



London's
Heathland Heritage

Heathland Conservation in London



Lowland heathland is one of the most important wildlife habitats in Britain. It is a UK Biodiversity Action Plan Priority Habitat as it is both rare and threatened. It develops on very impoverished, nutrient-poor acidic soils, and is characterised by low-growing shrubs with grasses, bare ground and scrub.

Heathland was widespread in London until the 18th Century, maintained for hundreds of years by continuous management. Today 80 hectares remain. Heathland is frequently associated with another nationally important habitat, acid grassland.



Bog asphodel
© Nigel Reeve

Why is it a rare habitat?

Although many of London's Heathland sites now receive some protection from development, the habitat is still threatened by lack of management.

- In many cases trees and scrub have encroached, crowding out the typical heathland plants.
- Nutrient enrichment, particularly through airborne nitrogen and inappropriate management, has decreased plant diversity, particularly in dwarf shrub communities.
- Over-intensive recreational use and trampling have also resulted in habitat degradation and loss.

Heathland flora

In London, most heathland is dominated by heather (ling), although bell heather may be frequent in drier areas, and cross-leaved heath is often found on wetter sites. Common gorse is a



Cladonia sp.
© Mike Waite

rapidly growing species that can dominate heathlands but can be very valuable for nesting birds. Dwarf gorse that

grows among heather is less common.

In young heathland, there are often gaps for lichens, mosses and fine grasses to establish. As the heathland develops, many species are shaded out. However, once the heather matures and begins to degenerate, gaps appear again and other species start to colonise. The gaps are often invaded by trees, which, left unmanaged, can dominate. Trees suppress heather and other species by shading and nutrient enrichment through leaf-fall.



Heathland fauna

Lowland heathland provides a wide range of species with nest sites, shelter and basking opportunities. Birds such as stonechat and linnet both forage and breed in heathland. Others, including the hobby, fly over to hunt for insects and small birds.

Heathland supports many invertebrates that are scarce elsewhere. Patches of bare ground are particularly important and are used for nesting and hibernating, particularly by ants, bees and wasps. Insects also feed on the rich nectar source provided by heather in bloom. Important species found in London include the green tiger beetle and uncommon species of bumblebee.

Lowland heathland is especially important for reptiles. In London, heathland provides basking, hunting and hibernation habitat for adder, viviparous lizard (or common lizard) and slow worm.



Linnet © Steve Magennis



Bombus jonellus
© Mike Edwards



Adder © Mike Waite



Bell heather
© Isabel Alonso

Good management practice

The aim of management should be to provide the conditions necessary to support the flora and fauna typical of heathland. This means ensuring that the habitat is dominated by dwarf shrub species (rather than trees, scrub or grasses, although these are also part of the heathland landscape). Ideally blocks of heathland should be extensive and interconnected. As species' requirements vary considerably, variation in the structure and composition of the habitat is essential. For example, the full life cycle of heather should be represented and some scrub should be retained. [See Box 1 \(right\) for a description of site condition.](#)

Although detailed management prescriptions should be determined on a site by site basis, some general principles apply to all sites. As many heathlands in London have been neglected, management will normally need to be in two stages:

Heathland recovery to return the habitat to good condition. This will normally be where there is relict heathland as there is likely to be a seed bank and suitable soil conditions. However on some sites, it may be appropriate to create new habitat.

Maintenance management. All existing heathland requires ongoing management to prevent dwarf shrub communities being replaced by scrub and woodland, or coarse grasses.

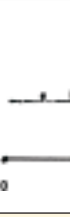
Box 1 Assessing the

Vegetation structure

The full life cycle of heather should be represented, ideally in approximately the following proportions: **Pioneer phase 10-40%; Building/mature phase: 20-80%; Degenerate phase: <30%; and Dead: <10%.** On larger sites it may be possible to create this varied structure with some young and some older stands of heather.

