

MANAGING TREES AND WOODLANDS FOR BATS IN LONDON













MAYOR OF LONDON



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CAPITAL WOODLANDS

Capital Woodlands is a three-year London Biodiversity Partnership project supported by the Heritage Lottery Fund (2006-2009). The project aims to raise awareness and appreciation of London's woodlands and increase public benefit and participation by undertaking access, biodiversity, community and training work in six 'flagship' woodlands and throughout the capital.

The dissemination of best practice in the management of London's woodlands is a key objective for the Capital Woodlands Project. These guidelines form a major contribution towards the sustainable management of London's woodlands providing a valuable resource for local authorities and other woodland managers.

The Capital Woodlands Project is managed by Trees for Cities, which works in partnership with the Greater London Authority, Forestry Commission, BTCV, the Peabody Trust and the London Boroughs of Bromley, Croydon, Haringey, Merton and Redbridge.



managing trees and woodlands for bats in London

INTRODUCTION

Trees and woodlands throughout London provide much needed habitat for a variety of different species of bat. Roosts for bats in this habitat can be scarce and landscape connectivity between feeding and roosting habitats can be poor due to adjacent dense urban infrastructure.

Tree and woodland owners in London can significantly improve retention of existing habitat and create opportunities for new habitat by managing their resource in a bat-friendly manner.

OBJECTIVE

The aim of this guide is to help owners and managers of London's woods to maximise the opportunities afforded by bats without compromising on safety in publicly accessible woods and parkland.

CHALLENGES OF URBAN WOODLANDS

Trees and woodlands are increasingly important in terms of sustainability, whilst also improving the health and well-being of people who live in urban areas. However, there are some particular challenges when it comes to balancing management of urban woodlands with the conservation of wildlife such as bats. These include:

- Public pressure resulting from access and use of urban woodlands
- Integration of urban woodlands within the urban environment to ensure connectivity of habitat
- Small administrative units requiring the need for cross-borough co-operation for the conservation of landscape species.

This guidance is presented in the form of a series of questions and answers. It illustrates some of the major issues that can inhibit the management of trees and woodlands in a bat-friendly manner and suggests practical solutions that are simple and cost effective to implement. Innovative suggestions are made for enhancement to the roosting, foraging and commuting opportunities for bats and on widening public enjoyment of woodland and wildlife through events such as bat walks.

Although the term 'woodland' is used throughout this leaflet, the advice given applies equally well to parks, gardens and urban squares with mature trees. This guidance is intended to be of use to local authority and private woodland owners, tree officers, park managers and contractors. By following this guidance you will help London's bat population to thrive.

UNDERSTANDING BATS IN WOODLANDS

WHAT BATS LIVE IN LONDON?

There are recent records of eleven bat species in Greater London, at least eight of which are known to breed in the capital. This is a substantial proportion of the UK's seventeen resident bat species.

See the London Bat Species Action Plan for an audit of London's bats
www.londonbats.org.uk/lbpsap.htm



HOW DO BATS USE WOODLANDS?

Bats use trees in woodlands as roosting sites throughout the year. Trees may provide maternity (breeding) roosts in summer, mating roosts in autumn, hibernation roosts in winter and temporary roosts at all times of year.

A colony of bats may use a number of different trees in a woodland during the course of a year according to their needs. Although individual trees may be relatively short-lived in terms of their habitability by bats the entire woodland should be managed for the long-term survival of bat populations by ensuring a succession of roost trees is available for the future. Bats may also roost in other features within or adjacent to woodlands, for example buildings, bridges or tunnels.

Woodlands are rich foraging grounds for bats, all of which feed on insects. Each bat species has its own preferred hunting niche within the woodland. Some bats, such as the brown long-eared, glean insects from the surface of vegetation and fly within the canopies of trees; others, such as the noctule, fly high above the canopy feeding on swarms of insects in the air. Meanwhile, pipistrelles tend to fly close to shrubs and smaller trees between the woodland and neighbouring habitat, be it a river, park or garden. Other bats roost in woodland but venture beyond it to feed, for example the Daubenton's bat typically feeds over water, trawling insects off the surface.

Bats use features such as avenues of street trees, treelines along waterways, railways lines, gardens and woodland edges as linkages in the landscape when travelling between roosts and feeding areas. This is especially important in the urban environment where woods and parks provide safe, dark corridors at night for bats to fly through otherwise well-lit and built-up areas.



