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For an electronic copy of this booklet, Biodiversity Action Plans for London and further information, visit the LBP website: www.lbp.org.uk

Ten London Boroughs have been identified with reedbeds of over half a hectare in extent. Some key sites for reedbed conservation in London boroughs that you can visit include:

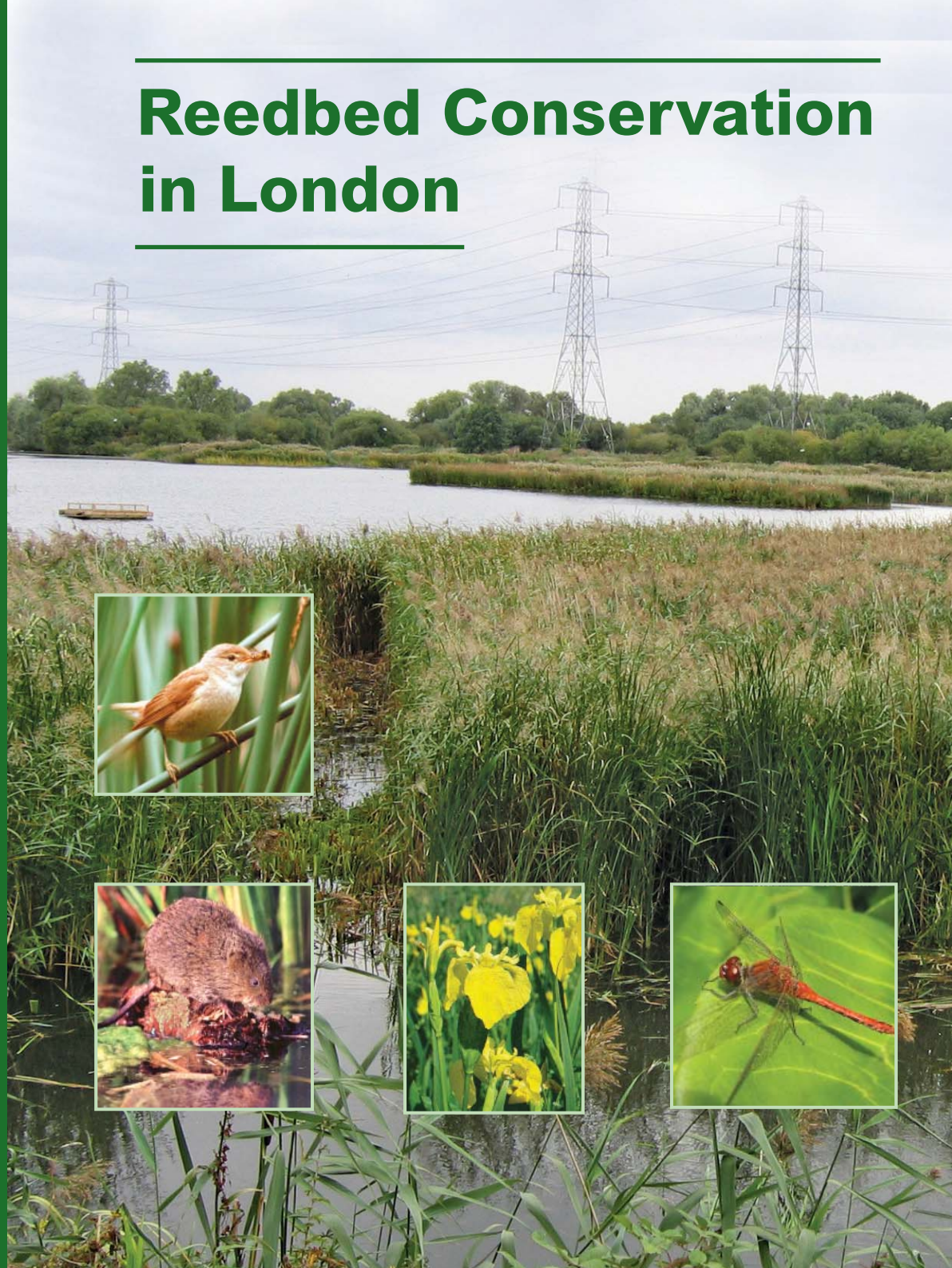
- LB Barking & Dagenham: the Chase Nature Reserve - contact London Wildlife Trust, Tel: 020-72610447.
- LB Bexley: Crossness Nature Reserve - contact Thames Water, Tel: 0118-3738608.
- LB Brent: Brent Reservoir - contact British Waterways, Tel: 020-74328309, or Welsh Harp Environmental Education Centre, Tel: 020-82000087.
- LB Greenwich: Greenwich Peninsula (and tidal Thames) - contact the Environment Agency, Tel: 0870-8506506.
- LB Havering: Ingrebourne Marshes Nature Reserve - contact LB Havering Parks department, Tel: 01708-434743; Rainham Marshes Reserve - contact RSPB, Tel: 01708-892900.
- LB Hillingdon: Frays Farm - contact London Wildlife Trust, Tel: 020-72610447.
- LB Hounslow: Bedfont Lakes Country Park - contact Bedfont Lakes CP, Tel: 01784-423556; Kempton Park Nature Reserve - contact Thames Water, Tel: 0118-3738608.
- LB Newham: Bow Creek Ecology Park - contact Lee Valley Regional Park Authority, Tel: 01992-717711.
- LB Richmond upon Thames: Crane Park Island Nature Reserve - contact London Wildlife Trust, Tel: 020-72610447; London Wetland Centre - contact Wildfowl & Wetlands Trust, Tel: 020-84094400; Lonsdale Road Nature Reserve - contact LB Richmond, Tel: 020-88316125; Pen Ponds, Richmond Park - contact The Royal Parks, Tel: 020-89483209
- LB Southwark: Lavender Pond Nature Park - contact Trust for Urban Ecology, Tel: 020-72320498.
- LB Sutton: Anton Crescent Wetland - contact the Environment Agency, Tel: 0870-8506506.
- LB Waltham Forest: Waterworks Nature Reserve and Walthamstow Marsh - contact Lee Valley Regional Park Authority, Tel: 01992-717711.
- LB Wandsworth: Tooting Common Pond - contact LB Wandsworth, Tel: 020-88717019.
- LB Westminster: St James's Park - contact The Royal Parks, Tel: 020-79301793.

