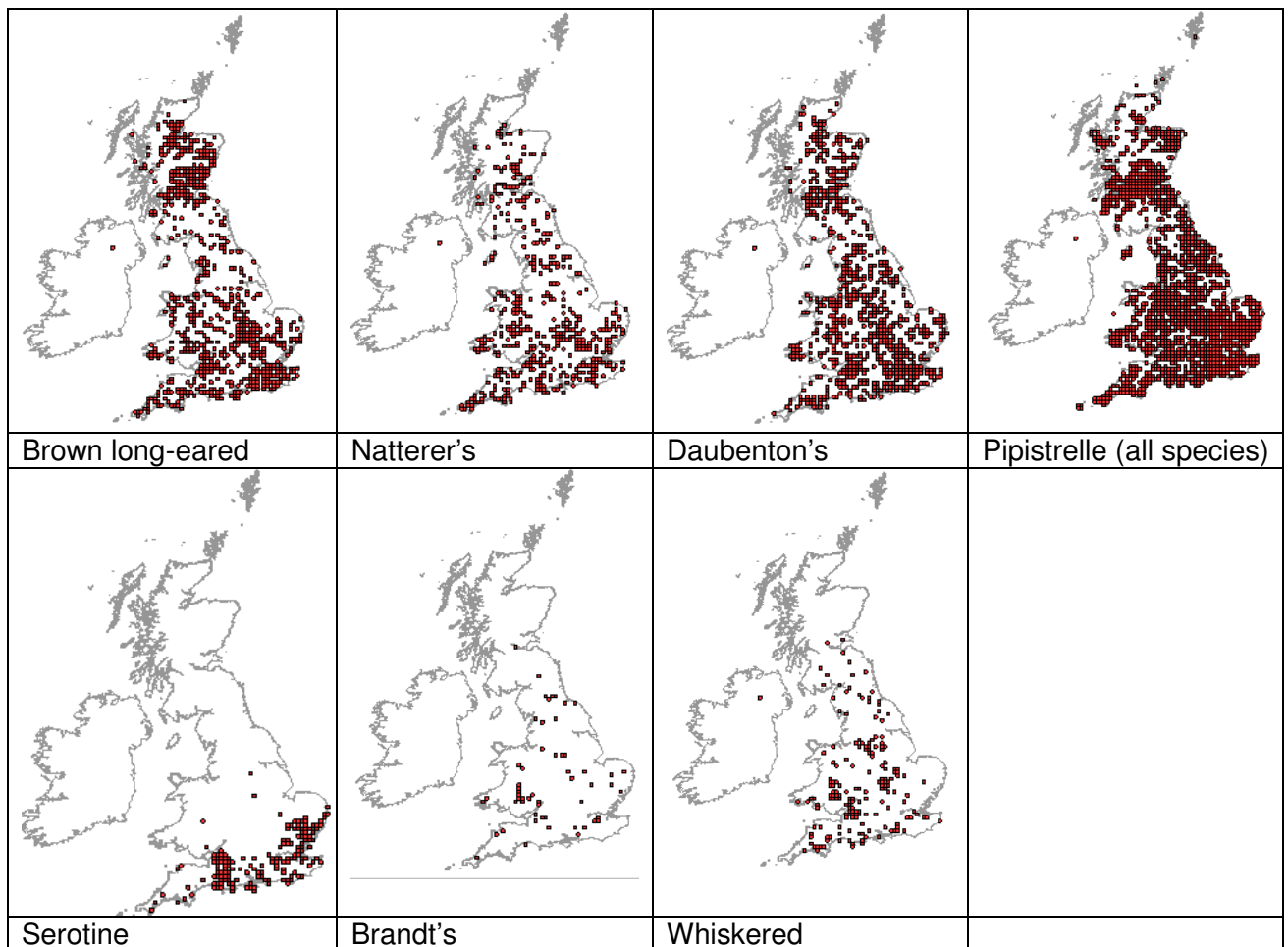
a. *Is your woodland approximately within current known range of the species?*

The woodland dependent and woodland specialists bat species Barbastelle, Bechstein's, noctule, Leisler's, lesser horseshoe and greater horseshoe, are all present in Wales. Bechstein's and Leisler's bats are sparsely distributed in Wales but maps for four of these species are given below (please note that not all recent occurrences of bats may be shown on the maps).



