A Recovery Strategy for London's Heathland













A Recovery Strategy for London's Heathland

Mike Waite - Greater London Authority

Copyright

Text: © London Biodiversity Partnership June 2004

Photographs: © photographers as detailed within text **Cover photographs:** © Mike Waite. Front cover: Heather on Stanmore Common; Bee-wolf wasp; Lichen *Cladonia* sp.; Common lizard; Bog-moss *Sphagnum* sp.; Black darter dragonfly. Back cover: Bog asphodel

This document is printed on recycled paper

Enquiries relating to this document:

GLA Biodiversity Group Greater London Authority City Hall The Queen's Walk London SE1 2AA Tel 020 7983 4320 www.london.gov

London Biodiversity Partnership, Project Officer c/o London Wildlife Trust Harling House 47-51 Great Suffolk Street London SE1 OBS Tel 020 7261 0447 enquiries@lbp.org.uk www.lbp.org.uk

Heathland Habitat Action Plan lead:

English Nature (London Office) Devon House 12-15 Dartmouth Street London SW1H 9BL www.english-nature.org.uk

Acknowledgements

This Strategy was produced in close association with members of the London Heathland Working Group, who offered invaluable advice during the essential field research and commented on earlier drafts of the document.

Contents

1.	Introduction	1
2.	Strategy objectives	2
3.	The existing resource3.1Historic background3.2Heathland audit3.3Key species3.4Status and protection3.5Management3.5.1Current management approaches3.5.2Habitat maintenance3.5.3Heathland restoration and creation3.5.4Management grants	2 3 5 6 8 8 9
4.	Feasibility study	10
	 4.1 Restoration and creation – some definitions 4.2 Evaluation 4.2.1 Criteria for selecting restoration sites 4.2.2 Criteria for selecting creation sites 4.2.3 Discussion; constraints and opportunities 4.3 Potential heathland restoration sites 4.4 Potential heathland creation sites 	10 10 11 12 13 14
5.	Recommended programme	15
	 5.1 Methodology review 5.1.1 Sites with relict heather 5.1.2 Sites with a substantial seedbank 5.1.3 Sites with no surviving resource 	15 15 15 16
	 5.2 Restoration programme 5.2.1 Rowley Green Common, Barnet 5.2.2 Lesnes Abbey Woods, Bexley 5.2.3 Hayes Common, Bromley 5.2.4 Keston Common, Bromley 5.2.5 Chislehurst Common, Bromley 5.2.6 St Pauls's Cray Common, Bromley 5.2.7 West Wickham Common, Bromley 5.2.8 Hampstead Heath, Camden 5.2.9 Addington Hills, Croydon 5.2.10 Shirley Heath, Croydon 5.2.12 Coulsdon Common, Croydon 5.2.13 Bostall Heath, Greenwich 5.2.14 Stanmore Common, Merton 5.2.15 Mitcham Common, Merton 5.2.17 Wimbledon Common, Merton 5.2.18 Hounslow Heath. Hounslow 	17 18 19 21 23 24 25 26 27 28 29 30 30 30 32 33 34 35 36

5.3	Creati	Creation sites				
	5.3.1	Barnes Common, Richmond	37			
	5.3.2	Cranmer Green, Merton	38			
	5.3.3	Scratchwood, Barnet	38			
5.4	Golf C	39				
5.5	Gener	al recommendations	41			
	5.5.1	Consultation	41			
	5.5.2	Cost savings	41			
	5.5.3	Strategy publicity	41			

6. References

42

Appendices

1	Summary table, LBAP Heathland Audit	43
2	Funding Sources	45
3	Costing restoration and creation projects	47

Tables

1	Presence of	key species on	London's hea	thland sites
-				

- 2 Key heathland sites summary of management issues
- 3 Potential restoration sites
- 4 Potential creation sites
- 5 Golf courses in Greater London supporting relict heathland
- 6 Golf courses in Greater London supporting acid grassland



Figure 1. Wimbledon Common

Mike Waite/GLA

1. Introduction

London's Habitat Action Plan (HAP) for heathland¹ includes a pivotal action to produce a regional strategy for habitat restoration and creation. This strategy examines the feasibility for such work at different sites and concludes with a costed programme for implementation, to be used by relevant managing bodies in funding applications.

Heathland (here including associated acid mire communities) is the least extensive semi-natural habitat remaining in Greater London. Conversely, the soils over which heathland may develop are extremely widespread. This suggests that around 200 years ago heathland would have been a familiar component of the London landscape and cultural scene.

London's heathland vegetation has now declined to the extent that it remains only as relict patches within habitat mosaics composed of comparatively ubiquitous species. The remaining areas of open heathland are now so small that their vulnerability to catastrophic events (such as fire) is very high. The single exception is found on Putney Heath/Wimbledon Common, where heathland may still be regarded as a major component of the site (figure 1).

If the current decline is allowed to continue, heathland will cease to exist outside the key sites beyond the next few decades. There are many factors involved in the decline, but the principal ones in recent times are mismanagement or management neglect. Quality open habitats throughout London are threatened by succession as their essential maintenance becomes increasingly difficult to sustain. Pared management budgets and labour shortages, visitor

¹ London Biodiversity Partnership, *The Action: Volume 2 of the London Biodiversity Action Plan*, 2001.

volumes and vandalism, as well as a general ignorance of the situation are all stacked against the future survival of London's heathland.

To ensure a viable future for the habitat in London, some radical and potentially controversial decisions will have to be made. These will involve bold approaches to the management of recreational open space and the restoration of redundant land. However, considering the projected demand for built development in London, finding room for any significant heathland creation may prove a real challenge.

Although heathland is neither the most reliable nor cheapest habitat to re-create, an everwidening body of experience in this field does now exist. Compared with the budgets and technology invested in the restoration of contaminated land for example, heathland restoration costs are not at all prohibitive.

2. Strategy objectives

The objectives of this strategy are:

- To review Greater London's current heathland resources;
- To review the current management of existing heathland sites in consultation with site managers;
- To analyse the feasibility of restoring and creating heathland on various sites across London;
- Recommend a costed, prioritised programme for implementation.

3. The existing resource

3.1 Historical background

Heathland began to develop as a semi-natural habitat with the prehistoric clearance of climax woodland for grazing and cultivation. The solid and drift strata producing soils that support heathland under historic management regimes, account for the greater proportion of London's surface geology. These strata include the Blackheath and Woolwich beds, the Reading beds, the Bagshot and the Thanet sands, the Stanmore (formerly Pebble) and Plateau gravels, and the various levels of River Terrace gravels of the Thames floodplain. The Clay-with-flints overlying the Chalk may also support heathland.

From the widespread distribution of these strata, it may be assumed that very extensive areas of heathland habitat existed throughout the modern area of Greater London in former times. This area would have peaked towards the end of the 18th century, when the extensive rough grazing of common land was at its socio-cultural zenith.

An estimated rate of decline of heathland in the Thames Basin has been attempted by Tubbs², where London's heaths are grouped with those of Berkshire and the north of Surrey and Hampshire. Massive residential development and the construction of transport infrastructure, as well as the widespread winning of aggregates, have together accounted for the destruction and fragmentation of most of London's heathland, while the preserved heaths and commons have been steadily altered by increasingly formalised management regimes in response to visitor pressure.

Various historical sources provide evidence for the decline and in most cases, the disappearance of heathland on many of London's better-known open spaces (figure 2). Examples include Hampstead Heath, Blackheath, Clapham Common and Epping Forest. Others include Tooting Bec, Wandsworth Common, Plumstead Common, Hounslow Heath, Bostall Heath and Mayesbrook Park. The myriad of street names across Greater London containing the words 'heath', 'common' and 'furze', bears further testament to the former ubiquity of the habitat.



Figure 2. Wandsworth Common, c.1900 and today

L B Wandsworth

3.2 Heathland audit

The London Biodiversity Audit³ (see Appendix 1) identified 80 hectares of heathland remaining in Greater London. This occurs across 21 sites falling within 13 boroughs, and equates to approximately 0.05% of London's land area (see figure 3). The largest area (on Putney Heath/Wimbledon Common) supports 40 ha, while the smallest recorded area is on East Sheen

² English Nature, Focus No 11: The decline and present status of the English lowland heaths and their vertebrates, 1985

³ London Biodiversity Partnership, The Audit: Part 1 of the London Biodiversity Action Plan, 2000

Common, which is described as consisting of "..only one heather plant". 50% of sites contain heathland areas of less than one hectare.

The Audit purposefully used a broad definition of 'heathland' to be inclusive of the most degraded of heathland sites. It should be remembered therefore, that it provides a considerably over-optimistic picture of the area of pristine ericaceous dwarf-shrub stands in Greater London. Three of the sites listed in the Audit are included for their potential for heathland habitat restoration alone. The rationale for defining heathland in such broad terms is fully explained in the Audit.

There are several further sites qualifying as heathland that are not listed in the Audit. These include several sites in the boroughs of Waltham Forest and Redbridge on the margins of Epping Forest; on various golf courses in Richmond, Hillingdon and Bexley; on West Wickham Common in Bromley; and on Coulsdon Common and Bramley Bank in Croydon.



