Forestry Commission Scotland

Scottish Natural Heritage
All of nature for all of Scotland

FCS Guidance Note 35a:

Forest operations and bats in Scotland

Pipistrelle bat in flight. *Image: Hugh Clark, Bat Conservation Trust.*

SUMMARY

This guidance note has been prepared by Forestry Commission Scotland (FCS), and Scottish Natural Heritage (SNH) to advise people who are planning and carrying out felling or other operations in woodlands. It indicates (a) how to establish the woodland features likely to be used by bats, particularly as breeding sites or resting places (i.e. bat roosts), and
(b) how to plan and undertake management of woodlands to minimise the risk of committing offences against bats which are European protected species (EPS) under the Habitats Regulations.

This note will be revised as necessary in the light of experience and feedback from users. It is one of a series of 4 detailed guidance notes on EPS in Scottish woodlands, which supplement more general guidance in FCS Guidance Note 34, 'Forest operations and European protected species in Scottish forests'. The other species featured are otter, great-crested newt and wildcat.

FCS will follow this guidance in our management of the national forest estate, and will expect it to be followed as a condition of approval of felling licences

and grant-aid and forest plans for private forests. FCS and SNH will also promote its use in forestry-related Environmental Impact Assessments and in Appropriate Assessments for judging the impacts of forestry-related proposals on sites designated under EU Directives.

1. INTRODUCTION

Bats are listed on Annex IV of *EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna* ('Habitats Directive') as species of European Community interest and in need of strict protection. The Habitats Directive is transposed into domestic legislation by means of ***The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in 2004, 2007 and 2008),*** (referred to as the 'Habitats Regulations' in this guidance). All bat species that are native in any part of Great Britain, are listed in Schedule 2 of the Habitats Regulations as *'**European protected species of Animals**'* and are fully protected. (For further general guidance on the amended Regulations and how they affect woodland managers see: the Scottish Government's explanatory note. Under the 2008 version of the Regulations it is an offence to:

- deliberately or recklessly capture, injure or kill such an animal;
- deliberately or recklessly:
  (i) harass such an animal or group of animals;
  (ii) disturb such an animal while it is occupying a structure or place used for shelter or protection;
  (iii) disturb such an animal while it is rearing or otherwise caring for its young;
  (iv) obstruct access to a breeding site or resting place, or otherwise deny the animal use of the breeding site or resting place;
  (v) disturb such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs;
  (vi) disturb such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young;
  (vii) disturb such an animal while it is migrating or hibernating
- damage or destroy a breeding site or resting place of such an animal (*this does not need to be deliberate or reckless for an offence to have been committed*).

Under the legislation, these offences are not committed if they are done under and in accordance with the conditions of, a Regulation 44(2) licence. Licences can only be issued under very strict conditions:

- there is no satisfactory alternative;
- there is no detriment to the maintenance of the species at 'favourable conservation status'; *and*
- the reason for the licence relates to one of several specified purposes.

The licensing authority is either Scottish Natural Heritage or the Scottish Government, depending on the purpose for the licence application.

2. WHERE DO BATS OCCUR IN SCOTLAND?

Bats occur throughout the country, including many of the islands. In Shetland they occur as vagrants only. In general, north of the Central Belt, the number

of bat species living in an area decreases the further north and west you travel. Thus, the south of Scotland supports the greatest number of different bat species. Some species, notably noctule, Leisler's and whiskered bats are rare in Scotland and have restricted ranges. The exact status of the rarely recorded Brandt's bat and Nathusius' pipistrelle in Scotland is unclear. It is possible that any woodland could be used by one or more species of bat either for roosting sites, navigation or for foraging purposes.

The National Biodiversity Network (NBN) is available on the web and may help you identify which bats have been recorded in the vicinity of your woods. You can also use the interactive map to search for bats near or in your woods, zooming to your area of interest. It is important to note that absence of records may not necessarily mean that there are no bats there. It may be that the area has not yet been surveyed, or that records have not yet entered onto the NBN Gateway. See also http://www.scotbats.org.uk/ (and click on *Contents*, then *Recorded Distribution of Bats in Scotland* and go to the individual species). Scottish Natural Heritage or your local bat group representative are also likely to be able to give site-specific information on the likelihood of bat presence.