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Bat species present in Wales that use woodland and adjacent suitable habitats are brown long eared, Natterer's, Daubenton's, pipistrelle, serotine, Brandt's and whiskered. Distribution maps for these species are given below (please note that not all recent occurrences of bats may be shown on the maps).



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b. *Is your woodland suited to supporting bats particularly their breeding sites or resting places i.e. bat roosts?*

All bats have some level of association with woodland, ranging from foraging at night for insect prey to the use of trees for roosting, hibernation and breeding (breeding sites or resting places) at various times of the year. Woodland use is related to the particular species' need, the type, and size of woodland. All species are insectivorous, foraging in or over woodland, woodland edges and glades, often where there is a diverse understorey structure. Some species (Barbastelle and Bechstein's) are restricted to foraging in woodlands but the majority of bat species use a range of habitats, e.g. some species catch their prey over or near water. Larger woods are likely to provide both roost and foraging sites for all the bat species (where habitat and species range allows). However, Bechstein's bat requires a minimum woodland size of 40- 50 hectares. This can be composed of smaller woods if they are well connected e.g. by hedgerows.

Table 1 provides detailed information on the type of woodland and roosts that are used by different species. Woodland management is most likely to impact on bats by damaging or destroying bats roost in trees. Although bats use most woodland habitat for foraging it is unlikely that woodland management would deliberately disturb the

bats during foraging unless extensive and sudden loss of foraging or commuting habitat around roost sites resulted.

**Table 1. Bat habitat use** (Adapted from: Mitchell-Jones, A.J. (2004) Bat Mitigation Guidelines (Table 4.1), English Nature, Peterborough).

Bat species	Woodland habitat used	Roost sites (S=Summer) (W=Winter)			Other habitats used for foraging	Foraging distance (if known)
		Trees	Buildings	Under-ground		
Barbastelle	Deciduous, uneven aged, or ancient semi natural with high proportion of oak trees, dead wood, and with a dense mixed under storey	H	M(S) L(W)	N(S) H(W)	parkland, water, water meadows, wet woodland, minor rural roads	20 km
Bechstein's	Oak woodland with streams and understorey. Occasionally mixed broadleaf	H	L	L(S) M(W)	none	1-2 km
Noctule	Deciduous woodland	H	M(S) L(W)	N	parkland, pasture, water and forest edges, heathland	15 km
Brown long-eared	All types of woodland, parkland and gardens	H	H	N(S) M(W)	parkland, orchards, hedges	5 km
Grey long-eared	All types of woodland, parkland and gardens	L	H(S) L(W)	N(S) M(W)	parkland, orchards, hedges	5 km
Leisler's	Open deciduous, mixed and coniferous woodland,	M	H(S) L(W)	N	parkland, suburban areas and around street lamps, wetland habitats	
Natterer's	Open Deciduous woodland, mixed and conifer woodland e.g. Scots and Corsican pine plantations	M?	H(S) L(W)	L(S) H(W)	Pasture, parkland, hedgerows, along water-side vegetation	
Lesser horseshoe	Deciduous woodland and conifer woodlands	L	H(S) M(W)	L(S) H(W)	scrub, parkland, wetland and permanent pasture	2-3 km
Brandt's	deciduous and possibly mixed and conifer woodland	L	H	N(S) H(W)	Woodland edges, rides and dense cover, often near water	
Whiskered	deciduous and possibly mixed and conifer woodland	M?	H(S) L(W)	N(S) H(W)	Woodland edges, rides and dense cover, often near water	
Pipistrelles	open deciduous, mixed and conifer woodland,	M	H	N(S) L(W)	woodland edge, over water, marshes, farmland, along hedgerows, suburban gardens and urban areas	4 km
Daubenton's	Deciduous woodland	M?(S) L?(W)	M(S) L(W)	M?(S) H(W)	over lakes, rivers and ponds, but also forages in woodland	13 km
Serotine	Open deciduous, mixed and conifer woodland,	N	H(S) N(W)	N(S) L(W)	woodland edge., pasture, parkland, tall hedgerows, gardens, suburban area	
Greater horseshoe	Deciduous woodland	N	H(S) L(W)	M(S) H(W)	scrub, permanent pasture, water, along hedgerows	15 km