Figure 3. Heathland remaining in Greater London © Crown copyright. All rights reserved. GLA 100032379(2004)

The Audit definition of heathland remains entirely consistent with the objectives of this document. A strategy for habitat restoration requires the broadest possible view of heathland in order to plan imaginatively for the recovery of the habitat on the most suitable sites. This calls for an inclusive review of sites at all stages of degeneration.

3.3 Key species

Because of the current status of the habitat, many of its characteristic and key component species are now very rare in London. A number of familiar higher plants and invertebrates associated with lowland heathland nationally are known from only one site (for example, common cottongrass *Eriophorum angustifolium*, bog asphodel *Narthecium ossifragum* and the black darter dragonfly *Sympetrum danae*).

Site managers have supplied data on the presence of certain key and characteristic species occurring within the audited heathland sites, which is summarised in Table 1. These include all nationally rare and scarce/notable; regionally restricted; and UK and London BAP priority and 'flagship' species associated with the habitat. Species presence and diversity are useful criteria for prioritising habitat restoration efforts (see 4.2.2 below), and are also particularly influential on individual site management regimes (for example reptiles and breeding birds). It should be noted, however, that species monitoring may have lapsed on some sites and certain key species may have either been overlooked or already been lost.



Figure 4. Adder – now an endangered species in London *Mike Waite*

3.4 Status and protection

Many of London's heathland sites have statutory protection for their biodiversity interest. Statutory designation has considerable influence on eligibility for management grants (see 3.5.4 below and Appendix 2).

Both Wimbledon Common and Richmond Park are candidate Special Areas for Conservation notified under the European Union 'Habitats Directive'⁴. Richmond Park and Ruislip Woods (including Mad Bess Wood and Poor's Field) are declared National Nature Reserves. Sites of Special Scientific Interest notified under the *Wildlife and Countryside Act*, 1981 (as amended), include parts of Epping Forest, Putney Heath/Wimbledon Common, Richmond Park, Ruislip Woods, Keston Common and part of Hayes Common, part of Hampstead Heath and Croham

⁴ European Union, *Council Directive on the conservation of natural habitats and of wild fauna and flora* (92/43/EEC), 1992

Hurst. Sites declared as Local Nature Reserves include Hounslow Heath, Rowley Green Common, Barnes Common, Lesnes Abbey Woods and Stanmore Common.

In 2000, the *Countryside and Rights of Way Act* placed a new legal duty on local authorities that own and manage Sites of Special Scientific Interest, to further the conservation and enhancement of the features of special interest for which the site is notified.

All of London's heathland sites are recommended to boroughs for protection in their Unitary Development Plans through the local nature conservation site system⁵ as Sites of Importance for Nature Conservation (SINC). Most have been identified as Metropolitan SINC, and a small number (mainly golf courses) as Borough I or II SINC.

Owing to their long-established open space use, it is unlikely that extant heathland sites would become threatened by large-scale development proposals. There is some threat from transport and utilities improvements. The most significant development pressure relevant to this strategy, is that leading to the loss of land with potential for heathland creation.



Figure 5. Hayes Common SSSI

Mike Waite/GLA

3.5 Management

3.5.1 Current management approaches

All of London's heathland occurs either within public open spaces (some being managed currently as nature reserves), or within municipal and private golf courses. On the majority of

⁵ See Greater London Authority, *Policy, criteria and procedures for identifying nature conservation sites in London*, 2002

open space sites, the habitat is now managed as a separate management parcel within the framework of a wider management plan, with habitat maintenance and restoration as clear priorities.

This is generally not the case on golf courses, however. With a few praiseworthy exceptions, golf course management bodies have tended to manage roughs and other marginal land on courses to a standardised regime, which pays no special regard to the value for wildlife of a particular habitat feature. This approach to the management of heathland in golf courses can result in gradual heathland deterioration and attrition, and even cases of deliberate clearance.



Figure 6. Wimbledon Golf Course

Mike Waite/GLA

Ideal heathland management often requires a sensitive and labour-intensive approach, which is potentially costly. Small management budgets dictate that much of this is therefore carried out using voluntary labour under the direction of a site-based professional. In some cases the need for sensitivity has left site-managers reluctant to use paid contractors who are essentially unaware of the issues involved. The high costs of management can limit the number of hours that more specialist, experienced contractors may be brought on to sites. Thus the rate at which management projects are progressed is highly unpredictable, as these are so dependent on the commitment and abilities of volunteers.

Table 2 summarises a review of heathland management issues on public open space sites in London. This indicates which site managers are attempting restoration at present, and whether grant aid has been awarded to fund habitat management projects.

3.5.2 Habitat maintenance

Management prescriptions are being implemented to arrest habitat succession in all of the more extensive public open space sites. Methods employed include a combination of hand and mechanical scrub control, and the application of herbicides. Bracken is controlled where acutely problematic, notably at Stanmore Common, Lesnes Abbey Wood, Richmond Park and at several sites in Bromley.

Management to enhance the structural diversity of the habitat is undertaken on some of the more extensive sites. In order to widen the age-range within dwarf-shrub stands, and to retain essential microhabitat features (bare ground, etc.), the best form of management is considered to be grazing. The only site being grazed currently is Poor's Field, although there are plans to graze at Hounslow Heath. Mechanical cutting can achieve some degree of heather height variation, and is undertaken at Putney Heath/Wimbledon Common (including the associated golf courses).

High volumes of visitors often contribute to destructive habitat erosion, either directly through trampling and activities such as mountain-biking, or as a product of eutrophication via the deposition of dog faeces. These problems have been addressed with temporary exclusion fencing at Addington Hills, at Hounslow Heath and at Joyden's Wood (just outside London in the borough of Dartford).

Temporary fencing is also being used to selectively protect areas of acid grassland from overgrazing by deer in Richmond Park, and heather regeneration by rabbits at Wimbledon Common.

3.5.3 Heathland restoration and creation

Heathland restoration is being attempted at several sites, involving a number of techniques. Topsoil removal, heather seeding and the encouragement of propagation have all been particularly successful at Hounslow Heath, Addington Hills, Hampstead Heath, at Hayes Common, Mitcham Common and most recently at Lesnes Abbey Wood and Stanmore Common. In Croydon, seed and cutting material from Addington Hills is beginning to be propagated in nursery conditions for future use in local restoration projects.

Bog restoration has also been attempted, involving the impediment of drainage to maintain or raise water levels, at Hampstead Heath, Rowley Green Common and at Keston Common.

Active creation of microhabitats has taken place on several sites, most often involving construction of bare soil-banks for invertebrate conservation.

Until recently, there had been no major attempt to clear secondary woodland and scrub from former heathland sites at an advanced stage of succession. This is not surprising given the public antipathy for conservation tree felling prevalent in many of London's outer suburbs, where heathland typically occurs. Small areas have been cleared of their understorey on several sites including Keston Common and at Hounslow Heath, and on National Trust land at Pett's Wood in Bromley, 1.5 hectares of secondary woodland was clear-felled in 2002 specifically to make room for a heathland restoration project. Regrettably, public opposition has halted an intended programme of felling at Croham Hurst.

3.5.4 Management grants

As lowland heathland is a clearly identified priority habitat for conservation in the UK Biodiversity Action Plan, sites are particularly eligible for management grants from a number of different funding agencies. Details of available grants are appended (Appendix 2).

Several of the management authorities for London's heathland sites have received grant funding towards essential maintenance and, in some cases, minor restoration projects. The most widely utilised grant has been the Defraadministered Countryside Stewardship Scheme (CSS). Recipients have included Hounslow Heath, Hayes Common, Putney Heath/Wimbledon Common, and Stanmore Common. English Nature has funded some restoration work at Keston Common.

The Forestry Commission's Woodland Grant Scheme (WGS+) normally funds native woodland planting projects. Recently, this has been extended to fund more general ecological enhancements involving, in some



Figure 7. Restoration at Addington Hills

Mike Waite/GLA

instances, the removal of inappropriate planting (for example over heathland). Sites in Woodland Grant Schemes include Croham Hurst, Royal Wimbledon Golf Course and Barnes Common.

A related scheme is the free management advice for nature conservation offered to golf course management bodies by the Sports Turf Research Institute's consultancy service. This is the *English Golf Environmental Service*, provided by the English Golf Union. English Nature funds this service for golf courses within statutorily designated sites (SSSI). Other courses can secure a half-day advisory visit from STRI on request.

4. Feasibility Study

4.1 Restoration and creation - some definitions

This strategy defines <u>restoration</u> as the management necessary to extend dwarf-shrub stands on sites that still support them, or to re-establish dwarf-shrub stands where they have been lost in the relatively recent past. Heathland <u>creation</u> is defined here as the establishment of dwarf-shrub stands on completely new sites, or alongside parts of sites where restoration may also be taking place, from which the habitat will have long disappeared. These definitions are concurrent with those used by English Nature, although its preferred term for *creation* is *re-creation*.

Initially at least, there should be a clear priority to implement restoration plans and achieve ideal management to maintain the extant heathland sites. The potential for heathland creation should not be forgotten, however. Creation projects will target sites where the existing edaphic conditions are favourable and where heathland is most likely to have dominated at some time in the historic past. Sites that have been made available through a change of land-use, and where suitable soils have been exposed through recent excavation or by land restoration, should also be viewed as potential creation sites.