3. GENERAL MEASURES TO MAINTAIN OR IMPROVE WOODLAND HABITAT FOR BATS

This note focuses on how to plan operations to avoid damage and disturbance and comply with the law. You might also consider how you can provide good bat habitats in the future by planning woodland in the longer term. This will help to maintain bat populations at a 'favourable conservation status' as required by the Habitats Directive. Woodland habitats can be improved for bats by increasing roosting opportunities (e.g. retaining old trees), improving foraging areas, planting new woodland features to create links between woodlands and increasing the number of insects available. Please refer to *Woodland Management for Bats* for further information on habitat management for bats.

4. WHAT TYPES OF FOREST OPERATIONS MAY CAUSE DAMAGE OR DISTURBANCE TO BATS?

Forest operations and particularly tree felling can:

- cause ***disturbance*** to foraging and commuting bats by altering their habitat, although this is unlikely to be an offence under the Regulations if good forest practice is followed.
- ***damage or destroy bat roosts*** in trees or ***disturb bats at roost sites***. This is the most frequent risk for woodland managers to consider, especially as damage or destruction does not need to be deliberate or reckless to be a potential offence.

Avoiding disturbance to foraging and commuting bats

Bats use woodland habitats for a variety of purposes, including feeding, roosting and establishing mating sites, depending on the season and species

involved (see table). If you take bats into account and consider their needs, it is unlikely that woodland management which follows normal good practice as set out in the UK Forestry Standard or UK Woodland Assurance Standard,

would significantly disturb bats during their foraging activity. Presently little research has been undertaken to establish the impact of operations on the foraging and commuting of bats. Although the risk is probably low, extensive sudden loss of foraging or commuting habitat might possibly affect the distribution or abundance of the rarest species. Key points to consider are:

- the scale of felling or planting operations should be small in relation to bat foraging distances - this will normally be the case
- try to restrict or avoid felling in prime foraging habitat features typically used by bats for feeding or roosting, such as old broadleaved woodland, riparian woods, pondsides and lochsides.

Bats typically use linear features (e.g. woodland edges and forestry rides) to navigate from their roosting sites to their foraging areas. Woodland managers should be aware that felling operations can interrupt these linear features causing fragmentation and potentially disrupting the bats' movements to and from foraging areas and reducing foraging time. Certain species, notably brown long-eared bats, are particularly vulnerable to this as they will not generally cross open areas but tend to follow woodland edge. Woodland management that does not involve large scale clearfelling operations is unlikely to create problems in this respect, but where larger scale management is planned, it is recommended that the effects on the above features are taken into account and sufficient connectivity of woodland retained. Again, for further information, refer to the *Woodland Management for Bats* good practice document.

Protecting roost sites

The greatest risk of an offence under the Regulations is that felling, and some other operations like forest road construction, could destroy or damage roost sites, which is an offence whether or not it is deliberate or reckless. Remember roost sites are protected all the time even when no bats are present. Disturbance to bats at their roost could also occur indirectly as a result of felling or even planting trees nearby, as this could alter the light, humidity and temperature conditions in the roost. The following sections suggest how to minimise the risk of these problems occurring.

To reduce the risk of inadvertent roost disturbance and destruction, woodland operations should preferably be planned well in advance to allow time for survey work.

5. STEPS IN LOCATING AND PROTECTING ROOSTS (see flowchart on p10)

- **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 at various times of the year. 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 soon after sunset at

which time a peak of foraging activity starts. A second peak of activity occurs in the few hours before dawn, but bats may be active throughout the night depending on the species and part of Scotland the woodland is in. Woodland use is related to the particular species' need, the type, and size of woodland. Table 1 provides detailed information on the type of woodland and roosts that are typically used by different species. Areas particularly used for roosts include holes, cracks and loose bark. Older trees with any of these are particularly favoured.