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Design by Jane Durham (Elsevier Ltd, Oxford)

Text by Richard Bullock (Wildfowl & Wetlands Trust)
and Tasha Hunter (Thames Landscape Strategy)

Reedbed Conservation in London





Bow Creek reedbed (© Mark Gallant)

Reedbeds are a national Biodiversity Action Plan habitat and are considered to be of high priority for wildlife conservation in the UK. They are areas of shallow water dominated by a tall wetland grass called common reed. Reedbeds in London occur at the margins of all kinds of water bodies and alongside several other habitats, including wet woodland and willow dominated scrub. Most of London's natural reedbeds occur along the tidal Thames and its tributaries, supplemented by many man-made reedbeds in a variety of current and post-industrial structures, including restored gravel workings, reservoirs and flood storage basins. Recently, the demand for alternative water treatment applications has added further small-scale reedbeds to perform various roles including filtration of nutrients, removal of harmful pollutants and storage of urban runoff and floodwater.

Why is it a rare habitat? Historically, the River Thames supported extensive reedbeds. These would have marked the floodplain, delta and creek mouth of every major tributary, before the widespread land drainage and constructed flood defences used in the development of the modern city. Reedbeds are still threatened by the maintenance of these systems, which requires the periodic dredging or diversion of watercourses. The RSPB has identified lack of appropriate management as the major factor causing reedbed losses across the UK in recent decades. Lack of intervention to halt colonisation by wet woodland, ill-planned dredging, and the destruction of ditch and canal margins by livestock on floodplain pastures are all problems that can result in the loss of reedbeds.