4.2 Evaluation

4.2.1 Criteria for selecting restoration sites

English Nature has published some guidelines on the selection of suitable sites for heathland recovery⁶. These are aimed primarily at the rural situation and may be overly restrictive for use in London, where the smaller size and complex history of a typical available site may differ considerably from that in the countryside.

Factors commonly used to consider the feasibility of restoration projects include:

i) Extent of the existing site and of the area that can be restored:

Restoration to extend larger existing areas of habitat is generally preferred, and on as large a scale as possible. In this strategy, the minimum size of restoration area worthy of consideration has been set at 0.25 ha. Areas below this threshold size may be considered too insignificant and a waste of limited resources to attempt.

ii) Diversity of the existing site (in terms of its current habitat structure, the presence of key species, etc.):

In the interests of species conservation, it is considered more important to restore habitat adjacent to known populations of key species (see 3.3 above and Table 1).

iii) Severity/intractability of factors causing the present decline:

If the factors causing long-term degeneration of the habitat appear insurmountable, it may be considered a waste of resources to attempt restoration.

iv) Likelihood of achieving and maintaining favourable management:

⁶ English Nature How to select land which is suitable for the re-creation of lowland heathland, 1996

Managers or management agencies able to show that there is a reasonable chance of overcoming the factors causing past habitat degeneration are considered more worthy recipients of resources.

v) Chance opportunities:

As this is likely to be the most important criterion in practice, any selection system must be flexible enough to allow for this. Entirely random local factors may produce a situation where action becomes much more achievable. Examples might include the discovery of a legal mechanism to enable temporary fencing on Common Land; a change in the management decision-making regime; or the unforeseen availability of surplus grazing stock.

4.2.2 Criteria for selecting creation sites

Factors involved in the selection of suitable sites for heathland creation include:

i) Edaphic suitability (geology, soils, relief):

Heathland creation will only be possible on relatively free-draining, low pH soils with low nutrient status. Some site preparation may achieve the appropriate conditions in sites overlying suitable geological strata (see 5.1.3 below).

'Made ground' can present soil conditions similar to those naturally prevailing in heathland. Imported gravelly sub-soil on restored and landscaped sites is often quickly vegetated by various acid grassland species, this being indicative of such conditions.

ii) Historic and present land-use:

Sites that have supported heathland in the historic past are more likely to retain conditions suitable for creation projects. Also, the public may accept radical management changes more readily where history shows something lost being recovered. Related to this is archeological restoration (see 4.2.3 below). 'Younger' sites, with an evolving and less entrenched attitude towards their management, are more likely to accommodate heathland creation projects.

iii) Proximity to existing heathland sites and opportunities for connectivity:

Created heathlands will develop their diversity only if they are within the dispersal range of potential colonisers. Important reservoirs of heathland species in southwest London include the cluster of sites formed by Barnes Common, Putney Heath/Wimbledon Common, Richmond Park and the Coombe area; and the somewhat more isolated Mitcham Common and Hounslow Heath. In the larger regional context, these south-western sites also form a fragmented extension of the immensely diverse Surrey/Berkshire heathland complex. In southeast London, the chain of sites including Keston, Hayes and West Wickham Commons, through to the Addington/Shirley area of Croydon, is also significant. In north London the extant heathland sites are generally smaller and far more isolated. Aspirations to promote better connectivity are clearly important there.

iv) Extent of the creation project area:

As with restoration projects, clearly larger creation areas are preferable to smaller ones.

v) Proximity to obvious or potential sources of disturbance:

If there are obvious post-establishment problems for a potential creation site, it may be preferable to use resources elsewhere. Such problems might include acute vulnerability to vandalism, intensity of visitor access, adjacency of major roads, etc.

vi) Commitment of site managing agency:

It is important for a potential managing agency to show a proven record of their commitment and ability to manage the habitat.

vi) Chance opportunities:

The chance availability of land will be crucially influential to any programme of heathland creation. Better publicity for the programme, including any pilot/demonstration sites, will gain the attention of prospective landscaping agencies (especially in the private sector) and serve to promote the consideration of heathland creation within schemes in appropriate situations.

4.2.3 Discussion; constraints and opportunities

Across Greater London, a significant proportion of sites identified as theoretically able to host heathland recovery projects will remain unsuitable, for a variety of reasons.

Many sites will have developed valuable wildlife habitat other than heathland, such as important neutral or acid grassland, semi-natural broadleaved woodland and scrub communities. In particular, there will always exist a potential conflict between heathland restoration and the conservation of acid grassland, owing to the similarity in edaphic conditions supporting these habitats.

The majority of traditional parks, recreation grounds and cemeteries, especially those in inner London boroughs, are used too intensively to accommodate significant areas of created heathland. The site preparation necessary to lower nutrient levels on such sites may also be prohibitively costly.

Golf courses contain much improved, low-diversity grassland, although they often support important areas of more valuable wildlife habitat as described above. The popularity of golf and the resulting intensity of use of golf courses in London, may prove obstructive to the introduction of more wildlife-orientated management regimes by many of their managers. Given their considerable share of London's total land area, certain golf courses must nevertheless remain as potential sites for heathland restoration or creation, although the promotion of such projects will differ quite fundamentally to that involving public open spaces. Golf courses have proved such a special case for the purposes of this strategy that they are not considered further in terms of individual site programmes, but are the subject of a generic series of recommendations (see 5.4, below).

Although an increasing proportion of London's arable land will become redundant in the future, experience has shown that the high residual fertility of such land causes considerable problems for heathland creation. Either an unacceptably long wait or expensive site preparation is normally the rule. Also, the high and growing demand for horse livery within the region will retain much agricultural land in use as pasture, with limited capacity for any significant land-use change.

The majority of land identified as available for aggregate extraction is now exhausted, and part of this has been or remains in use as landfill. Here there are important opportunities within the landscape restoration process for some inclusion of heathland creation. The best example of this is at Beddington, where enabling development is already committed to the creation of 30 hectares of heathland and acid grassland. Although some sites may suffer significant contamination problems, stresses to the vegetation of such sites often simulate those operating naturally in heathland habitats. More often than not other, cheaper habitat creation projects, such as tree planting, are afforded first priority in such situations, however.

Extensive habitat creation projects must also compete for land with London's ascendant regeneration programme (focused in the Thames Gateway and elsewhere). Given the constraints operating on long-established and protected open spaces, it is this that represents the most significant constraint to the creation element of this strategy. The programme is poised to achieve ambitious targets for residential and industrial development, as well as its important 'greening' dimension, which is likely to involve woodland, grassland and wetland creation. Given the clearly identified national priority for lowland heathland conservation, the place of the habitat in landscape creation schemes (in appropriate situations) ought to be arguable with confidence, however.

Finally, there may exist a previously overlooked opportunity in the current desire within built heritage conservation agencies (such as English Heritage and the National Trust), to expose the detail of Ancient Monuments where this has been obscured by successional vegetation. Although this is understandably highly controversial in some sites, the reasoning for archeological restoration may actually assist in arguing for secondary woodland and scrub clearance on some former heathland sites. Such is the public strength of will against *any* felling of trees on public open space in some parts of London, that this added justification may prove significant.

A similar example of how misplaced local intransigence can frustrate the introduction of necessary management changes, is the reaction shown towards temporary fencing on some public open spaces. This has proved very difficult to introduce when it is perceived that an illegal situation is created, involving the infringement of by-laws and commoner's rights of access.

4.3 Potential heathland restoration sites

Table 3 summarises the sites across London where some potential for heathland restoration has been identified. It includes all sites where heathland restoration is already underway and where further work is projected.

On these sites, common factors limit the rate at which current restoration projects are being progressed. These include the availability of funds in limiting professional labour and equipment hire, and the shortage of reliable voluntary labour. It is important to remember that restoration projects can only ever be progressed following work towards the essential maintenance of the existing habitat, which on many sites is all-consuming.

Table 3 also attempts to grade sites, in order to provide a guide to their present suitability for restoration work and thus aid prioritisation. Graded attributes correspond to certain criteria in 4.2.1 above. The final column of Table 3 assigns sites to five priority 'tranches'. Examples of sites scoring highly overall in this analysis predictably include Hounslow Heath, Putney Heath/Wimbledon Common, Hayes Common and Keston Common. Further tranches of sites would include Addington Hills, St Pauls Cray Common, Stanmore Common and Mitcham Common. Examples of low scorers include Coulsdon Common and Bostall Heath.

Clearly funding is a significant limiting factor to restoration on extant heathland sites, although it is unlikely that additional funds alone would immediately generate a major increase in

restoration work. The necessary labour, whether professional or voluntary, is presently too limited. Additional dedicated funding would serve to lend instant priority to restoration on sites however, and to firmly commit their managers to a steady programme of advancement.

4.4 Potential heathland creation sites

Table 4 summarises the sites where some potential for heathland creation has been identified through a wide consultation with various authorities managing land within Greater London. Although a project area could not be estimated for most sites, the table represents a long-list of sites appearing suitable under the criteria listed in 4.2.2 above.