Corsican pine tree with a bat roost in the fork. The tree has been marked for protection during thinning operations. Source: Anne Youngman, Bat Conservation Trust.

Table 1. Bat habitat use (Scotland)

Bat species	Woodland habitat used	Summer roost sites		Winter roost sites		Other habitats used for foraging	Foraging distance (if known)
		Trees	Other	Trees	Other		
Noctule *	Deciduous woodland	Yes	No	Yes	Buildings	Parkland, around street lamps, pasture, water and forest edges	5-10 km, (up to 26 km)
Brown long-eared	Mainly open deciduous woodland, but also mixed woodland and edges of conifer plantations	Yes	Older buildings, barns, churches	Yes	Caves, mines, tunnels and buildings	Parkland	Usually within 1.5 km of roost
Leisler's *	Open deciduous, mixed and coniferous woodland	Yes	Bat boxes and buildings	Yes	Buildings, occasionally caves and tunnels	Parkland, pasture, open water, suburban areas and around street lamps	Up to 13 km
Natterer's *	Open Deciduous woodland, mixed and conifer woodland e.g. Scots and Corsican pine plantations	Yes	Old stone buildings and large-timbered barns,	No	Caves, mines, most underground shelters	Parkland, hedgerows, along water-side vegetation	2-3 km, (up to 6 km)
Brandt's &Whiskered *	Deciduous and possibly mixed and conifer woodland	Yes	Buildings	No	Caves and tunnels	Near water and along hedgerows	
Pipistrelles (*Pipistrellus pipistrellus* & *P. pygmaeus*)	Open deciduous, mixed and conifer woodland	Yes	Buildings	No	Buildings	Woodland edge, over water, marshes, farmland, along hedgerows, suburban gardens and urban areas. Riparian habitats preferred by *P. pygmaeus*	1-2 km, (up to 5 km)
Nathusius' pipistrelle	Deciduous, mixed and riparian woodland	Yes	Buildings	Unknown	Unknown	Parkland and farmland near water	
Daubenton's	Deciduous woodland	Yes	Tunnels, bridges, caves, mines, historic buildings and cellars	No	Caves, mines and other underground sites	Over lakes, rivers and ponds	5 km, (exceptionally up to 14 km)

* Rare and locally distributed in Scotland.

- **If you have areas within your wood which are particularly suitable for bat roosts can you retain these features as part of your operations, even without being certain that bats are there?**

It is good practice not just for bats but for wider biodiversity, scenic and other reasons to retain a proportion of older trees, especially veteran trees with widespread branches. Features such as riparian woodlands and hedgerow trees are particularly good places for bat roosts. It will often be sensible to leave such features out of felling plans, especially where it is hard to tell if they are being used for bat roosts. Dead or dying trees should preferably be left standing, if this does not cause a risk to public safety or plant health.

- **If you still want to include areas identified as potentially suitable for bat roosts in your management operations**,

you will need to assess the risks of damaging or destroying roosts, or of disturbing bats at roosts, and take reasonable precautions to prevent these problems.

6. BAT ROOST SURVEYS

You should carry out survey work to establish whether bats are using your woodland and identify possible roost sites.

To increase the chances of detecting roosts, *you should preferably carry out both a winter search for signs of potential roosts and at least one search in late spring/summer to detect bats emerging from their summer roosts* (or swarming before returning to roosts before dawn). Visits should be undertaken in suitable weather conditions. It is not always practical to plan operations far enough ahead to do both seasonal surveys, *but at least one survey visit should be possible as a minimum.*

Noctule flying from tree hole *Brown long-eared bat in tree hole.*

Images: Hugh Clark, Bat Conservation Trust

(1) ***Winter survey*** Look for indirect evidence of bat roosts and mark trees with potential roosts. This is easier to do in winter when deciduous trees are leafless. 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 are most frequently used as roosts, particularly oak, ash, beech, sycamore and Scots pine; but bats will use any tree with suitable cavities or crevices. 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).
- infrequently visible 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.