Trees – includes all types of crevice and hollow as well as bat-boxes attached to trees  
 Buildings – above ground areas, with an emphasis on roof voids and other areas warmed by the sun  
 Underground – anywhere that provides cool humid conditions buffered against rapid temperature change  
 Includes caves, mines, tunnels, fortifications, cellars, ice-houses, lime kilns etc.

N – not recorded in recent times

L – low dependence; unusual, but has been recorded

M – some usage recorded, though perhaps not the most important type of site

H – the most frequently recorded type of site for this species/activity

Further information on location and habitat requirements of these species is available from the Bat Conservation Trust ( [www.bats.org.uk](http://www.bats.org.uk) ).

*c. Consult the National Biodiversity Network.*

The National Biodiversity Network (NBN) is available on the web. Search for records of bats near or in your woods by using the interactive map [www.searchnbn.net/interactive/map.jsp?srchSp=NHMSYS0000080177](http://www.searchnbn.net/interactive/map.jsp?srchSp=NHMSYS0000080177) to zoom to your area of interest. Please note that not all recent occurrences of bats may be shown on the map. A lack of records does not necessarily confirm absence of these species. Local Records Centres and local bat groups may hold additional species records. Your local Countryside Council for Wales or County Wildlife Trust representative, is also likely to be able to give site specific information on likelihood of bat presence as may the Local Biological Records Centre [www.nfbr.org.uk](http://www.nfbr.org.uk) Natural History Societies and local Mammal Groups - contact details from: <http://www.abdn.ac.uk/mammal/index.shtml>

*d. Assessing presence of bats by looking for signs or indicators*

➤ Sightings

Bats are mainly active between March and November and hibernate during the winter months, however they can be active at any time of year in mild weather. They emerge around sunset and usually forage all night until dawn. Different species display different flight patterns e.g. noctules have a characteristic powerful, direct flight, they fly in the open, often well above tree-top level, with repeated steep dives, whereas lesser horseshoe bats fly low (between 2-5 m above the ground and tree crown height) through vegetation while hunting for food.

➤ Signs of bat roosts in trees

Bats use trees as resting places throughout the year. Trees may serve as maternity roosts, mating roosts, hibernation roosts and/or temporary/transitory roosts. Mature trees, particularly oak, ash, beech, sycamore and Scots pine, are most frequently used as roosts, but bats will use any tree with suitable cavities or crevices.

The most effective time to look for potential bat roosts is during winter when the trunk and crown are visible without leaves being present. Use binoculars during good daylight to look for:

- Obvious holes, cavities, splits and loose bark (old woodpecker holes are particularly favoured)
- Dark staining and streaks on the tree below the hole (although this is often due to water seepage)
- Staining around the hole from oils in bat's fur particularly in autumn
- A maze of tiny scratch marks from the bat's claws around the hole, often around top edge. These are often only visible close up.

During the summer it may be possible to notice:

- Droppings below the hole – these have the appearance of rodent's droppings but crumble to a powder of insect fragments
- Noise of squeaking/chittering coming from hole, especially on a hot day in high summer or just before dusk as bats are getting ready to emerge.
- Strong smell of ammonia or flies close to a hole

For more information on surveying for bats see the good practice guide Woodland Management for Bats (Anon, 2005) [www.forestry.gov.uk/forestry/INFD-6K3CXY](http://www.forestry.gov.uk/forestry/INFD-6K3CXY) or contact the Bat Conservation Trust ([www.bats.org.uk](http://www.bats.org.uk)).