In terms of their general land-use, the categories of site with potential for accommodating significant heathland creation projects, appear to include:

- Relatively extensive public open spaces with an established 'natural' approach to management. Examples include Hainault Forest, Scratchwood and Bedfont Lakes Country Park, and Cranmer Green in Merton.
- Aggregates quarries nearing exhaustion or awaiting restoration. Examples include Fairlop Plain, and sites in the Ingrebourne and Colne Valleys.
- Landfill sites awaiting restoration, for example at Beddington in Sutton.
- Redundant playing-fields and under-used sectors of relatively large recreational open spaces, for example at Barnes Common, at Mitcham Common and at several sites in Hounslow.
- As part of opportunistic landscaping schemes associated with the construction of new transport infrastructure, for example as attempted with Tramlink at Addington in Croydon.

5. Recommended programme

5.1 Methodology review

It is not proposed to describe in detail the various methods currently used to re-establish heathland vegetation. A brief review is necessary however, to clarify cost estimates appearing later in this chapter.

A number of experienced sources were consulted to cost various techniques involved in the restoration and creation of heathland (see Appendix 3).

It is important to keep in mind the objective of restoration and creation projects. This is usually to establish dwarf-shrubs in sufficient abundance that, even if not completely dominant, they control the overall appearance of the vegetation. It is *not* an attempt to re-establish the full complement of characteristic associated species, which may only happen over time and under appropriate management regimes.

The approach to the establishment of heathland species will vary according to the site's character, its recent management history and whether there is any indication of dwarf-shrub species surviving in the soil seed bank.

5.1.1 Sites with relict heather

Alongside relict heather plants in degraded 'grass-heath' communities, soil disturbance (for example shallow scarification by tractor-mounted harrows or rakes) can result in the expansion of dwarf-shrub stands by encouraging the establishment of seedlings. The key to the process is to tip the edaphic balance in favour of heather propagation over grasses. At some sites the soil may have become too nutrient enriched for this to occur and results will be disappointing. However, in some situations the diligent control of grasses during these early years of heather establishment may eventually rectify such initial setbacks.

5.1.2 Sites with a substantial seed bank

Where dwarf-shrubs are known to have disappeared in the fairly recent past and soils have remained essentially undisturbed, activation of the residual seed bank may be encouraged by removing the existing vegetation and optimising conditions for germination. Scarifying as described above or on larger sites, wholesale stripping of the top few centimetres of soil (removing existing vegetation with it), followed by rolling can result in a flush of dwarf-shrub seedlings provided there is sufficient moisture present. Autumn is the optimum time to carry out such work.

To save time and resources, the site should ideally be tested for the presence of a viable seedbank prior to any ground works taking place. Soil samples should be collected and their seed content encouraged to germinate indoors in seed-trays to prove this.



Figure 8. Heather seeding trials at Barnes Common

Mike Waite

5.1.3 Sites with no surviving resource

Where no dwarf-shrubs survive, either above or below ground, they must be introduced. This will be the prevailing situation with all creation projects, for example. Although there are several methods that may achieve this, the current depth of experience is such that only tried and tested methods are likely to be recommended and/or approved by funding agencies.

Although whole plants may be planted, this technique is normally used only when part or all of a donor site is to be destroyed. This process then effectively becomes habitat translocation. Topsoil from the doomed site can also provide a source of propagative material. Seeding, using sustainably harvested material from a donor site, is far more likely to be relevant to the recovery of heathland in London.

Following adequate site preparation (see next paragraph), seeding is best achieved either by spreading cuttings or litter, collected from an existing mixed dwarf-shrub stand. The two sources of material require collection at different times of the year; cuttings during mid to late autumn, litter in early spring. Cuttings are best collected by a reciprocating blade forage-harvester. It is important to use local donor sites. Neighbouring heathlands in the Thames Basin are ideal, including sites in Berkshire and north Surrey (for example Chobham Common or Bagshot Heath). Only one site in London would presently be suitable as a donor site; Putney Heath/Wimbledon Common. The cost of collecting seeding material varies considerably with the state of the ground within the donor site. Extra care is required in wetter, boggier sites, which adds time and therefore expense to the operation.

Site preparation prior to seeding is crucial to successful establishment. Being confident that a site is intrinsically suited is very important, as there is generally an inverse relationship between the success of a project and the degree of edaphic alteration required. Sites can be tested for pH and fertility (extractable phosphorous), which should both be relatively low. Soil stripping to the level of the mineral soil can remove potential soil problems, but can also deplete nutrient levels excessively, while the loose soil thus exposed is also liable to wind-erosion and desiccation. Seeding with heather cuttings can overcome the latter as the plant material supporting the seed capsules acts as a protective mulch.

Project costs increase with the depth of turf stripping, as more specialised labour and machinery becomes necessary and more spoil is generated for disposal. A cost-saving method of topsoil disposal is on-site burial. A trench is excavated close to the project site, and the stripped topsoil is dumped at the bottom. The spoil from the trench is reverse-filled, resulting in a slight bank if reasonably well compacted. The bank can either be incorporated into the project and also seeded, or left bare as a habitat enhancement for invertebrate conservation.

pH has been artificially lowered with application of sulphur, on extensive arable reclamation projects. The necessary scale and expense (in skill and machinery hire again) may make this inappropriate to London. The depletion of nutrients on arable sites has been attempted by harvesting successive cereal crops without fertilisers. It is important to remove <u>all</u> the crop, however, including residual stubble. In many cases, fertility has remained too high even after several years of this treatment.

The seed-bearing material is best spread immediately following collection, in autumn or early spring. As a rule of thumb, cuttings can be spread over twice the area from which they have been collected. Litter is applied at between 1,000-1,500 kg/ha. Weather conditions for successful germination vary from year to year, and successive annual applications may be necessary. Projects must therefore be budgeted to allow for several re-applications.

As the seeded area is becoming established, it should be fenced-off from human disturbance and defaecating dogs. Where present, foraging rabbits can seriously retard regeneration of heathland vegetation. Fencing therefore adds further project costs and must be maintained for a minimum of five years.

In the initial years during establishment, control of invasive competitive plants can be achieved through spraying and later, spot treatment with an appropriate herbicide. Once a good cover of heather plants have established, invasive species must be hand-pulled, which is labour intensive and costly. As an alternative, or as an annual treatment for review, the stand may be topped using a brushcutter, which will not only keep invasive species in check but also increase light penetration to seedlings.

5.2 Restoration programme

A programme of heathland restoration follows, including recommendations for each of the sites identified in Table 3. The restoration project areas are approximate (rounded to the nearest 100 square metres). The costs of individual projects are calculated as a function of their area and the actual work as recommended (see table 'Costing restoration and creation projects', Appendix 3).



The cost of each project includes, where relevant: two seeding reapplications; fencing the perimeter of each individual project area (unless specified as not appropriate); five years of generalised aftercare; and one day per annum of professional monitoring for five years. A modest budget to cover public consultation events and general site interpretation, is also included. The cost of transporting seeding material has been calculated using distances between project and donor sites as recommended in the text. To calculate the disposal cost of spoil arising from soil scraping/stripping, a dumping site has been assumed of five miles distance from each project site. It is realised that any significant variation from these assumptions will distort the accuracy of costings.

Figure 9. Interpretation panel at Stanmore Common Mike Waite/GLA

5.2.1 Rowley Green Common, Barnet

The Hertfordshire and Middlesex Wildlife Trust manage Rowley Green on behalf of the owners, Barnet Council. The site includes one of London's few bogs, which supports several regionally uncommon *Sphagnum* and sedge species. The small area of heathland has been gradually extended over recent years, towards an objective that aims to roughly double the existing area (sse figure). The area already cleared is becoming scrubbed over and requires re-scarification. The remaining work would largely clear young secondary oak and birch woodland, and must proceed on a slowly phased basis.

RG1: Young woodland should be cleared of birch and small girth oak woodland, the stumps to be ground or removed by winch. Leaf litter and surface soil should be scraped and seeded with material collected from either Stanmore Common or Hertford Heath (another Wildlife Trust nature reserve in Hertfordshire). [Area 0.25 ha; estimated cost £6,725-7,850 (monitoring not included)].





© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

5.2.2 Lesnes Abbey Wood, Bexley

A local partnership involving Bexley Council, a local voluntary conservation group and specialist contractors, has been progressively restoring a small area of heathland situated at the eastern end of Lesnes Abbey Woods. This work was undertaken over the last five years, and has been partially funded through a CSS grant. Methods have included tree and scrub clearance, and shallow scraping of leaf litter and some surface soil alongside existing heather stands. Some seeding has taken place (using material collected from the existing stands), whilst other areas have regenerated from the seed bank. There are plans to restore a further small area within the vicinity.

LAW1: Further heathland restoration, employing established methods. [Area 0.5 ha; estimated cost \pounds 12,215 (including \pounds 1000 for professional monitoring)].