(2) ***Spring/summer survey*** Look for evidence of bats using roosts in late spring or summer when it may be possible to notice:

- droppings below the hole – these have the appearance of mouse droppings but crumble to a powder of insect fragments. They are often stuck to vertical surfaces as well as being scattered on the ground.
- 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.

Bats can be viewed emerging from their roost sites at dusk or returning before dawn. These surveys can be carried out by careful observation in a walk through the woodland with binoculars, but better results can be obtained by using a bat detector. However these are best operated by experienced and trained people as the results can be hard to interpret. Bat detectors make the ultrasound that bats emit more audible to humans.

For more information on surveying for bats see the good practice guide *Woodland Management for Bats*, or *Bat Surveys – Good Practice Guidelines*.

(3) ***Intensive specialist survey***
If you have identified signs of probable roost sites from these basic surveys but cannot be sure if they are being used by bats, the simplest answer is to leave the trees in question out of any felling operations, ideally leaving a buffer of adjacent trees around them to reduce disturbance to roosting bats. If you still want to proceed with felling suspected roost trees, a specialist survey should be conducted to establish where roosts are. This might be particularly appropriate if the initial survey work was not undertaken at the most appropriate times of year. Specialist survey techniques vary but might include climbing the tree and using an endoscope to check roost sites, for example. However, these methods are expensive and intrusive and may disturb the

bats in their roosting sites, and so may require to be licensed. Please contact Scottish Natural Heritage for advice in these cases.

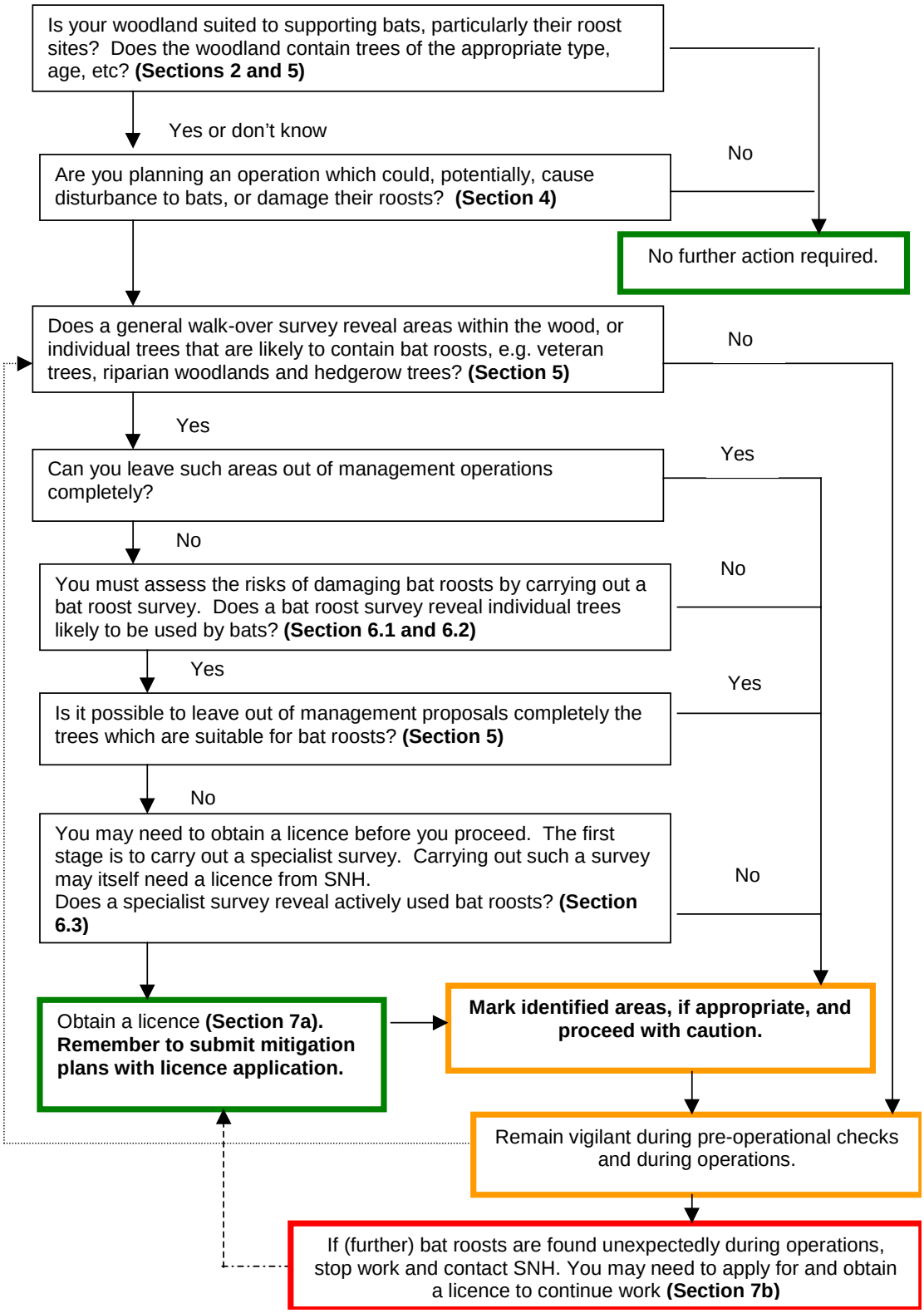
7. ASSESSING THE NEED FOR A LICENCE APPLICATION