Front cover photographs:

Fishers Green 70 Acres Lake (© Lee Valley Regional Park Authority)
reed warbler (© David Harrison); *water vole* (© Ken King); *yellow-iris* (© Mike Waite);
ruddy darter (© Nigel Reeve);

Reedbed Flora. Reedbeds are structurally dominated by our largest native grass – the common reed. This is a conspicuous wetland species, with cane-like stems that last throughout the winter. Where reeds are well-established, few other wetland herbs can grow in association with the reedbed. However, plants that can occasionally colonise reedbeds include bulrush, great willowherb and purple-loosestrife. In shallow areas, yellow iris or branched bur-reed may also occur where reeds are shorter. Drier, unmanaged areas of reedswamp may support hemp agrimony, bittersweet, common nettle and wet woodland species such as alder and willows. Reedbeds in the Thames Estuary often contain plants tolerant of salt water including the sea club-rush and sea aster. Although London's reedbeds have few nationally rare and specialised plants associated with the habitat, one brackish reedbed in the Darenth Estuary may still support a small colony of the marsh sow-thistle.

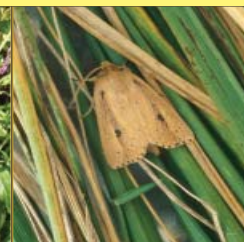
Reedbed Fauna. The capital's reedbeds provide a home to many of London's more interesting and regionally uncommon wildlife. Wildlife dependent on the dense cover provided by reeds include secretive birds such as the water rail, reed and sedge warblers, the water vole, the harvest mouse, and a host of invertebrate species. Relative newcomers to London include the enigmatic bittern and even the otter. London's reedbeds have supported bitterns every winter since the early 1990s and in recent winters even within a few miles of Westminster. Some outer London reedbeds are an important habitat for several nationally rare breeding birds, including Cetti's warbler and bearded tit, as well as declining species such as reed bunting. Larger reedbeds have an important role for migratory birds including swallows, as well as winter roosts for starlings, linnet and corn bunting. Rotational cutting can often generate piles of composting reed, which provide suitable sites for grass snakes to lay their eggs.

Nationally, at least 700 species of invertebrates are closely associated with reedbeds. Moths are the best known of these, with at least nine species specific to reed and many more on either reed or other allied plants. Moths associated with reedbeds in London include several uncommon species including the twin-spotted, brown-veined, Webb's and silky wainscots. The habitat is also home to charismatic wetland moths including the cream-bordered green pea and lunar hornet clearwing. The abundance of moths and other insects in reedbeds provides a plentiful food supply for other nocturnal animals such as bats. Dragonflies are another prominent feature of reedbeds in summer and one London species, the scarce emerald damselfly, is nationally restricted in its distribution.

Great Willowherb
(© Mark Gallant)



Webb's Wainscot
(© Tim Freed)



Water Rail
(© Justin de Villeneuve)



Scarce Emerald Damselfly
(© Ten Benton)



Establishing a Reedbed

Reedbed establishment through restoration or for habitat creation, requires project planning as well as an evaluation of criteria for site selection. Prior liaison with the local planning authority, the Environment Agency and consultation with relevant stakeholders is recommended. Adequate funding will be required, not only for the planning and creation of the reedbed, but also for ongoing maintenance and monitoring of the habitat.

Criteria for site selection: reedbed establishment requires: an adequate supply of good water quality; control of water levels (where possible); avoidance of an estuarine water supply of high salinity; reeds planted on level or shallowly graded beds; a reputable supplier of pot-grown reed for planting; and adequate access for management and monitoring.

Planting a new reedbed: reedbed planting techniques include the use of cuttings, pot-grown plants or pre-planted coir fibre rolls. Plant material should be sourced locally. Methods most commonly used in London have included planting with rhizomes or pot-grown reeds. The best time to plant is from late March to end of May. Planting density should be 4-10 plugs or rhizomes per m². It is best to maintain a shallow depth of



Lee Valley
Regional Park Authority

water over the plantings, whilst ensuring the new plantings are never fully submerged (as prolonged submergence will drown the plants). Planting should be protected from grazing and trampling by waterfowl, dogs or livestock by using appropriate fencing. Fences should be left in place until the reedbed has become properly established (at least 3–5 years).

Good Management Practice

Maintaining structural diversity within a reedbed provides a mosaic of transitional habitats, making it more visually interesting for the public. This might include a hidden open water channel affording glimpses of a water rail; parcels of dense reed stands supporting chattering reed warblers in summer; and stands of willow scrub next to the reeds where the explosive sound of a Cetti's warbler may be heard.