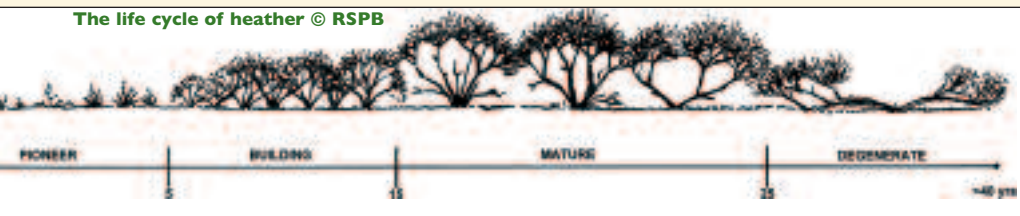
Undesirable species

Some exotics such as Rhododendron, should ideally be eradicated or kept to below 1% coverage. Other species may benefit invertebrates and will only need control if they dominate. Species include ragwort, nettle, thistles, willowherbs, soft rush and broad leaved dock. Their presence may indicate a management problem or previous nutrient enrichment. As a general guide, there is likely to be a problem if these negative indicators exceed 1% of the habitat. Trees and scrub should not dominate heathland. Up to 15% cover is broadly acceptable. Species which can dominate heathland in London include birch, blackthorn, hawthorn, bramble and oak. Dense canopy cover should not exceed 10%.



condition of lowland heathland

The life cycle of heather © RSPB



Gorse species support a rich invertebrate and vertebrate fauna.

However, common gorse can dominate heathland and, as a guide, total cover should not exceed 10-20%. The total cover of dwarf shrubs should range from 25-90%.



Uniform heather supports fewer species.



A mix of heather stages and scrub forms a mosaic habitat and is more biodiverse.

Both photos © Dr. Roger Key

Desirable species

a) herbs: The following indicate healthy heathland: heath bedstraw, petty whin, common cat's ear, birds foot trefoil, common milkwort, tormentil, sheep's sorrel, and violets,

b) grasses, sedges and rushes: bents, sedges (all species) heath-grass, wavy hair-grass, fescues, purple moor-grass, mat-grass. Wavy hair-grass may become dominant and should not cover more than 25% of the site.



Petty Whin
© Peter Wakely

Bare ground

Bare ground is an important component of any site and should form a patchwork with vegetation and be present mainly in south-facing slopes. However excessive bare ground (more than 10%) may be due to erosion and can be damaging to the overall habitat. Tracks or paths can also be a source of bare ground for burrowing invertebrates, however made-up paths and resurfacing can be damaging.

Heathland recovery

In London, restoration will normally entail controlling aggressive species, reducing nutrient availability, and re-establishing a mosaic of dwarf shrub age structure. Measures to control trampling and the effects of fires may be needed on some sites.

Testing the soil pH is recommended before any work is carried out. If greater than 5, heather regeneration is unlikely to succeed.

Scrub and woodland control

Scrub and woodland removal should initially be carried out where there are existing stands of heather, progressively working outwards. Enough tall scrub should be retained to cover 10-20% of the site. Patches of gorse or scattered trees provide

shade and shelter for reptiles and birds.

Trees should be cut to ground level and treated with an approved herbicide, by a licensed user, to prevent regeneration. Any regrowth and young scrub can be treated with a weed wiper. On small sites, much of the cutting may be done using hand tools or chainsaws and seedlings can be pulled up by hand. Where larger machinery is used, care should be taken to avoid excessive soil compaction. All arisings must be removed from the heathland to prevent excessive nutrient enrichment.

Any scrub and woodland work should be carried out outside the bird-nesting season (March-July).



Patches of gorse and scattered trees are desirable within the overall heathland mix
© Paul Gnedell/
English Nature



Gorse shield bug

© Roger Key



**Tree clearance at
Croham Hurst**
© Andrew Williams



Common lizard
© Peter Wakely

Reptile hibernation sites should be identified and trees should be inspected for bat roosts by a suitably qualified ecologist prior to felling.

Felling licences may be required from the Forestry Commission if more than 5 cubic metres of timber is to be felled per quarter and the trees have a diameter of more than 8 cm (measured at 1.3 metres from the ground).

Where cut material is to be disposed of by burning, fire sites should be kept to a minimum and sited in areas of low conservation importance. Nutrient enrichment by ash can be reduced by burning on sheets of corrugated iron supported above ground with bricks. The ash can then be disposed of off site.