(a) Bats roosts are found during survey. If any roosts are identified through survey it should normally be possible to plan to avoid felling the roost trees or even avoid the area of woodland supporting the roosts. However, if you still want to proceed with felling and a roost would be disturbed, damaged or destroyed, you should apply for a licence from the Scottish Government. A licence application will require evidence of the presence of bat roost(s) and you will need to satisfy the licensing authority that there is no satisfactory alternative to damaging or destroying the bat roost(s), and that there will be no effect on the conservation status of the bat species concerned. Under the requirements of the Habitats Regulations, licences are unlikely to be issued except where there are reasons of public safety or other imperative reasons of overriding public interest including those of a social or economic nature.

(b) Bats or their evidence found unexpectedly during forest operations. If bats or fresh signs of bats are discovered during operations (especially likely roosts), you should immediately stop work, and seek advice from Scottish Natural Heritage and review your plans as required. Scottish Natural Heritage's advice on these occasions is likely to be to conduct further survey work to confirm the presence or absence of bat roosts. If roost sites are then identified and the trees in question cannot be left alone, you will be advised to seek a licence from the Scottish Government bearing in mind the tests which will need to be passed. Currently, the Government is revising its licensing procedures. Should you feel a licence application is necessary or wish to discuss the licensing process in more detail, please write to the Scottish Government, Rural Directorate, Landscapes and Habitats Division, Species Licensing Team (1A-North, Victoria Quay, Leith, Edinburgh EH6 6QQ (or telephone 0131 244 6549; fax: 0131 244 4071, or email: speciesslicensing@scotland.gsi.gov.uk).

(c) Bat boxes. Occupied bat boxes are roosts and therefore protected. Maintenance work, monitoring bat use or moving bat boxes to another site should be carried out by licensed batworkers. Advice should be obtained from SNH.

Flowchart: Steps in locating and protecting roosts during woodland management operations



8. REFERENCES AND SOURCES OF ADVICE

Anon (2005) Woodland Management for Bats. Forestry Commission England, Forestry Commission Wales, Bat Conservation Trust, Countryside Council for Wales and English Nature

Bat Conservation Trust (2007). Bat Surveys-Good Practice Guidelines. Bat Conservation Trust, London.

The Bat Conservation Trust website contains a range of advice on bat conservation and information notes on each species of bat found in the UK at: http://www.bats.org.uk/helpline/helpline_learn.asp

First published September 2007
Revised August 2009