The variety of wildlife that may be supported by a reedbed will depend on meeting several requirements: a continuous food supply, year-round shelter, and particular breeding structures and nest sites. For example, managing a reedbed to retain variably-aged stands of reed would enable a wide range of

insects (which over-winter as eggs or as larvae in dead standing stems and flower heads) to complete their life cycles.

The long-term sustainability of reedbeds and conservation of the wildlife they attract depends on a range of appropriate management options to prevent scrub and woodland colonisation. The quantity and quality of water used to manage the habitat is also important.

Reedbed management plan: reedbeds are a scarce resource in London and some London boroughs have few, if any, reedbeds. An assessment of a site's reedbed resource and its associated biodiversity is essential so that SMART aims and objectives are identified for the conservation of priority species. For the long-term management of a reedbed it is advisable to produce a management plan or brief, so the success of the adopted management programme may be regularly reviewed.

Signs of poor condition: a significant reduction in area over time is the most obvious indicator that a reedbed is in poor condition. This could be due to several factors which contribute to a loss of biodiversity. These include:

- lowering of water levels
- encroachment by scrub and trees
- over-intensive grazing by livestock
- grazing by concentrations of waterfowl
- reed dieback due to adverse changes in water quantity or quality (for example nutrient loading, salinity, pollution, etc.).



Grass Snake male
(© Martin Senior)

Reedbed re-growth following cutting at London Wetland Centre (© Mike Waite)



Grazing: in London, cattle are sometimes used to graze wetland habitats for conservation purposes, for example at Fray's Farm Meadows and at Rainham Marshes. Deer are significant grazers in specific habitats, such as ancient deer parks at Richmond and Bushy Parks, but are not used to manage wetlands specifically. Elsewhere in the UK, ponies and sheep are also deployed to manage wetlands. However, high levels of grazing pressure can be a cause for concern for some land managers. This 'overgrazing' can have a destructive effect on both mature and newly planted reedbeds. Protection of mature reedbeds from livestock requires the use of appropriate fencing.



Newly planted reedbeds can also be protected from their biggest threat, grazing waterfowl (especially Canada geese) by using suitable fencing.

(© Lee Valley Regional Park Authority)

Burning: the small size of reedbeds and their proximity to buildings, makes rotational reedbed management through burning an impracticable management proposition in London.

Cutting: most reedbeds in the capital receive some form of active management via rotational cutting. After assessing and mapping the reedbed resource at a site, the areas of reed should be broken down into compartments, which can be cut on a manageable rotation. The detail of rotation will depend on the reedbed's particular biodiversity and the resources available for management. Reedbeds were traditionally cut for roof thatching on 1-2 year rotations. However, reedbeds should be cut on longer rotations if they are to maximise their benefit for wildlife. This is because some invertebrates



Cut reed being taken away to be bundled or stacked

(© Lee Valley Regional Park Authority)

feed or over-winter in the long dead stems of reed over a life-cycle lasting 3+ years. Where small patches of reed occur around the margins of park lakes, each patch can be identified as a separate compartment and cut in rotation. Rotation cycles best for biodiversity can vary from 4-12 years, dependent on the size of a single large reedbed or the total number of smaller reedbed compartments. Reeds are best cut during the late autumn or winter. For example, a 7 year rotational cutting programme means that only 10-20% of the reedbed is cut each year leaving wildlife to re-colonise new reed growth the following summer (see Box 1). Cut reed has a variety of uses including: bundled and stacked at the edge of the reedbed to create further wildlife habitat for reptiles, amphibians and invertebrates; mulched/composted; or used to construct reed screens and blinds on wildlife reserves.



Bittern at London Wetland Centre reedbed (© Martin Honey)

Water levels: control of water levels can be important for maintaining good reedbed habitat, particularly where several different priority species occur. The profile gradient across which the reedbed has established may itself provide the range of habitat niches necessary for supporting a diversity of reedbed birds and other wildlife. Similarly scrapes, dykes and pools within the reedbed create sheltered areas of open water where more secretive wildlife prefer to feed including birds such as bittern and water rail. These features also serve to prevent a reedbed from drying out. Water levels can be purposefully raised to control the spread of a reedbed by drowning out young or cut reeds.