Small copper butterfly
© Nigel Reeve



Young bell heather
© Paul Glendell

Reducing nutrient enrichment

Heathland generally develops where there is thin, nutrient poor acidic soil. In the absence of appropriate management, nutrients will accumulate, the main contributors being leaf litter from surrounding vegetation, atmospheric nitrogen deposition, and dog fouling. As nutrients build up, there will be gradual fragmentation and loss of heathland.

Where organic litter has built to more than 2cm deep, it increases nutrient load and suppresses heather germination from the seedbank. Consideration should then be given to removing this layer and exposing the seedbank which can remain viable for up to 90 years. The heather will then have a competitive advantage over other species in the resulting harsh, nutrient-poor conditions. The best results will be achieved where a viable seedbank is likely to remain – either adjacent to existing blocks of heathland or where heathland existed until relatively recently.

When removing the litter layer, care should be taken to retain the underlying mineral soil bearing the seedbank. This is a specialist operation. If machinery is used, it should be by operators experienced in heathland restoration work.

Topsoil stripping may be carried out using a JCB digger or tractor mounted box scraper. Specialist tractor mounted rotary brushes may also be



Small copper butterfly
© Nigel Reeve



Young bell heather
© Paul Glendell

Reducing nutrient enrichment

Heathland generally develops where there is thin, nutrient poor acidic soil. In the absence of appropriate management, nutrients will accumulate, the main contributors being leaf litter from surrounding vegetation, atmospheric nitrogen deposition, and dog fouling. As nutrients build up, there will be gradual fragmentation and loss of heathland.

Where organic litter has built to more than 2cm deep, it increases nutrient load and suppresses heather germination from the seedbank. Consideration should then be given to removing this layer and exposing the seedbank which can remain viable for up to 90 years. The heather will then have a competitive advantage over other species in the resulting harsh, nutrient-poor conditions. The best results will be achieved where a viable seedbank is likely to remain – either adjacent to existing blocks of heathland or where heathland existed until relatively recently.

When removing the litter layer, care should be taken to retain the underlying mineral soil bearing the seedbank. This is a specialist operation. If machinery is used, it should be by operators experienced in heathland restoration work.

Topsoil stripping may be carried out using a JCB digger or tractor mounted box scraper. Specialist tractor mounted rotary brushes may also be

Maintenance management

Ongoing management should:

- control invasive species such as trees (especially, hawthorn, birch, oak and pine), gorse, bracken and coarse grasses;
- periodically remove nutrients to balance input; and
- maintain a balance of age classes of heather across the habitat, incorporating other features such as bare ground. **See Box 2 (right) for key management techniques; and also Box 3 (page 12) for managing lowland heathland for reptiles and invertebrates.**

Options available for heathland management include cutting, burning, grazing and turf stripping.

Cutting

Rotational cutting is likely to be the favoured management option on most sites in London unless they are large enough to allow grazing. Cutting regenerates stands of heather which are in the degenerative stage of their lifecycle, to maintain a mosaic of age structures, and to reduce nutrient enrichment.

Heather should be cut in dry conditions at a height of about 5cm from October to December to reduce disturbance to birds, reptiles, amphibians and invertebrates. Ideally all cut material should be removed. If left *in situ*, cuttings will form a mat which prevents the germination of

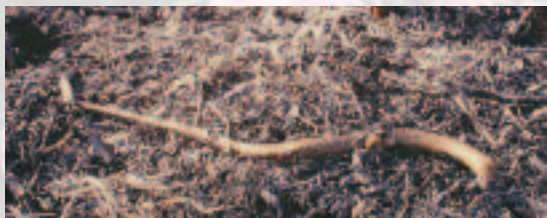
heathland flora, and increases the nutrient load. In order to achieve a balance of age classes across a heathland site, the heathland should be divided into plots, each being cut on rotation. Cutting should take place when heather reaches its degenerate phase which can be as long as 25 years in London.

Turf stripping

Cutting and removing heather turves can also help to increase structural variation and maintain low soil nutrient levels. Turfing may be carried out by hand or by use of a motorised pedestrian turfer. To allow germination from the seed bank, turves should be cut so the humus layer and roots are removed, but not the underlying mineral soil. Cut turves can then be used to create habitat elsewhere.