#### *e. Confirming presence and specialist surveys*

If you suspect that bat roosts are present in your woodland and you intend to carry out management you will need to assess the risk that you may commit an offence (e.g. damage or destruction of a roost or extensive sudden loss of foraging or commuting habitat). Determining the location of roosts will be important when planning operations so they remain lawful (see table 2). Difficulty in detecting roosts may suggest that commissioning a specialist survey may be a sensible step. Alternatively, consider engaging local specialists, for example, a local bat group may be interested in carrying out a bat walk in your woodlands and this could provide information on bat presence.

Once obvious roost(s) have been identified through survey (NB marking felling and/or design plans with roost site areas is recommended), where possible plan woodland management to avoid the roosts or area of woodland supporting the roosts. However, if avoidance of damage or destruction to a bat roost is not possible a licence will be required before the operation can be undertaken. The license application will require details about the bat roost(s) and evidence that there is no satisfactory alternative to committing the offences in question i.e., damaging or destroying bat roosts even when bats are not present. Licences are to be granted for specific purposes e.g. public safety and are subject to strict tests. There is no guarantee that a licence will be granted and speculative license applications will not be considered.

If by self-assessment and survey (using the information above) or by specialist survey you are confident that proposed woodland operations will not result in roost loss or damage, then no further action is necessary and the operation may proceed. It would be sensible to keep a record of your decision and information used to reach it, (for example a specialist survey). If however bats or fresh signs of bats are discovered during operations (especially from likely roosts), you should immediately stop work, and seek advice from the Statutory Nature Conservation Organisation (SNCO) and review your plans as required. It is therefore important for operators to remain vigilant for bats and other EPS while undertaking work.

### **3. How to avoid or reduce the impact on woodland EPS whilst carrying out woodland operations**

Routine forestry / woodland management activities can potentially result in offences being committed if EPS or their breeding sites or resting places are present and it is vital that managers review planned activities to identify such risks. The offences that may be committed under Regulation 39 are listed in Annex A in the Part 1 guidance.

The following types of operations could result in an offence being committed if bats are present:

- Harvesting, including felling or thinning of stands
- Tending and establishment
- Road construction and maintenance

Table 2 provides further information on how you may alter these operations to reduce the risk of committing an offence and the need for a licence. The aim should be, during operations, to avoid damaging or destroying a roost or carrying out activities that disturb bats in their roosts. Unfortunately, as it may be difficult to identify all roosts within a woodland and thereby avoid damage to all such sites, the risk of committing an offence while carrying out woodland management operations, cannot be completely avoided.

#### **4. Consider potential for long term provision of habitat for bats**

Consider the potential for maintaining populations by planning regular but sensitive active management to provide a continuity of habitat over time that will ensure that populations are maintained in a favourable conservation status. Woodland habitats can be improved for bats by increasing roosting opportunities, improving foraging areas and increasing the number of insects available.

The habitat for bats can be improved by:

- Increasing structural and species diversity of the woodland understorey and its density. Development of the understorey is promoted by increasing the light levels reaching the woodland floor, by coppicing, thinning and gap creation together with control of browsing and grazing. Fencing to exclude grazing animals may in addition be required in some areas to maintain diverse species-rich ground flora and shrub layers. A network of ride, rack and glade creation and maintenance will also be beneficial providing foraging habitat and corridors for bat movements between favoured foraging and roosting sites.
- Providing new areas of woodland and increasing the continuity of woodland cover and in providing connectivity in broader landscape context. Establishing new areas of woodland, particularly native broadleaf linkages to favoured foraging sites such as riparian zones, and to linear features such as old hedgerows will enable bat movement through landscapes. In the lowlands, buffer strips alongside farm woodlands and in the uplands planting native broadleaf mixtures and shrubs along the edges of conifer plantations, will help improve the edge habitat and promote a higher diversity of insect species.
- Creation of non-intervention strips along watercourses (within woodlands) and buffer zones, broad-leaved corridors will benefit brown long-eared bat, noctule, Bechstein's bat and barbastelle. Open spaces and water will benefit whiskered, brown long eared and Daubenton's. Wetland habitats are important to all species in spring and autumn.
- Provide roost sites by retaining old trees with old woodpecker holes, dead, damaged, and sustainable dying trees, especially those close to trees already used for roosting. Provide a continuity of roost sites by allowing a broad age structure to develop and diversify woodlands (oak, ash, beech, sycamore and Scots pine are preferentially used, but any tree with cavities and crevices is valuable). Leave 7-10 old trees with roost features per hectare and the same number of younger trees to become the next roost tree generation. Some bat species (e.g. Bechstein's bats) will readily use suitable bat boxes however these should not be seen as a permanent solution to the shortcomings in availability of suitable tree roosts.
- Use continuous cover forestry practices in preference to clearfelling, especially for broadleaved woodlands and set aside areas of woodland supporting the roosts as a Natural Reserve with minimum intervention.
- Protect roosting sites by leaving a buffer around the trees harbouring these sites and by providing connections to other optimal roost site habitat.