Salinity: a reedbed will only thrive in fresh to brackish water. Once salinity increases to over 1‰, this can lead to reedbed dieback. In the tidal Thames changes in salinity can result from irregular influxes of saline water higher upstream, not only due to over abstraction of freshwater from its upper reaches, but also as a consequence of tidal surges. Some examples of brackish water reedbeds include those at Barking Creek. Small reedbeds have been planted on the reconstructed eastern bank of the Greenwich Peninsula where the Thames embankments have been deliberately stepped back to provide an artificially created vegetated foreshore.



Eels can be found in both brackish and freshwater reedbeds (© Nick Giles)

The problem of nutrient enrichment: most of London's water bodies carry a high nutrient load, especially nitrate and phosphate. This encourages a rapid rate of growth in reeds, which produces weak stems and causes a condition known as reed dieback, with the inevitable loss of reedbed habitat. Reed dieback has occurred on a large scale in the Norfolk Broads where vast areas of reed have been lost on some broads over several decades.



Diggers can be used in the creation of new reedbeds as well as for digging ditches
 (© Lee Valley Regional Park Authority)

Dredging: this is carried out on rotation in late autumn or winter, preventing sediment infill of waterbodies and maintaining water flows along watercourses. Rotational dredging of ditch networks is often undertaken on a 5-25 year basis. Reedbed wildlife can gradually re-colonise the managed section of reedbed from sections of ditch still containing areas of reed not affected by dredging. Where areas of reedbed are a relatively scarce habitat within a site, it is advisable to dredge around the reeds without affecting the reedbed and its dependent wildlife. Examples of ditches colonised by reeds include those at the remaining Thames grazing marsh sites: Crayford, Erith and Rainham Marshes. Older Victorian ornamental lakes with small areas of reedbeds established along their margins include some of the central London Royal Parks, such as St James's Park and Hyde Park. These may require occasional dredging out to deepen their depth profiles thereby preventing them silting up. However, care needs to be taken that lake linings are not damaged during the dredging process and also that some consideration is given to the cost of disposing the dredged materials. Guidelines for contractors to complete such operations need to be clear (perhaps through a management plan) so avoiding the total removal of any reedbeds.

Sustainable urban drainage systems (SUDS): because they can rapidly absorb nutrients, reedbeds are used to reduce nutrient levels in water in SUDS schemes. A proportion of these nutrients are removed from the reedbed by cutting and removal of arisings, while some are accumulated in the reedbed roots and the associated organic litter in the sediment. Control of water flow through the reeds can also help enhance the uptake of nutrients by the reedbed. Therefore, regular cutting of reedbeds used in SUDS should help promote better reed re-growth and prevent long-term succession to wet woodland. Examples of reedbeds created to deal with nutrient rich and polluted run-off include the Heathrow Constructed Wetland (Hounslow) and the Greenwich Peninsula.

People and reedbeds: achieving public access to reedbed margins is likely to be easiest around lakes in parks or at community ponds. There are far fewer large reedbeds (over 2ha) where access through the reedbed is possible, with the London Wetland Centre being an exception. Boardwalks offer perhaps the ideal access solution, if costly to install. Health and safety is an important issue wherever the public has access to a reedbed, so fencing and/or rails at deep water points and deployment of life saving equipment must be considered whenever possible. Careful design and layout of a planted reedbed can incorporate minimal-access areas, or simply help to minimise noise disturbance. Sensible access policies help to promote the idea of a wildlife sanctuary (as established at reedbeds at Crane Park Island and Pen Ponds in Richmond Park). Educational leaflets and on-site interpretation boards help to highlight these issues, as well as providing explanatory information about the management and biodiversity of reedbeds. Tall stands of reed at the margins of rivers or lakes in public parks could act as litter traps and attract complaints from the public. In such circumstances, regular litter picking is essential and also creates a cared-for impression promoting a wider appreciation by the public.