Burning and grazing

Although a traditional method of heathland management, burning is not generally recommended in London. Species, especially invertebrates and reptiles, may be unable to escape fire, especially on small sites where there



Remains of a slow worm unable to escape the effects of a fire in gorse © English Nature

Box 2 Cutting lowland heathland

Machinery that cuts cleanly is desirable as shredded stems from flail cutting regenerate poorly. To reduce nutrient enrichment, cuttings should be collected and disposed of on ground that has no conservation interest.

Double-chop forage harvesters are ideal because they cut with knives. The heather is then blown into a trailer. On small sites where large machinery is

impractical or not cost effective, mini mowers or pedestrian operated reciprocating mowers which collect arisings may be more appropriate. On very small sites, a brush cutter followed by raking by hand could be considered.

Whatever machinery is used, care should be taken not to cut too low. This can expose frost sensitive dormant buds. Cutting to a height of 5 cm is optimum.



Bare ground is an important feature of heathlands © Mike Edwards

may be insufficient refuge or buffering habitat. There is also a risk of fire getting out of hand and damaging other features or property. As arson is a frequent problem on many sites, additional burning may result in copycat action.

Grazing is only likely to be viable on larger sites. On sites less than 25 hectares, the decision to graze, the type of animals used and the stocking rate should be considered with care. For larger sites, advice may be found in English Nature publications.

Fire prevention

Heathland fires are common in urban areas and it is unrealistic to prevent fires altogether on many sites. In most cases, heathland will recover from occasional fires. However, repeated burning can result in the loss of some species and can be extremely damaging. Site wardening, interpretation and close liaison with the Fire Service are key in managing fire risk.

Creating fire-breaks allows access by the Fire Service to all parts of a site safely and without damaging habitat. Fire-breaks can halt the spread of fires but may not be necessary on small sites where all blocks of heathland are easily accessible by a fire appliance and where their creation may result in excessive loss of habitat. In this case, existing footpaths may be widened to double as a firebreak. Fire-breaks

must have a solid base such as compact sand or short turf. The fire-break system should be designed in consultation with the Fire Service to ensure that all areas are adequately covered and that there is quick access to water.

Uncontrolled fires can be extremely damaging
© English Nature



Box 3 Managing 10



A diverse habitat structure is good for invertebrates
© Chris Slack



Slow worm
© Jim Foster

Invertebrate burrows
© Mike Waite



Wland heathland for reptiles and invertebrates

Reptiles

Although the reptiles present in London (viviparous lizard, slow worm, grass snake and adder) are widespread nationally, they have all declined, mainly due to habitat loss. Heathland is important because it provides many of the features necessary for their survival. The management principles outlined in this leaflet are generally appropriate for reptiles; a varied vegetation structure and open aspect without excessive scrub encroachment are especially important.

However if a survey identifies a site as important for reptiles, extra care should be taken in both restoration and management phases.

To prevent killing or injuring reptiles (an offence under the

Wildlife and Countryside Act, 1981), cutting of vegetation should be carried out with care. A proportion of scrub and trees should be left as shelter for reptiles. The cut roots of scrub and trees should be left, as the gaps may provide shelter or hibernation sites. Any cuttings, including timber, could be stacked in a warm, sheltered spot at the edge of the heathland to provide shelter and hibernation sites. Grass snake egg-laying areas may be created by piling cut grass and other, harder, material either loosely or within an open wooden frame with wide gaps at the base to allow access. These piles should be created in sunny locations but not far from cover and should be replenished each year.

Invertebrates

Many features of heathland support a wide variety of invertebrates at various stages of their lifecycles. For example, exposed sandy soil between stands of heathland or between individual heather plants is important for burrowing species including solitary wasps. Heathland pools may be very important for dragonflies. To benefit a diverse invertebrate fauna, a full range of features should be maintained with good structural diversity across the site. Some

scrub should be allowed to develop cyclically and then cut, and the heather should be managed to maintain a full range of age classes.

Degenerate and dead patches of

heather are important for some species.