WHICH FEATURES OF TREES ARE USED AS ROOSTS?

Features used by bats as roosts include woodpecker or rot holes, cracks and splits from storm damage, loose bark or dense ivy cover. Tree species that tend to produce these features therefore offer more opportunities to roosting bats than those that do not. For example, species such as oak, pine, willow and sweet chestnut are prone to developing splits in their branches and trunks, while ash, beech, poplar and sycamore tend to offer opportunities in cavities. It is important to note that bats will use any tree of any age with suitable cavities or crevices.

Smaller species of bat, such as pipistrelles, require only a tiny crevice (less than 1.5cm wide) to roost in. Larger species, such as noctule, require more extensive cavities, while some cavities may be home to more than one species of bat.



UNDERSTANDING THREATS TO BATS IN WOODLANDS



WHAT ACTIVITIES AND OPERATIONS COULD CAUSE DAMAGE, DISTURBANCE OR HARM TO BATS?

Any operations involving felling of trees or removal of branches could cause destruction, damage or disturbance to unidentified roosts and/or bats and therefore require careful forethought.

Any operation that opens up the woodland canopy around a roost site could subtly change the local environmental conditions making the roost unfavourable for bats. Likewise the removal of ivy from a roost tree could also alter its microclimate. The felling of sheltering trees immediately adjacent to a roost could also make the resident bats more vulnerable to predation when emerging or returning and might force them to abandon the roost.

In addition to direct impacts on roosts in trees (or perhaps in buildings or underground structures) there is the potential that foraging areas may be damaged by activities that reduce insect numbers, for example through certain types of vegetation management, use of pesticides or cessation of grazing. Bats may also be disturbed or deterred from foraging if lighting is introduced into an area.

Tree felling may affect favoured commuting routes both within and between woodlands, damaging their suitability for bats. For example, removal of a key tree that is a navigational aid or a treeline that acts as a guide between roosts and feeding areas could hinder movement of bats around the landscape. Flight routes might also be disrupted by the installation of lighting; some species of bat are better able to cross open or lit space than others.



LEGISLATION

HOW ARE BATS PROTECTED BY LAW?

All species of bat found in the UK are protected under the Habitat Regulations (as amended). It is an offence to deliberately kill or cause significant disturbance to these protected species, or to destroy or damage a breeding site or resting place used by them.

It is also an offence to obstruct access to a bat roost under the Wildlife and Countryside Act (as amended). Bat roosts are protected by law even if bats are not present at the time.



Under the Habitats Regulations, damage or destruction of a bat roost is an absolute offence, meaning that an offence has been committed whether or not the act was deliberate or reckless.

The Natural Environment and Rural Communities (NERC) Act states that every public authority must, in exercising its functions, have regard to the purpose of conserving biodiversity. Hence when drawing up management plans for publicly owned or managed woodlands, managers must consider the conservation of bats.

To avoid or minimise the risk of committing an offence, woodland managers should consider the presence of protected species and their habitats and follow good practice guidance. In some cases management practices may need to be modified or rescheduled to a less sensitive time of year. Where this is not possible, operators may need to apply for a licence from Natural England to remain within the law. In such circumstances a sufficient level of mitigation and/or compensation for habitat lost or damaged will be required. However, most activities will be able to continue without the need for a licence, if good practice is followed.

Always refer to the latest legislation as it is periodically amended. Legislative summaries are available from the Joint Nature Conservation Committee www.jncc.gov.uk/page-1376. The legislative text is available from the Office of Public Sector Information www.opsi.gov.uk/legislation/. Forestry Commission guidance on European Protected Species can be accessed at www.forestry.gov.uk/england-protectedspecies. If in any doubt about the law, contact your regional Forestry Commission or Natural England office for advice.

MANAGING RISK

HOW CAN I MANAGE RISK WHILE SAFEGUARDING BATS AND THEIR ROOSTS?

One of the most difficult challenges for tree and woodland owners is balancing public safety requirements with the needs of wildlife in an increasingly litigious world. For effective roosting habitat, bats need a significant number of trees with what, in arboricultural terms, might be considered to be defects that predispose the tree to structural failure.

Large areas of deadwood with peeling and shedding bark, splits in limbs and cavities of all sizes associated with areas of decay are frequently ideal as bat roosts and may be exploited on a long term or transitory basis.