5.2.3 Hayes Common, Bromley

Part of Hayes Common is an SSSI for its mature heathland, acid grassland and lichen heath, where one of London's few adder *Vipera berus* populations survives. Part of the area requires prompt action to prevent the heathland succeeding to woodland. Several additional areas have been identified where former heathland could be reclaimed from bracken, gorse-dominated scrub and young secondary woodland (HC1-6, see figure 12). One of these (HC1) would expand on the existing restoration programme, which was partially funded by English Nature. CSS will be sought to support the maintenance of the existing heathland.

Figure 11. Lesnes Abbey Woods



© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)



© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

HC1: An area of secondary oak and birch woodland, with more recent invasive holly. In two phases this area should be progressively clear-felled, scraped and seeded using material collected from elsewhere within the site. The first phase should progress northwards (HC1a) from the existing restored site adjacent to Baston Road. The second phase (HC1b) should extend westwards from the roadside belt thus created. This will serve to link up, and extend, the best remaining heathland areas on the common. [Combined area 2.4 ha; estimated cost £49,825].

HC2: An area (HC2a) in the northwest of the common should be cleared of bracken and birch, scraped and seeded (using on-site heather sources). Following on from this work, secondary woodland and scrub should be progressively removed, and the exposed soil scraped and seeded from a broad corridor (HC2b), parallel to Baston Road to link through to existing heathland at the Baston/Croydon crossroads. [Combined area 2.3 ha; estimated cost £47,480].

HC3: A new heathland area should be created from degraded acid grassland at the West Common/Croydon crossroads, to include light soil scraping and seeding as necessary. [Area 0.3 ha; estimated cost £6,460].

HC4: A large area adjoining Croydon Road, north of West Wickham Common (see 5.2.7), consisting of secondary oak and birch woodland with some relict gorse and heather. This should be progressively clear-felled, scraped or scarified (adjacent to surviving heather) as appropriate, and seeded. [Area 3.7 ha; estimated cost \pounds 77,250].

HC5: In the southeast of the common are several open grassed areas where some heathland/acid grassland restoration should be attempted. HC5a will involve scraping and seeding. HC5b is an existing heathland area that should be extended in a southeast direction into gorse and birch scrub. [Combined area 0.5 ha; estimated cost \pounds 10,395].

HC6: A further block of young secondary woodland and gorse scrub, adjoining the SSSI. This should be selectively felled (retaining a proportion of gorse), scarified and seeded using local material. [Area 1.7 ha; estimated cost \pounds 23,680].

Total estimated cost £217,890 (including £2000 for professional monitoring).

5.2.4 Keston Common, Bromley

In the northwest of Keston Common is one of the London's very few *Sphagnum*-dominated valley bogs , which supports *Sphagnum magellanicum* and its only colony of bog asphodel. In the south is an extensive area of open dry heathland (see figure 13). A large part of the common was formerly planted with pine, now mature, below which survive small relict patches of heather and bilberry. Bromley Council has pursued general heathland maintenance operations and undertaken some expansion of the dry heathland area. A long-term aim at Keston Common must be to progressively fell the coniferous woodland to make way for further heathland restoration, although this idea will not be expanded upon here. A new CSS agreement will be supporting some of the proposals below.

KC1: To the west of the existing dry heathland area, birch, gorse and bracken should be progressively cleared, and the soil scarified to promote regeneration of heather species, or scraped and seeded from local heather sources. [Area 1 ha; estimated cost £8,140-21,315].

KC2: An area of acid grassland with scattered relict heather. This should partially scarified to increase the proportion of heather cover, and ideally fenced and grazed. [Area 0.7 ha; estimated cost \pounds 4,900].

KC3: The scheduled Ancient Monument, presently supporting young secondary woodland and scrub. This should be selectively felled, scarified and seeded as required, using material from local sources. [Area 0.38 ha; estimated cost \pounds 6,800].

Bog 1: The management priority for this very important area is to maintain water levels. The progressive drying-out of the bog area is clearly evidenced by the invasion of bramble, birch and purple moor-grass *Molinia caerulea*. The effectiveness of the recently improved damming system should be reviewed, and maintained or re-considered as necessary. Young trees should be removed from the inflow channel, and buried corrugated plastic sheeting could be deployed to further impede drainage. Selective felling and removal of mature pine around the bog clearing is being considered, although this may expose the area to further public disturbance (which would need to be addressed). [Estimated cost £10,500].

Bog 2: This upper area of the valley bog is smaller than the above and in worse condition, suffering from similar problems. Bramble and other invasive species urgently require routine control, while potential new drainage inflows should be investigated and the necessary diversions undertaken to improve water through-flow within the valley system. [Estimated cost $\pounds 25,325$].



Total estimated cost £57,465-70,640 (including £1000 for professional monitoring).

© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

5.2.5 Chislehurst Common, Bromley

The remaining heathland at Chislehurst Common is confined to a few surviving clumps of heather, in several widely separated areas of acid grassland of varying quality (see figure 14).

CC1: This area of poor-quality acid grassland to the west of a large damp depression with fringing willow scrub, should be progressively scraped and seeded, using local heather sources (eg. Hayes Common). [Area 0.4 ha; estimated cost £9,025].

CC2: The open area in the southeast of the common (the Cock-pit field), consists of a mosaic of mostly poor (with some better quality) acid grassland. Selected areas within this broad area either side of Watts Lane (CC2a and CC2b) could be progressively scraped and seeded with locally-sourced heather (Hayes Common). [Combined area 0.65 ha; estimated cost \pounds 14,665].

CC3: At the far western end of the cricket ground is a small area of relict heathland, where heather stands should be linked together by scarifying the intervening rank grassland to promote regeneration of heather. [Area 0.03 ha; estimated cost \pounds 295].

Total estimated cost £25,785 (including £1000 for professional monitoring).



Figure 14. Chislehurst Common

© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

5.2.6 St Paul's Cray Common, Bromley

St Paul's Cray Common includes a sizeable area of open heathland, enclosed by young secondary birch and oak woodland, scrub and bracken. The heathland is present as two (east and west) clearings, connected by a narrower corridor (see figure 15). The heather stand in the western clearing is particularly mature and requires some form of structural management. Features of this site suggest its suitability for periodic grazing by a 'flying flock' of appropriate stock. Heather beetle Lochmaea suturalis damage is noticeable over part of the area.

SPC1: The aim here should be to widen the corridor and effectively increase the area of open heathland. From both SPC1a and SPC1b, young woodland, bracken and scrub should be progressively cleared; the resulting areas should be scraped and seeded using cuttings from the adjacent local source (which includes both heather and cross-leaved heath). [Area 0.4 ha; total estimated cost £10,700, including £1000 for professional monitoring].

Further south, the National Trust have begun heathland creation within more mature secondary woodland in its Pett's Wood Estate. Two areas (PW1 and PW2 on figure 16), totalling around 1.5 ha, have been cleared, scraped and seeded using non-local heather sources.



Figure 15. St Paul's Cray Common

© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)



© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

5.2.7 West Wickham Common, Bromley

West Wickham Common is contiguous with Hayes Common, but is managed by the Corporation of London. The common contains an open area of grassy heath with two small surviving heather stands (see figure 17). The remaining open and restorable areas on the Common are closely associated with the archeological earthworks.

WWC1: Much of the grassed clearing here could be restored to heathland. The area should be progressively scarified to encourage heather regeneration. Should scraping and seeding be necessary, material should be collected from Hayes Common. [Area 0.25 ha; estimated cost \pounds 2,045-5,415].

WWC2: A second clearing to the west of WWC1 has recently been partially scraped to test the seed-bank for its heather content, with disappointing results. Therefore the whole clearing should be progressively cleared of its present mix of scrub, bracken and grassland, scraped and then seeded using locally sourced material. Following this, the narrow strip of secondary woodland separating WWC1 and WWC2 should be cleared, scraped and seeded to link these two areas. [Area 0.4 ha; estimated cost £8,530].

Total estimated cost £12,375-15,745 (including £1000 for professional monitoring).





© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

5.2.8 Hampstead Heath, Camden

Managers at Hampstead Heath (the Corporation of London) have been progressing a steady programme of heathland reinstatement over a period of around ten years. Several small heathland blocks have been created, mostly in the north of West Heath, with another area (the oldest) in the Vale of Health (see figure 18). Although initiation has often been highly successful, longevity has proved difficult with routine targeted vandalism being a particular problem.

HH1: This created heather stand should be roughly doubled in size, involving the clearance of bracken and young bramble scrub, scraping and seeding with material from a local source (Wimbledon Common). A smaller area to the north (HH1a) should be re-created, owing to problems of maintenance. [Area 0.05 ha; estimated cost \pounds 1,460].

HH2: Another formerly created area adjacent to the Hill Garden. This too should be progressively enlarged, aiming to double its existing area. Methods as above. [Area 0.1 ha; estimated cost \pounds 2,585].

HH3: Two discrete, created heather stands in an area of poor-quality acid grassland, adjacent to North End Way. This area receives comparatively few visitors and is particularly suited to further expansion of the current resource. The remainder of this open area should be scraped and

seeded with local material, thereby linking the existing stands. [Area 0.2 ha; estimated cost \pounds 4,740 (note: no fencing required)].