Solitary cuckoo wasp
© Roger Key

Bare ground can be created in sunny areas. Paths and firebreaks may also provide valuable habitat. However uncontrolled use by motorcycles, mountain bikes and horseriders damages the structure of the soil and destroys nesting and burrowing sites. On small sites, it may be possible to cut turves by hand, thereby minimising damage to surrounding vegetation. In contrast to bare ground associated with paths, turf cutting has the advantage that sand exposures can be created in areas away from disturbance. Bare ground habitat should be created across the site rather than in one area to maximise opportunities for colonisation.

Further Reading

Brown, R and Robinson, R (1999)

Bracken management handbook – integrated bracken management, a guide to best practice. Rhone-Poulenc, Ongar, Essex

English Nature (2002)

Lowland Heathland – a cultural and endangered landscape. English Nature. Peterborough. Also downloadable from www.english-nature.org.uk

English Nature (2005)

Grazing Management of Lowland Heathlands. English Nature. Peterborough. Also downloadable from www.english-nature.org.uk

English Nature (2005)

Management of Bare Ground. English Nature. Peterborough. Also downloadable from www.english-nature.org.uk

English Nature (2003)

The Scrub Management Handbook. English Nature, Peterborough. ISBN 185 716 745 7 Also downloadable from www.english-nature.org.uk

Gent, AH and Gibson, SD (eds) (1998)

Herpetofauna worker's manual. JNCC, Peterborough ISBN 186 107 4506

Kirby, P (2001)

Habitat Management for Invertebrates: A Practical Handbook. RSPB ISBN 0901 930 300

MAFF (1992)

The Heather and Grass Burning Code. MAFF, London

Reeve, N (2005)

Acid Grassland Conservation in London. Also downloadable from www.lbp.org.uk

Symes, N and Day, J (2003)

A practical guide to the restoration and management of Lowland Heathland. RSPB ISBN 1901 930 386

Waite, M (2004)

A Recovery Strategy for London's Heathland. London Biodiversity Partnership. Also downloadable from www.lbp.org.uk

CONTACTS

FACT

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

For enquiries about initiatives, advisory leaflets and organisational contacts:

Contact Tony Robinson,
E-mail: tony.robinson@english-nature.org.uk

CONSERVATION LAND MANAGEMENT

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

ECOLOTS is a free on-line service designed to assist with the environmentally sensitive and sustainable management of land, trees and wildlife in the UK. It seeks to do this by providing a free online noticeboard for sales, wants, and events covering a wide range of rural products and services. Website: www.ecolots.co.uk.

LONDON HEATHLAND HABITAT ACTION PLAN WORKING GROUP

comprises of representatives from many organisations involved in implementing the Action Plan
Website: www.lbp.org.uk
Email: paul.losse@english-nature.org.uk

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

Some key sites for heathland conservation in London that you can visit include:

Addington Hills, Croydon

Contact: London Borough of Croydon
Tel: 020 8726 6000 or e-mail: parks@croydon.gov.uk

Hayes and Keston Commons, Bromley

Contact: London Borough of Bromley
Tel: 01689 857037 or 862618

Hounslow Heath, Hounslow

Contact: CIP
Tel: 020 8577 3664

**Poor's Field, Ruislip Woods
National Nature Reserve, Hillingdon**

Contact: London Borough of Hillingdon
Tel: 01895 250635

**Wimbledon and Putney Commons,
Merton & Wandsworth**

Contact: Wimbledon & Putney Commons Conservators
Tel: 020 8788 7655

**Front cover
photography:**

**Main picture:
Wimbledon
Common**
© Una Sutcliffe

Insets:

**Emperor moth
caterpillar**
© Mick Massie

Stonechat
© Steve Magennis

Calluna vulgaris
© Derek Ratcliffe

Green tiger beetle
© Dr. Roger Key



This leaflet has been produced by the London Biodiversity Partnership as part of the London Heathland Heritage Project, supported by the Heritage Lottery Fund and English Nature.

For an electronic copy of this booklet, and further information about London's heathland heritage, visit www.lbp.org.uk

English Nature is the lead partner for the London Heathland Habitat Action Plan

©London Biodiversity Partnership 2006