Ingrebourne Marshes reedbed
 (© Alan Cooper)

Further Reading:

- Andrews, J. & Ward, D. (1991). The management and creation of reedbeds – especially for rare birds. *British Wildlife*, 3: 81-91.
- Construction Industry Research & Information Association. (2000). Sustainable Urban Drainage Systems – Design Manual for England & Wales. CIRIA C522. Environment Agency Report W230. CIRIA, London.
- Hawke, C. J. & José, P. V. (1996). Reedbed Management for Commercial and Wildlife Interests. The RSPB, Sandy.
- Merritt, A. (1994). Wetlands, Industry & Wildlife – a Manual of Principles & Practices. The Wildfowl & Wetlands Trust, Gloucester.
- The Wildlife Trusts' Water Policy Team. (2001). Reedbeds. Wetland Restoration Manual: Version 1. RSNL, Lincoln.
- White, G. J. & Gilbert, J. C. (2003). Habitat Creation Handbook for the Minerals Industry. The RSPB, Sandy.
- Worrall, P., Peberdy, K. J. & Millett, M. C. (1997). Constructed wetlands and nature conservation. *Water Science & Technology*, 35: 205-213

Box 1: Cutting Reedbeds

Cutting simply means separating the aerial parts (stems and seed heads) of the reed from their underwater base. It is one of the commonest methods of reedbed management. Before using a cutting regime as a management tool, you need to decide what you are trying to achieve. For example, is there a particular species you are trying to conserve (such as the bittern or a wainscot moth) or is it the reedbed as a whole? One cutting programme might not suit a particular site, whereas a variety of different regimes would be better. How the cutting is undertaken might also have an effect on reed growth. For example, cutting below the surface water will prevent or delay the rhizomes from growing and this is a good method of controlling reed spread into open water areas. Winter and summer cutting are the two widely recognised management regimes used.

Winter cutting: by cutting reeds, vigorous growth is promoted in the spring, producing straight, dense re-growth. The removal of dead winter stems reduces the rate of leaf litter build up, reducing the potential for the site drying out. The reed is cut in London during November, or later, when the stems have stopped growing and hardened, and the leaves have faded and drooped. Cutting can take place until the spring when either the new reed growth appears or else birds start nesting in the reedbed. Wildlife that benefits from winter cutting includes the bittern, bearded tit and reed warbler. Removing the dead winter stems can also have some detrimental impacts: some moth species use the dead reed stems to over winter. Limiting leaf litter build up also affects various species that use it for feeding, refuge and for nesting materials. If the management objective is to create dense reed stands and winter cutting is considered suitable for this purpose, then a decision on the frequency of cutting and the proportion of reedbed to be cut needs to be made. Cutting can be done annually, biennially or in rotation.

Annual cutting: annual winter cutting is known as 'single wale' and produces dense stands of reeds traditionally used for thatching (see Good Management Practice, Cutting, for other uses for cut reed). However, the insects which over-winter in reed stems can be detrimentally affected by using an annual cutting regime. On the other hand, it can be used as a tool for controlling insects that can potentially damage the sustainability of the reedbed.

Biennial cutting: winter cutting on alternate years ("double wale") provides a more varied habitat compared to single wale; dense stem growth; a reduced build up of leaf litter; and the opportunity for biennial species to reach their reproductive stage. However, this form of management can also have a detrimental impact on invertebrates whose life cycle exceeds the length of the cutting regime.

Rotation cutting: rotational cutting involves dividing a site into smaller areas using natural or man-made boundaries. For example, the site is divided into 7 sections and each section cut annually on rotation over 7 years. Alternatively, the site could be cut biennially over a 14 year cycle. Advantages of longer rotations include: less disturbance to wildlife, with a longer time for re-colonisation from the surrounding areas; and potentially a smaller strain on resources. However, increased scrub invasion, and the formation of matted reed and tussocks, may create mowing problems and damage machinery.

Out of preference, the entire reedbed should not be cut all at once as this dramatically changes the habitat and does not provide alternative nesting/refuge or food sources for the resident wildlife.