Regardless of how these tree features are created, to provide usable and effective habitat they must be allowed to remain in the tree for significantly longer periods than might normally be tolerated in

an area frequently accessed by the public.

To achieve this, a process of regular inspection and assessment by the local authority tree officer (or on private land by a qualified arboriculturist) should be set in place. These inspections should establish the risk posed, identify measures to decrease this risk taking advice from a licensed bat worker or, if risk amelioration is not possible, effectively isolate the tree/hazard from the area used by the general public. This may be achieved by fencing or moving a path.

Consideration of the tree species and its predisposition to structural failure is crucial in these assessments, as is consideration of the context of the tree within the habitat. For example, a structurally unstable tree might be viewed to pose a greater risk in a street situation than in the middle of a woodland.

Effective record keeping and management systems will enable you to demonstrate that good practice has been followed in the event of any challenge. Good communication between landowners, managers and contractors is essential when tree pruning or felling work is undertaken.

Unfortunately, there have been many instances where roosts have been needlessly destroyed due to poor communication. It is the responsibility of the woodland manager to ensure that adequate and proper information is supplied to all involved.



BAT RECORDS, SURVEYS AND ROOST OPPORTUNITIES



ARE THERE RECORDS OF BATS IN MY WOODLAND?

There are a few places you can look for existing records of bats in your woodland, but remember that a lack of records does not confirm absence of these species. Areas that have never been surveyed before may have no records, but you may find bats there when you look!

Greenspace Information for Greater London (GIGL) is the capital's open space and biodiversity records centre. GIGL collates, manages and makes available detailed information on London's wildlife, parks, nature reserves, gardens and other open spaces. GIGL holds records of the London Bat Group (LBG).

In some cases local knowledge may be required to help interpret records, for example by going back to the person who collected the records in the first place or to someone who regularly conducts bat walks in an area. Check old paper or computer records held by your organisation, for example previous management plans and results of surveys for the site in consideration.

It is best practice to make the results of surveys available through databases such as GIGL so that the data is preserved for the future.

GIGL's website is www.gigl.org.uk.

HOW DO I SURVEY FOR BATS IN MY WOODLAND?

Where there are no up to date bat records or the records are old or patchy, surveys can be used to confirm the bat species present and how they use the habitat.

Surveys involve looking for signs that bats could be present, usually by assessing the occurrence of roost opportunities, or looking for bats themselves. A combination of both approaches is advised in most cases. Certain activities will require the skills of a bat expert.

DOES MY WOODLAND OFFER OPPORTUNITIES FOR BAT ROOSTS?

Undertake walk-through surveys in winter or spring (before trees come into leaf) to identify trees with features offering suitable conditions for use by bats.

Using binoculars, note any cavities such as woodpecker holes or rot holes, cracks, crevices, hollow branches, loose bark or dense ivy cover.

Where safe and possible to do so, also check any buildings or structures (above or below ground) for presence of bats.

Remember it can be very difficult, even for a bat specialist, to find every bat roost in a woodland. To be cautious, you may simply wish to assume that the trees identified as having roosting opportunities do contain bats, and plan operations around these accordingly.

Record the location of potential and confirmed roost trees on your planning and proposed felling maps so that they can be protected. You may wish to tag and photograph the trees for your records.



WHAT IF BATS ARE PRESENT?

If work needs to be done to trees that have confirmed or suspected roosts, further surveys will be required to ascertain the importance of the roost to inform decision making. For example, the timing and extent of any works and any licence application that may be necessary.

Evening emergence and/or dawn return surveys with bat detectors near the trees where work is proposed, may confirm use of potential roost holes. Identifying bat species requires some knowledge of bat detecting. Looking for evidence of bats within the holes/cracks/crevices etc that are present should only be undertaken by a licensed bat worker with climbing experience.

Walking transect surveys through the woodland with bat detectors can be used to investigate bat habitat use in general. Alternatively, static recording bat detectors may be left in situ (at a secure site) for a number of nights and the recordings analysed for bat echolocation calls.

If staff or volunteers are not experienced in using bat detectors they can still assist as buddies to a contracted 'bat expert' during surveys for safety, to note down the findings, hold the torch, lead the way and gain experience of bat survey work themselves.

Training may be available in the use of bat detectors and identifying bats from the Bat Conservation Trust and/or London Bat Group. Grant aid may be available from the Forestry Commission for survey work.