### **Good practice reference list**

Anon (2005) Woodland Management for Bats. Forestry Commission England, Forestry Commission Wales, Bat Conservation Trust, Countryside Council for Wales and English Nature [www.forestry.gov.uk/forestry/INFD-6K3CXY](http://www.forestry.gov.uk/forestry/INFD-6K3CXY) Free copies also available from Forestry Commission Publications Tel: 0870 121 4180.

Arboricultural Association Guidance Note 1 – Trees and Bats

Bat Conservation Trust species leaflets [www.bats.org.uk/helpline/helpline\\_learn.asp](http://www.bats.org.uk/helpline/helpline_learn.asp)

Bats and Trees in England, Specialist Support Series, Bat Conservation Trust

[www.bats.org.uk/helpline/helpline\\_roosts\\_trees\\_bridges\\_caves.asp](http://www.bats.org.uk/helpline/helpline_roosts_trees_bridges_caves.asp)

Bat Survey Guidelines (in preparation) Bat Conservation Trust. For information see

[www.bats.org.uk/biodiversity/BatSurveyGuidelines.asp](http://www.bats.org.uk/biodiversity/BatSurveyGuidelines.asp)

English Nature Research Report 661 *Development of good practice guidelines for woodland management for bats..* See: English Nature publications

[www.englishnature.org.uk/pubs/publication/pub\\_search.asp](http://www.englishnature.org.uk/pubs/publication/pub_search.asp)

English Nature Research Report 658 *Woodland Management Advice for Bechstein's bat and barbastelle bat.* See: English Nature publications

[www.englishnature.org.uk/pubs/publication/pub\\_search.asp](http://www.englishnature.org.uk/pubs/publication/pub_search.asp)

Produced by Forest Research, Forestry Commission Wales and CFS, Welsh Assembly Government and Countryside Council for Wales.

<b>Risk of committing an offence</b>	Operations that are likely to damage or destroy roosting sites of bats (high risk).	Alternative approaches to high risk operations that may reduce risk	Managing risk: Options for low risk approach	
<b>Operation</b>	<b>Sub-operations (and brief description of impact)</b>		<b>Safest</b>	<b>Some risk</b>
HARVESTING, INCLUDING FELLING OR THINNING OF STANDS	<b>Harvesting</b> of trees containing roosts will damage or destroy bat roost or cause obstruction to roost entrance of cave dwelling bats.	1. Avoid felling trees that contain roosts. . 2. Leave trees immediately around those with roosts and trees containing potential roost sites .  3. Identify location of underground roost sites and do not allow harvesting debris to block cave exits etc 4. Avoid felling close to roost sites, maintain a 20m disturbance- free buffer.	1+2+4 or 3+4	1 or 3
	<b>Coppicing</b> (Re-coppicing could pose a threat to Bechstein's by devaluing roosting and breeding habitat.)	1. Avoid coppicing in roost areas. 2. Cut coppice species, avoiding disturbance to standards that contain roosts, during hibernation period. 3. Work at small scale (e.g. 25% of woodland unit in one season) and when possible clear small patches	1+3	2
TENDING/ ESTABLISHMENT OPERATIONS				
ROAD CONSTRUCTION AND MAINTENANCE				

**Table 2. Forest operations, risk of committing an offence associated with each operation and procedure for reducing risk.**

Forest operations are in **bold** type, descriptions in plain type; low risk alternatives are proposed where possible and the approach to managing risk is suggested.