Cut type	Optimum % area cut	Example wildlife benefited
Single cut	less than 50%	bittern/reed warbler
Biennial	greater than 40%	bittern/reed warbler/wetland plants harvest mouse
Longer rotation	greater than 10%	bittern/water rail/sedge warbler/ reed warbler/wetland plants/ harvest mouse/wainscot moths/ other invertebrates

Summer cutting: suppression of reed growth is sometimes required where extensive reedbeds occur and is achieved by cutting during the summer growing season. It is a favourable management option for maintaining greater plant diversity within a reedbed, and underwater cutting can be used to control the spread of reeds. The timing of the summer cuts and the length of rotation will vary from site to site depending on the management objectives. However, cutting should be avoided during the bird breeding season if nests are present, or if the reedbed has been found to support breeding water voles.

Where a site is large enough, the best management for a diverse range of reedbed wildlife is to produce a habitat mosaic overall, using a combination of winter and summer regimes in conjunction with smaller areas left permanently free from intervention. The widest range of wetland wildlife would be supported by providing diverse reedbed habitats.

Cutting equipment: the range of machinery available for use in reedbeds varies in cost and ease of use.

Equipment	Ease of use	Terrain	Result	Cost
Hand scythe	moderate	all	v.good	£100
Hand sickle	difficult	all	poor	£15
Reciprocating	difficult/easy	flat/wet	v.good	£1,000+mowers
Brushcutters	easy/moderate	all	poor/good	£350

Hand scythes and sickles: best used in very small pockets of reed, which cannot be managed by larger machinery. Unskilled persons require training in their use, but should not attempt underwater cutting for their own health and safety.

Reciprocating mowers: these are machines with cutting bars 1-3 metres long, which sever the reed stems near ground or underwater. Smaller, lightweight mowers can be operated by one person and large areas covered in relatively little time.

Brushcutters: there are a wide variety of types. An experienced operator can clear a large area of reed in a day. They can also be used for underwater cutting.

Box 2: Managing Water Levels in Reedbeds

The common reed is a highly adaptive plant, which can tolerate variable water quality and will usually adapt to variations in local climate and salinity. It can survive in water to 2 metres depth and in habitats where the water table is 1 metre below the surface. It can also tolerate fluctuating water level conditions, such as those occurring in tidal estuaries. Reedbeds require wet conditions to thrive and for scrub invasion to be slowed down or prevented. However, reeds cannot survive prolonged periods of submersion.



Reeds on the River Lea (© Ian Bruce)

Water level management is the ability to control the rise and fall of water in a reedbed and where possible should be incorporated into reedbed management plans. The principal reasons for water level control include: slowing down the rate of vegetation succession; controlling establishment by willow and alder saplings; enabling access for cutting and other management practices; and increasing reedbed habitat diversity. Water in the reedbed can either be maintained at the same level throughout or at different levels in adjacent reedbed compartments to suit different wildlife. Consideration should be given to nesting birds and water voles before water levels are raised during the breeding season.



Sedge Warbler
(© Paul Gregory)

Decreasing rate of succession: a build up of leaf litter and sediment can change both the physical conditions and nutrient composition of the reedbed, creating a drier environment that would no longer favour common reed. Grasses, rank vegetation and scrub would colonise instead, starting the process of succession and the inevitable loss of reeds to wet woodland. However, establishing high water levels (also achieved by lowering the bed level of the reedbed) and maintaining a wet habitat helps to avoid loss of reedbeds. Furthermore, coppiced stumps of willow and alder are less likely to regenerate if submerged underwater for a long time.

Facilitate other management practices: by lowering water levels, reedbeds can be accessed for cutting by machinery unable to function when water levels are high. If decreasing levels of water, it is best done slowly over a few weeks to give reedbed wildlife a chance to adapt to the drier conditions. Cutting can be done by boat when water levels are higher, but realistically this is not often financially viable.

Increase habitat diversity: a mosaic of habitats such as semi-dry and wet reedbed, combined with wet scrub or woodland, will support a greater diversity of wildlife. For example, the bittern uses dense reed for cover and breeding, but needs open water within the reedbed to hunt; water voles will feed on reeds and nest amidst the cover of the reedbed during the summer growing season; dragonflies and damselflies use the reeds for laying their eggs, but hunt for insects over open water; and moth larvae and other insects use dead stems of uncut reed to pupate or over-winter in.