In exceptional circumstances it may be warranted to employ someone to conduct catching surveys but this should be used only when deemed absolutely necessary, such as where a particularly rare species is suspected to have a maternity colony nearby or the threat from proposed works is sufficiently great to require very detailed information on the importance of a bat population.

Survey findings should be carefully recorded and made available for the future management of the site and through databases such as GIGL.

GOOD PRACTICE GUIDANCE FOR TREES AND WOODLAND AREAS WITH BATS

Tree and woodland management at all times should aim to:

1. Protect all existing confirmed roost sites
2. Retain other roosting opportunities as far as is practically possible
3. Ensure a succession of roosts for the future
4. Create a good network of habitats used for feeding, and
5. Avoid isolating any areas by protecting bat commuting routes.



HOW DO I PROTECT AND ENHANCE BAT HABITAT?

Good practice is to:

- Consider your woodland resource and its value for bats in the context of the wider landscape.
- Discuss plans with neighbouring landowners to achieve an integrated approach
- Create and maintain wooded corridors that bats can use to move through the area and make or improve linkages with other habitats beyond the woodland
- Manage a mosaic of habitats to encourage structural and species diversity through selective thinning, rotation coppicing and ride and glade creation
- Manage the woodland to retain good canopy cover after tree felling
- Avoid opening up gaps greater than about 20m along any linear features such as hedgerows and treelines. This will help bats to move freely within the woodland
- Retain standing dead trees and lying dead wood for the insects they support
- Avoid damage to favoured foraging habitats rich in insect life, particularly ponds, woodland edges and meadows
- Create or maintain a wildlife pond in a suitable location
- Identify 'natural reserves' where areas of woodland are managed through very low intensity intervention to allow woodland habitats to develop naturally
- Retain and encourage as much understorey as possible, in particular where it directly shelters or shades a known roost
- Cut ride and/or trackside vegetation to create a diversity of heights to sustain an insect-rich environment, but ensure that potential roosts in trackside trees do not become exposed
- Keep lighting to a minimum, particularly in areas used for foraging or along flight routes.





HOW DO I PROTECT BAT ROOSTS?

Good practice is to:

- Take a precautionary approach by protecting trees that have bat roosting opportunities
- Clearly mark and protect any trees that contain confirmed bat roost
- Retain a buffer or ring of trees and understorey around these roosts to maintain the environmental conditions of the roost. This will usually mean a width of one to two canopies around the tree
- Ensure roost trees do not become isolated from woodland, but maintain wooded 'corridors' or links to the wider woodland and beyond
- Where there are comparatively few trees with possible bat roosts avoid felling or disturbing any of them
- When felling or thinning in woodlands with an abundance of trees with possible bat roosts, leave some of the area entirely undisturbed in any 10-year period
- Identify and provide for future veteran trees to become the next generation of roost trees
- Avoid major increases in the levels of noise and activity around potential roosts as far as practically possible
- Avoid illuminating roost trees with features suitable for use by bats
- Maintain good records of bat roosting locations and trees that offer opportunities for roosting
- Erect bat boxes or convert disused structures into bat roosts
- Retain a buffer ring of trees and understorey around any underground structure or building likely to be used by bats, ensuring that links are maintained to adjoining woodland
- Contact your regional Natural England or Forestry Commission office if in any doubt.

HOW DO I PROTECT BAT ROOSTS IN TREES WITH EXTENSIVE AREAS OF DEADWOOD OR LARGE AREAS OF STRUCTURAL DECAY?

Good practice is to:

- Ensure trees are regularly inspected and assessed by local authority tree officers or a qualified arboriculturist (preferably one with bat experience). They should consider the risk posed (if any) by dead or decaying areas
- Where possible, limit access to the risk area. For example, by re-routing a footpath away from a potentially dangerous tree or by fencing or using undergrowth e.g. brambles to keep people from venturing beneath its branches.

Occasionally emergency tree work will need to be undertaken. Where there is a known bat roost, advice should be sought from Natural England before proceeding. If they are not contactable, do the minimum necessary to stabilise the situation and wait for advice before proceeding further.