HH4: An area of tall, dense gorse on Sandy Heath, which was partially under-seeded with heather quite recently. Germination rates have been disappointing, however. If undertaken systematically and with better resources, this area could become one of the more significant heathland assets on the Heath. Sections should be progressively cleared of gorse, scraped and seeded with local heather material, to achieve more of a mosaic affect. [Proportional area 0.07 ha; estimated cost £1,970 (including fencing of entire area].

Bog 3: An area of former valley bog on West Heath is currently being considered for restoration. [Estimated cost £25,000].



Total estimated cost £37,555 (including £1000 for professional monitoring).

© Crown copyright. All rights reserved. Greater London Authority 100032379(2004

5.2.9 Addington Hills, Croydon

The heathland restoration programme at Addington Hills has been in progress for a number of years. A master plan prepared in 1999 identified approximately 5.4 ha of recoverable heathland from secondary woodland, scrub, bracken and poor-quality acid grassland. Some 2.4 ha of this has now been restored, resulting from extensive birch removal followed by simple scarification or shallow stripping alongside existing stands to promote heather regeneration from the seed bank.

There are opportunities for further work along the sides and on the tops of ridges separating the dry 'finger' valleys (see figure 19), at **AH1a/b**, **AH3**, **AH6a/b**, **AH7** and **AH8**; and on the top of the plateau in the south of the site at **AH2a-d**, **AH4** and **AH5**. [Combined area 3 ha; estimated cost £40,500 (stripping only; fencing not included)].

AH9 is an area of relict heathland including much bell heather, on the surface of a covered reservoir in the southwest. Here, imminent engineering works should offer mitigation opportunities that would aim to extend the heathland area, which would involve scraping and seeding with heather material from local sources. [Area 0.15 ha; estimated cost \pounds 3,015].

Bog 4: A spring-fed pond identified as supporting significant relict bog vegetation, which could be extended and otherwise re-vitalized, by employing a variety of water-retaining techniques. [Estimated cost £5,000].



Total estimated cost £50,315 (including £1000 for professional monitoring).

© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

5.2.10 Shirley Heath, Croydon

Shirley Heath is a minor recreational open space, which contains a small area of relict heathland including some bell heather (see figure 20).

SH1: An area of bracken and bramble scrub, giving way to a wider open sward of mown poorquality acid grassland. Here, progressive scrapes should extend the existing heathland in a broad swathe to the east. Initial scrapes should simply be left to test for heather in the seed bank; seeding with local material (from Addington Hills) may be required if regeneration is unsuccessful. [Area 0.34 ha; estimated cost £4,950-7,500].



Total estimated cost £6,750-9,300 (including £1000 for professional monitoring).

© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

5.2.11 Croham Hurst, Croydon

At the summit of Croham Hurst are two relict heathland areas, emerging from the dense secondary and ancient woodland on its slopes (see figure 21). These open areas consist largely of poor-quality acid grassland with scattered stands of heather. There have been recent, essentially small-scale, attempts to consolidate and extend the open areas on the plateau, by scarifying adjacent plots to promote regeneration. Some clearance of secondary woodland, non-native trees and scrub has taken place to open up former heathland areas on the upper slopes. This work has been part-funded by the Forestry Commission through the Woodland Grant Scheme.

CH1: The entire southern summit area should be progressively restored to heathland, extending outwards from the existing heather stands. If seed sources are required, these should be locally sourced (for example from Addington Hills). [Area 0.6 ha; estimated cost £4,855-9,715]. CH1b includes the uppermost slopes on Breakneck Hill, where some further restoration is possible. [Area 0.2 ha; estimated cost £2,010].

CH2: The northern summit area should be treated in a similar manner to the above, although there is even less heather here, and supplementary seeding will be necessary. [Area 0.6 ha; estimated cost £9,580].

Total estimated cost £18,245-23,105 (including £1000 for professional monitoring).



© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

5.2.12 Coulsdon Common, Croydon

There may be opportunities to restore heathland from scrub and secondary woodland, on a limited scale at Coulsdon Common. Two small clearings, both supporting a scattering of heather plants beneath dense scrub and bracken, occur towards the centre of the common. Following scrub and bracken removal, the clearings should be scarified and monitored for heather regeneration. Failing this, shallow stripping and seeding should be attempted, using material from Addington Hills. [Area 0.45 ha; estimated cost £4,915-12,195 (including £1000 for professional monitoring; not including fencing)].

5.2.13 Bostall Heath, Greenwich

The heathland at Bostall Heath has declined drastically over the past decade. Heather is nearly extinct on the site, and just survives as widely scattered individual plants beneath young secondary woodland, scrub and bracken (see figure 22). Arson is virtually endemic on the Heath,

and local anti-social behaviour might prove to be a significant problem to the restoration programme recommended below.

BH1: A former clearing that still supports some heather. Management is urgently required to maintain the open nature of the area, alongside which scarifying should be undertaken to encourage regeneration of the surviving heather. [Area 0.2 ha; estimated cost \pounds 1,620].

BH2: This is one of two linear ridge-top clearings, where heather was recorded until relatively recently. Poor-quality acid grassland is present, with gorse stands and encroaching young birch and oak woodland. The area should be progressively cleared, scraped and seeded using locally sourced heather from Lesnes Abbey Wood. [Area 0.3 ha; cost £6,665].

BH3: Another linear clearing, adjacent to the Cottage Hospital, where heather may still survive at the base of a west-facing slope. The clearing is very similar to BH2, and should be similarly treated. Both areas have numerous fire sites, where scraping should be concentrated initially. [Area 0.5 ha; cost \pounds 10,745].

BH4: An area of relict heathland in the southeast corner of the Heath, hidden beneath secondary woodland and gorse scrub. Here, urgent management is required to re-open the former clearing, after which scraping should be undertaken to promote heather regeneration. A small open, grassy area adjacent to this should then be incorporated into this management parcel, and scraped and seeded using locally sourced material. [Combined area 0.1 ha; estimated cost *£*2,085].



Figure 22. Bostall Heath

© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

BH5: A satellite site known locally as "West Heath", and situated to the southeast of the main Heath. This consists largely of gorse scrub, which is periodically burned. This should be progressively cleared, scraped and seeded with heather material from Lesnes Abbey Wood. [Area 0.3 ha; cost \pounds 6,390].

Total estimated cost £29,305 (including £1000 for professional monitoring).

5.2.14 Stanmore Common, Harrow

Stanmore Common was denotified as a SSSI due to the loss and deterioration of its lowland heathland habitat and invertebrate species interest. Some sizeable stands of heather remain on the common, but the maintenance of all its open habitats has continued to fall behind that required to keep pace with succession (see figure 23).

SC1: This is the largest area of open habitat on the common, where significant heathland restoration would be most valuable. Secondary woodland, scrub and bracken should be progressively cleared, and the area treated in the most appropriate manner to encourage the regeneration and spread of heather. [Area 0.8 ha; estimated cost £6,060].

SC2: An open area within birch woodland to the north of SC1, where there is presently much bracken and purple moor-grass. This area should also be cleared of all successive vegetation, and scraped to promote heather regeneration. If results are disappointing, the area could be seeded using material collected from elsewhere in the site. [Area 0.25 ha; cost £3,650-5,300].



© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

SC3: SC3a is a small open area where heather just survives towards its southern end. The remainder is rapidly losing ground to birch, bramble scrub and bracken. This should be cleared and the surface scarified to encourage local regeneration of heather across the entire area. SC3b is a larger, linear and presently partially open area where restoration should aim to ultimately connect the car park/entrance area through to SC3a. Progressive clearance, scraping and seeding with material collected from elsewhere on the common will be required to achieve this. [Combined area 0.75 ha; estimated cost \pounds 13,795].

SC4: This area has seen recent management aimed at promoting heather regeneration and survival. Work should continue here, and aim to extend the present clearing to roughly double its existing area. [Area 0.2 ha; estimated cost \pounds 1,850].

Total estimated cost £27,155-28,800 (including £1000 for professional monitoring).

5.2.15 Mitcham Common, Merton

An existing programme of heathland restoration on Mitcham Common has focused on the golf course. Management has taken advantage of changes to green configuration and rough management, and has extended heather stands in several areas. Two further areas have been identified for more extensive heathland recovery work, beyond the golf course (see figure 24).



© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

MC1: This is an area of degraded acid grassland adjacent to a redundant playing field. It is proposed to scarify the remaining acid grassland to promote heather and dwarf gorse regeneration, and to progressively scrape and seed the playing field, using material collected from Wimbledon Common. [Area 1.1 ha; estimated cost £18,550 (including £1000 for professional monitoring)].

The second project area is identified as Cranmer Green, and is described below (see 5.3.2).

5.2.16 Putney Heath, Wandsworth

Putney Heath supports the largest continuous area of heathland in Greater London (see figure 25). The margins of this are eternally threatened by invading scrub and secondary woodland, and recoverable gains are possible both here and in other peripheral areas on the Heath. There are believed to be longer-term threats to the heathland community type from the falling water table, which may be partially addressed by adjusting the artificially enhanced local drainage pattern.

PH1: An area of scattered heather beneath young woodland of birch and oak. The woodland should be progressively cleared, and the heather cover consolidated by scarification adjacent to existing stands. [Area 1 ha; estimated cost £7,620].



© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

PH2: This area of existing heathland is similar to the above, where proliferating young woodland requires clearance to achieve a more extensive, continuous area of open habitat. [Area 3 ha; estimated cost £18,600 (fencing not included)].

PH3: Very similar to PH1. Young birch and oak woodland should be cleared, and the heather cover consolidated by scarification. [Area 1.1 ha; estimated cost £8,200].

Total estimated cost £36,220 (including £1000 for professional monitoring).

5.2.17 Wimbledon Common, Merton

Wimbledon Common is contiguous with Putney Heath and both support equally important stands of heathland vegetation (see figure 26). The common includes the Wimbledon Common/London Scottish golf course, where some of these stands occur.

WC1: An area at the southern end of The Plain, where young secondary woodland should be thinned and heather regeneration encouraged by a combination of scarification, shallow scraping and seeding with material collected from adjacent stands. [Area 1.6 ha; estimated cost £22,800].

WC2: This area is part of the golf course, and is a heavily eroded heather stand where restoration is urgently required. The area would benefit by temporary fencing following seeding with material collected from elsewhere within the site. [Area 0.5 ha; estimated cost \pounds 6,660].



© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

WC3: Also on the golf course, this area runs adjacent to Inner Windmill Road and presently consists of scattered heather plants in poor quality acid grassland. Progressive scarification should restore the area to a more-or-less continuous heather stand. [Area 0.4 ha; estimated cost \pounds 2,530 (fencing not included)].

WC4: This area is at the edge of a large stand of young birch woodland. The strip should be cleared as a pilot scheme, being part of a larger project that would aim to progressively clear (or at least thin) much of the stand. Scraping and seeding should follow woodland clearance, using heather material from elsewhere within the site. [Area 0.7 ha; estimated cost \pounds 14,740].

Total estimated cost £48,530 (including £1000 for professional monitoring).

5.2.18 Hounslow Heath, Hounslow

Hounslow Heath has been London's principal site for the demonstration of heathland recovery techniques for over ten years (see figure 26). Having achieved a commendable area of almost 4 hectares, the site manager was considering grazing the area. Unfortunately, the majority of the recovered heathland was severely damaged by fire in 2003.



© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

HH1: The Heath's main area of heathland, which is made up of three creation plots ranging from 8-20 years of age. Following the fire of 2003, proposed renovation will include; creation of firebreaks across the area to prevent fires spreading from the surrounding grassland, to be re-rotavated twice annually; removal of invasive grasses (mainly Yorkshire fog *Holcus lanatus*) by turf stripping where these become problematic; and removal of invading bramble. Heather regeneration will be closely monitored and areas where all parent material has been destroyed will be re-seeded (source; Chobham Common). [Area 3.4 ha; estimated cost £83,930 (assuming stripping/re-seeding of entire area; firebreak maintenance for 5 years)].

HH2: Restoration began in this area in 2002/3, with patchy success. Continuing work should include aftercare treatment with grass herbicide, and partial re-application of seeding material where germination has been unsuccessful. Long-term, the area will be maintained as a mosaic of heathland with bracken, gorse and acid grassland pockets fringing the woodland to the south. [Area 0.5 ha; estimated cost £3,710].

HH3: Another area where restoration has begun, involving soil stripping and seeding. Two further seeding applications are required, followed by aftercare particularly directed at controlling Michaelmas daisy *Aster spp.* [Area 0.1 ha; estimated cost \pounds 1,495].

Total estimated cost £90,935 (including £1000 for professional monitoring).

5.3 Creation sites

Recommendations follow for some of the sites identified as having potential for heathland creation in Table 4. This level of detail has not been discussed with site managers for the majority of sites identified in Table 4. Again, the project areas are rounded to the nearest 100 square metres, and the costs are calculated as a function of the area and the actual work as recommended. Costs include two seeding re-applications; fencing the perimeter of each individual project area; five years of generalised aftercare; one day per annum of professional monitoring for five years; and an assumed spoil disposal site of 5 miles distance from the project site. A modest budget to cover public consultation and general interpretation is also included.

5.3.1 Barnes Common, Richmond

There are two remaining areas supporting heather on Barnes Common, although neither contain more than a few plants within acid grassland. One area of the common appears ideal for heathland creation, which would ultimately link the two extant heather sites (see figure 27).

BC1: This area has been used in the past as a sports field and currently supports rank neutral grassland, although some typical acid grassland species are still present. This suggests that minimal ground preparation would be necessary and successful heather establishment may be expected. Work should be phased over a number of years, in order to gain widespread acceptance by the common's users. Creation will involve deep scraping and seeding, using material collected from Putney Heath/Wimbledon Common. [Area 1.5 ha; estimated cost \pounds 36,030 (including \pounds 1000 for professional monitoring)].





© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

5.3.2 Cranmer Green, Merton

MC2: Cranmer Green is a public open space at the western end of Mitcham Common, currently supporting an amenity sward of improved acid grassland (see figure 24). A wide band adjacent to the woodland at the eastern edge of the Green, should be progressively scraped and seeded with heather material collected from Wimbledon Common/Putney Heath. [Area 1 ha; cost $\pounds 24,275$ (including $\pounds 1000$ for professional monitoring)].

5.3.3 Scratchwood, Barnet

SW1: A large glade within the Scratchwood complex consists of acid grassland, maintained by annual mowing (see figure 28). The eastern boundary of the clearing is marked by a belt of conifers (black pine *Pinus nigra*), with an understorey of bramble and young birch. It is recommended that an area of grassland on the margin, and part of the woodland be targeted for heathland creation. This would involve clearance of the existing vegetation, shallow scraping and seeding with material collected from Stanmore Common. [Area 0.26 ha; estimated cost £7,650 (including £1000 for professional monitoring)].



© Crown copyright. All rights reserved. Greater London Authority 100032379(2004)

5.4 Golf Courses

There are 15 golf courses in Greater London known to support relict heathland habitat. A further 19 courses support significant areas of acid grassland, where attempts at heathland creation may be successful (see Tables 5 and 6). These habitats are almost exclusively located in the 'rough' zones, where management changes may be introduced to conserve and enhance their biodiversity interest. Nationally, golf courses contain some 2,800 ha of lowland heathland, many of which are designated as SSSI. However, heathland is believed to be declining in 84% of courses, mainly as a result of erosion and disturbance by golfers.

As a matter of priority, the managers of golf courses supporting relict heathland in London should be identified as a peer group and engaged by appropriate members of the London Heathland Working Group. This process could be extended to also include courses supporting significant acid grassland. Managers should be brought together in a seminar-type event, where they can be advised of the biodiversity conservation issues and the resources available to them. Non-attendees of this event should be sent relevant literature, and offered an advisory site visit by the Working Group. Managers should be encouraged to approach the specialist advisory service offered through the collaboration of the English Golf Union and English Nature (see 3.5.4 above).

Golf course managers should be encouraged to review their course management, and to commission a management plan for biodiversity conservation on the course. This will of course, address management of other habitats besides heathland and acid grassland. Important habitats

would be identified in this plan, the management options for these analysed, and various prescriptions would be recommended. The identification of opportunities for heathland restoration and creation should be of primary importance in the management plan. Management recommendations on golf courses will always incorporate the following principles;

- <u>Access management</u>. Areas sensitive to trampling on the course should be declared 'Ground Under Repair' (GUR) and the pathways approaching these should be low-fenced to deter golfers from creating new 'desire lines' through them. Golfing trolleys could actually be banned from these areas.
- <u>Removal of brash</u>. Mowing of rough and carry should include the collection and removal of all brash and arisings, ie. these must not be 'flown' back into the habitat. Green-keepers should also be encouraged to compost green waste on-site.
- <u>Mowing regimes</u>. Mowing of rough should be undertaken on a cyclical rotation, whereby a mosaic of varied vegetation heights is continuously maintained. A proportion (approximately 2%) of rough should be maintained as bare ground. On principle mowing should generally be undertaken in the autumn to minimize disturbance to wildlife. Course managers who are obliged to mow during the summer months for whatever reason, should try to leave a significant proportion of rough uncut.
- <u>Re-seeding of rough</u>. When re-seeding or over-seeding becomes necessary, managers should always consider using a seed-mix appropriate to the natural character of the course, consisting of native grass and heathland species. Seeding material collected from a local heathland site would be ideal for this purpose. Besides benefiting wildlife, this will in the long term be cheaper to maintain.
- <u>Communication with golfers</u>. Notices explaining the need for management changes, for example temporary access bans, should be posted on clubhouse notice boards as well as non-intrusive signs on the course itself.
- <u>Interpretation</u>. The wildlife of the course should always be celebrated as an asset, for example by encouraging members to contribute to a course 'bird-list' and report other wildlife sightings; by displaying relevant wildlife interpretation literature; and hosting temporary displays or even illustrated talks by experts. Golf course logos or other symbolic devices could be designed to include references to the heathland wildlife of the course, for example using the 'flagship species' concept of the Heathland HAP.
- The encouragement of wildlife on golf courses should never be seen as compromising the skill and efficiency (in terms of player throughput) of the game, but rather as the careful modification of necessary management practices to mutually benefit both the course users (players and groundstaff), and the aims of biodiversity conservationists.