Reedbed water level management is dependent on the site characteristics including the water source, water control structures and site drainage. Water levels cannot be controlled on some sites. There may be circumstances where there is the need to control water loss from reedbeds with a sluice or dam during the dry summer months. Those sites without water control structures are more susceptible to running the risk of losing their reedbeds through prolonged periods of flooding or drought.

Water level management requires a suitable seasonal water level regime. The water regime chosen will depend upon the reedbed management objectives, site constraints, water supply and financial implications. One regime will not necessarily suit all wildlife. For example, some invertebrates need drier leaf litter, bitterns need shallow water/reed margins and some plants require lower summer water tables. Some examples of commonly adopted regimes include:

- Wet in both winter and summer.
- Wet in summer with full site or rotational reduction in water levels (draw-down) in winter to allow winter cutting.
- Wet in winter with managed full site or rotational draw-down in summer to allow summer cutting.
- Wet in winter with natural draw-down through evaporation in summer.

Draw-downs are achieved by stopping water from entering a site and/or by allowing it to drain from a site via a water control structure. The time taken to draw-down water in a reedbed will depend upon the site specifics such as size, topography, soil type, and the number and type of water control structures. Although costly, installing more water control structures is a good method of effectively controlling water levels.

Rotational draw-down within a reedbed allows parts of the reedbed system to remain wet, whilst other compartments are allowed to drain to enable rotational cutting to occur. This means that reedbed wildlife experiences less disturbance whilst cutting or other management takes place. Furthermore, draw-down enhances leaf litter decay, whilst encouraging those species that use the litter to forage or nest.



Reed cutting in Lee Valley
(© Lee Valley Regional Park Authority)

As with cutting, wildlife diversity is maximised by managing individual reedbed compartments to varying water level regimes. However, this is normally limited by tight financial and practical constraints, as well as the overall size of the site concerned. Furthermore, advice and consent should be sought from the Environment Agency where reedbeds are to be installed along river floodplains, which could ultimately affect water levels or flood control along rivers.



CONTACTS

FACT (Forum for the Application of Nature Conservation Techniques): an initiative of 30 conservation and land managing organisations across the UK. Website: www.practicalsolutionshandbook.info.

Enquiries about initiatives, advisory leaflets and organisational contacts; contact: Land Management Officer, Natural England, Bishops Hull, Roughmoor, Taunton, Somerset TA1 5AA. Tel: 01823-283211.

Eco-Lots: a free on-line service designed to assist with the environmentally sensitive and sustainable management of land, trees and wildlife in the UK. It provides a free online notice board for sales, wants and events covering a range of rural products and services. Website: www.ecolots.co.uk.

GAP: a partnership working to help grazing managers and grazing advisors deliver biodiversity targets by grazing. Contact: The GAP Office, The Kiln, Mather Road, Newark, Nottinghamshire NG24 1WT; Tel: 01636-670095. E-mail: gap@cix.co.uk ; Website: www.grazinganimalsproject.org.

CONTAK: (Connecting Countryside Managers with Conservation Tackle) is a web-based machinery ring service which puts machine owners, land managers and operators in touch with each other to facilitate the hire of machines, equipment and labour for nature conservation works; website: www.contak.org.uk

Conservation Land Management: a quarterly publication which aims to encourage land managers to practice nature conservation – no lectures, useful advice from fellow practitioners. Articles focus on the problems of managing different sites and using case studies to suggest practical solutions. Available from: British Wildlife Publishing, Lower Barn, Rooks Farm, Rotherwick, Basingstoke, Hampshire, RG27 9AY. Tel: 01256-760663.

London Contacts:

London Biodiversity Partnership oversees Biodiversity Action Plans for Greater London – contact: London Biodiversity Partnership, c/o London Wildlife Trust, Skyline House, 200 Union Street, London SE1 0LW; Tel: 020-78034280; website: www.lbp.org.uk.

Natural England oversees National Nature Reserves, Sites of Special Scientific Interest and Local Nature Reserves – contact: Natural England, 20th Floor, Portland House, Stag Place, London SW1E 5RS; Tel: 020-79325800; website: www.naturalengland.org.uk.

Environment Agency oversees river and stream courses and their floodplains contact: Tel: 0870-8506506; website: www.environmentagency.gov.uk.