When essential work needs to be done to a tree containing a known or suspected bat roost, good practice is to:

- Ensure tree assessment and preparation of a method statement by a licensed bat worker
- Obtain a licence from Natural England to permit disturbance of bats and/or damage/destruction of a roost as appropriate
- Carry out work between late August and early November, when bats are most tolerant of disturbance (or mid-March to mid-April if no breeding birds are present)
- Work on trees with good roosting opportunities should be avoided between May and September and between December and mid-March inclusive whenever possible
- Conduct pre-work inspections of the tree for bat presence. A watching brief may be maintained by a licensed bat worker
- Undertake the minimum amount of work necessary to make the tree safe. For example, consider crown reduction, to retain roost features, rather than felling
- Take care to cut into sound wood above and below any cavities rather than through the hollow
- Avoid cutting in ways that release the pressure on stress cracks as bats roosting in the cracks may be crushed when the cracks close
- Lower sections to the ground and leave them in situ for at least 24 hours for any bats to escape.
- Leave cut wood lying to decay or consider whether a roost section can be reattached elsewhere on the same tree or on a neighbouring one
- Stop immediately if bats are found while work is in progress. Seek advice on what to do from Natural England or the Bat Conservation Trust's Bat Helpline
- Try to avoid handling bats, but if unavoidable then gloves must be worn.





This dead tree in Court Park, Hillingdon was regularly occupied by a maternity roost of noctule bats. In 1999, the local authority decided it was too dangerous to leave any longer and a compromise was reached whereby the roost branch was lowered to the ground and re-erected in the tree when it had been reduced to a trunk. The roost has been used every year since then, demonstrating its importance to the local bat colony.'



Significant structural elements of the landscape, like ancient trees and historic boundaries, are of particular importance to bats for navigation, foraging and roosting. This line of ancient pollard oaks in Richmond Park used to be part of a landscape boundary. Recognising the importance of this feature, the park management has planted more trees in the gaps.

CREATING NEW OPPORTUNITIES

IS IT POSSIBLE TO CREATE ADDITIONAL SITES FOR BAT ROOSTS IN MY WOODLAND?

Trees are not the only places bats may use as roosts in urban parks and woodland. It is frequently possible to adapt existing structures such as concrete bunkers, ice houses, tunnels and disused buildings to create roosts and hibernacula for bats.

With relatively little investment, these structures can be extremely helpful in securing permanent long-term accommodation for local bat populations.

While some bat species associated with trees may use these structures, others will not, so it is still important to retain a diversity of tree roosts within the wood.



The opening to this pill box at Fairlop Plain in Redbridge was bricked up to prevent people from entering and to minimise drafts. A small gap was left at the top of the brickwork for bats to crawl through. The pill box is situated in a wooded railway sidings that links a country park with fields and allotments.





The old railway tunnels close to Highgate Wood in Haringey have been enhanced for bats by building walls to create a more stable internal climate, restricting access for people by the installation of bat friendly grilles and the incorporation of bat hibernation units in the interior.



The generator house at Hainault Lodge LNR in Redbridge had moth and butterfly wings on the floor. Bats were using it as a feeding roost. The bat roosts were insulated. A steel door with bat access, a baffle board to deflect draughts and wall mounted bat bricks were installed

SHOULD I PUT BAT BOXES UP IN MY WOODLAND?

In an area with plenty of natural tree cavities, bat boxes may not be needed as there may be numerous existing opportunities for bats. Bat boxes can be beneficial where young trees have not yet developed features of age or storm damage; where there is strong competition for roosting holes from grey squirrels; where there is an opportunity for public engagement and awareness raising through a bat box-making event and/or interpretative signage along woodland trails; or where you wish to use bat boxes to help monitor your woodlandbat population.

The drawbacks of bat boxes are that they may be subject to vandalism, will require regular maintenance and checking by a licensed bat worker and there is some concern that they may attract more adaptable species of bat at the expense of some of the rarer, more specialised ones.

CAN I ENHANCE TREES FOR BATS?

Create artificial holes in trees (living and dead) by making chainsaw cuts deep into the trunks or by cutting out a wedge-shaped piece, cutting the point off the wedge and replacing it to leave a crevice for bats with an access hole.

Use natural fracture pruning techniques and coronet cuts to mimic the way a tree breaks naturally. Jagged stubs and splits provide many more habitats to wildlife than the smooth cut of a saw. Provide interpretation for people who may be interested in the technique.



EDUCATION & PUBLICITY

HOW CAN I INCREASE PUBLIC AWARENESS OF BATS?

The mysterious and nocturnal nature of bats is often a fascinating and irresistible draw. Use interpretation boards and leaflets, guided walks including evening bat talks and walks, bat and moth nights, and open days with displays of live bats. Activities for children can be a strong draw and bat box making events are always popular. Training on leading a bat walk may be available through the Bat Conservation Trust. The London Bat Group may be able to assist with providing speakers or event leaders.

As well as providing information about bats, provide education about the habitat they need, for example the biodiversity benefits of dead and decaying wood and the need for quiet, unlit areas within the woodland. Also emphasise the roles bats play in indicating the health of the environment.

HOW DO I MANAGE PUBLIC PERCEPTION OF DECAYING WOOD IN TREES?

There is a perception in many areas that retaining large trees with extensive deadwood and cavities and decay is inappropriate in publicly accessible woodlands. Highlight the additional benefits to biodiversity of retaining large trees with standing deadwood and cavities.

Install interpretation boards close to dead wood piles and make leaflets available. Show stag beetles and other dead wood insects at events and open days. Inform the public of the need for them to be personally aware of and responsible for their own safety when entering natural environments.



TRAINING

The London Tree and Woodland Framework encourages land owning organisations to work in partnership for the management of London's woodlands. It is proposed that woodland owners nominate a designated individual to undertake bat training to the standards required by Natural England. Once trained this individual would give advice and assistance on the best actions to secure bat roosts in partnership areas in the long term.

By collaborating in this partnership, local authorities and private woodland owners can obtain the expertise and advice needed quickly and at the nominal cost of normal officer time. This enables compliance with the requirements of the legislation, making woodlands safe for increased public access and securing much needed bat habitat.

The Forestry Commission, through its training service runs accredited residential courses to standards required by Natural England.



managing trees and woodlands for bats in London

CONTACTS

BAT CONSERVATION TRUST

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PHOTO CREDITS

1. View of London, Richard Barnes, GLA
2. Pipistrelle bat. JJ Kaczacnow/Bat Conservation Trust
3. Split oak. The Royal Parks
4. Woodpecker hole bat roost. N Reeve/The Royal Parks
5. Noctule bats. JJ Kaczacnow/Bat Conservation Trust
6. Coppicing. (FC image of chainsaw man - Ron will supply credit)
7. Brown long-eared bat. High Clark/Bat Conservation Trust
8. Dead tree. Andrew Cowan/ArborEcology
9. Surveying. Bat Conservation Trust
10. Tree climbing. Andrew Cowan/ArborEcology
11. Daubenton's bats. JJ Kaczacnow/Bat Conservation Trust
12. Oak tree, Claybury Wood. Francis Castro, Nature Conservation Team, London Borough of Redbridge
13. Tree with re-erected bat roost. Court Park, Hillingdon. Andrew Cowan/ArborEcology
14. Line of pollarded oaks, Richmond Park. Andrew Cowan/ArborEcology
15. Pillbox, Fairlop Plain. (both images). Francis Castro, Nature Conservation Team, London Borough of Redbridge
16. Tunnels, Highgate, Cindy Blaney/London Bat Group.
17. Bat hibernation unit, Miranda MacQuitty
18. Generator house, Hainault Lodge LNR. Francis Castro, Nature Conservation Team, London Borough of Redbridge
19. Bat feeding remains. Bat Conservation Trust
20. Bat boxes. Bat Conservation Trust
21. Sculptured coronet cut, Scadbury Park, Bromley. Andrew Cowan, ArborEcology
22. Children making bat boxes. (FC image - Ron will supply credit)

FURTHER READING

BAT SURVEYS – GOOD PRACTICE GUIDELINES (2007) BAT CONSERVATION TRUST

DEVELOPMENT OF GOOD PRACTICE GUIDELINES FOR WOODLAND MANAGEMENT FOR BATS (2005) NATURAL ENGLAND RESEARCH REPORT NO 661

GREATER LONDON BAT SPECIES ACTION PLAN (REVIEWED 2007) LONDON BAT GROUP

WOODLAND MANAGEMENT FOR BATS (2005) FORESTRY COMMISSION

ACKNOWLEDGEMENTS

The Forestry Commission and Capital Woodlands Project are grateful for the support of the Heritage Lottery Fund and the assistance of the following people in producing these guidelines: Cindy Blaney (London Bat Group), Andrew Cowan (Arborecology), Karen Haysom (Bat Conservation Trust), Ian Holt (London Bat Group and London Borough of Haringey), Brenda Mayle (Forest Research) and Katie Parsons (Bat Conservation Trust).

Design and Production by 22 Design Ltd.
www.22Design.co.uk