5.5 General Recommendations

5.5.1 Consultation

Heathland restoration and creation projects will require careful advance stakeholder, as well as more general public, consultation. It is always recommended that projects are planned to progress in phases, according to a flexible schedule that proceeds at a rate meeting with the broad acceptance of the public. Consultation and publicity might be achieved through erecting notices at sites or posting these on existing notice boards. Any locally distributed papers might also carry notices concerning specific projects. If strength of opposition requires it, public meetings might be held where conflicting views would be heard, and both ecologists and historians could argue the case for heathland recovery work. If considered more appropriate, key spokespeople could be invited to meet experts in a smaller, less intimidating forum.

Once underway, project sites should be clearly labelled to provide clear information concerning the principle aims and purpose of the project. Notices should also include contact details for further information, the logos of funding sources and, if appropriate, an appeal for voluntary assistance.

5.5.2 Cost savings

Opportunities for making savings in budgets for restoration and creation work should always be sought and actively pursued. Some examples have already been mentioned (see 5.1.3 above). A significant element in the cost of projects is spoil disposal. Green waste generated by tree and scrub removal, and mowing, may be composted on site. Quality topsoil, or even turves, may actually be sold to landscaping contractors, and could therefore be translated into a net income for a project.

Donating site managers may often agree to collect seeding material during routine management at no charge. The only cost then becomes that of transportation to the project site. Machinery may be loaned from neighbouring projects, or purchased by a consortium of project managers and operated as a management 'ring'. Visiting site managers may offer essential monitoring and expert advisory work 'in kind' for similar types of contribution towards their projects.

5.5.3 Strategy publicity

The main purpose of this Strategy is to facilitate the appropriation of dedicated funding for the implementation of heathland restoration and creation projects across Greater London. It is particularly hoped that the Strategy will kindle sufficient interest in halting the current decline of the habitat in London, such that new and unexpected funding sources, land owners or management agencies may be attracted towards helping in this aim.

For this to happen, the Strategy will require more widespread publicity as well as that targeted at specialists. To meet the interests of a more general audience, the Strategy will be available on the London Biodiversity Partnership and any related websites. It must also however, be brought to the attention of borough planners and environment committees, regeneration strategists, development agencies, landscape architects and ecological consultants, by whatever means become appropriate.

8. References

Tubbs, C. (1985). *Focus No 11 - The decline and present status of the English lowland heaths and their vertebrates*, English Nature (Peterborough).

London Biodiversity Partnership (2000). *The Audit: Volume 1 of the London Biodiversity Action Plan.*

London Biodiversity Partnership (2001). *The Action: Volume 2 of the London Biodiversity Action Plan.*

English Nature (1996). How to select land which is suitable for the re-creation of lowland heathland.

Gimingham, C H (1992). *The lowland heathland management handbook*, English Nature (Peterborough).

Pywell, R F (1991). *Heathland translocation and restoration* (In: *History and management of southern lowland heathlands*, 18-26). RSPB (Sandy).

Symes, N & Day J (2003). A practical guide to the restoration and management of Lowland Heathland, RSPB (Sandy)



Mike Waite

Appendix 1: London Biodiversity Action Plan - heathland audit

Borough	Site	Heathland Area (ha)	Comments
L.B. Barnet	Rowley Green Common	0.05	plus two smaller patches
Baylay	Lesnes Abbey Wood	1.2	
Dexiey	Joyden's and Chalk Woods	0.7	plus 6.3 ha. of 'potential' heathland
	Chislehurst Common	0.1	plus two smaller patches
	Crofton Woods	0	
Bromley	Hayes Common	4.8	plus several smaller scattered patches
Dionney	Keston Common	1.2	plus several smaller scattered patches
	St Pauls Cray Common Wood	1.3	
	Scadbury Park	0	
Camden Hampstead Heath (West, East and Sandy Heath)		0.9	in widely scattered patches
	Croham Hurst	0.3	plus 1.8 ha of 'potential' heathland
	Addington Golf Course & Shirley Heath	3.7	
Croydon	Addington Hills	4.0	plus 5.4 ha of 'potential' heathland
	Spring Park & Threehalfpenny Wood	0.2	
	Hall Grange	0.1	
Greenwich	Bostall Heath	1.1	Scattered plants within areas of acid grassland
	Grimsdyke Golf Course	-	No contact found
Harrow	Harrow Weald Common	0	
	Stanmore Common	6.9	
Hillingdon	Mad Bess Wood and Poor's Field	8.5	
Hounslow	Hounslow Heath	2.4	
Kingston upon Thames	Coombe Hill Golf Course	0.9	
Merton	Mitcham Common	1.5	
101011011	Wimbledon Common	12.0	
Richmond upon	Richmond Park	0	

Table: Heathland Areas within Greater London

Borough	Site	Heathland Area (ha)	Comments
Thames	Barnes Common	-	Small patch
	East Sheen Common	-	Only 1 heather plant
	Bushy Park	0	
Wandsworth	Wimbledon Common	28.0	
London Total	-	80 ha	

 NB: Sub totals may not add up to totals due to rounding. Sites with no heathland are included to highlight data received from site contact.

Appendix 2: Funding Sources

1. "Living Spaces" (www.living-spaces.org.uk)

Funded jointly by Groundwork and GreenSpace; this relatively new scheme is available to local groups to fund management of their local open spaces. The maximum grant is £25,000.

2. English Nature grants (www.english-nature.org.uk/about/grant.htm)

The *Wildspace!* grant scheme is available to managers of Local Nature Reserves, although the fund is heavily oversubscribed at present. All managers of sites declared as LNR (or proposed LNR) could apply for this scheme, which normally offers to cover 75% of the overall project costs. UK BAP priority habitats are especially favoured.

The English Nature *Reserves Enhancement Scheme* is aimed at voluntary sector organisations managing SSSI as nature reserves. 'Friends' conservation volunteer groups could apply for these grants, which run for five years and are primarily intended to contribute to the daily running of such sites.

Under Section 35(1)(c) of the Wildlife & Countryside Act, approved managing bodies of National Nature Reserves may apply for capital funding towards the improvement of reserve management, access and interpretation, through the *Capital Grants Scheme*. This would be available to the Management Committee of Ruislip Woods, and the Royal Parks Agency at Richmond Park.

3. Heritage Lottery Fund (www.hlf.org.uk)

The Heritage Lottery Fund is also a major potential source of grant aid. Perhaps the most appropriate scheme of several available is the *Habitat Action Plan Projects* (HAPPs) scheme. In essence, a grant awarded under HAPPs should directly and measurably contribute to the delivery of UK BAP targets through the conservation, restoration, re-creation and management of nationally important habitats. It is clearly designed to fund large and ambitious programmes, which are estimated to cost between £50,000-500,000. Only public or voluntary (charitable) bodies may apply for funding towards habitat restoration and management of a single or series of closely associated sites, either in their ownership or long-term (at least 10 years) management.

Applications for grants between £5,000-50,000 should be addressed to the Your Heritage scheme, to which successful applicants must contribute a minimum 10% of the total estimated project. There would appear to be more emphasis on the community benefits of heritage conservation and increased access through this scheme, although these aspects are emphasized in applications for HAPPs funding, too.

There are also small project grants, for example the *Local Heritage Initiative* (£3,000-15,000) and the *Awards for All* scheme (£500-5,000), which are aimed at assisting local community groups with specific projects benefiting local heritage conservation.

4. Countryside Stewardship Scheme

Defra runs the Countryside Stewardship Scheme (CSS). This grant scheme has been in operation on a number of heathland sites in Greater London, including Stanmore Common, St Paul's Cray and Chislehurst Commons, Hounslow Heath, Hayes Common, and Putney Heath/Wimbledon Common. CSS aims to improve the diversity of the countryside; enhance, restore and recreate targeted landscapes and their wildlife habitats, and to improve opportunities for public access. It operates outside Environmentally Sensitive Areas (ESAs). CSS ends in 2004, however, to be replaced by two new schemes starting in 2005 under the collective title of Environmental Stewardship (ES). ES will consist of the Entry Level Scheme (ELS) aimed at basic environmental measures, and the Higher Level Scheme (HLS) which will broadly parallel the old CSS in targeting more specialised areas. The HLS will have a tiered system of grants for maintenance, restoration and creation of habitats.

Land managers will enter a 10-year agreement to manage land in an approved way in return for annual payments. Grants are also available towards capital works such as fencing. Eligible landscape types include lowland heath, historic features, countryside around towns and new permissive access. Land management payments are made annually, and capital payments on completion of work.

ES will be open to land owners and managers, including voluntary bodies, local authorities and community groups. The Scheme is discretionary and not all applications will be accepted. Defra will give priority to projects affecting land in a target area; which contribute to national targets for habitats or species listed in Biodiversity Action Plans; and/or provide opportunities for people to enjoy the benefits and cover land in an urban fringe of high local amenity value. Grants are also more likely to be awarded if plans represent a positive change in management, are realistic and achievable, are well researched and are supported by environmental bodies.

5. Other potential funding sources

- European Union LIFE Fund (www.defra.gov.uk/environment/life)
- Aggregates Levy Sustainability Fund (English Nature)
- Landfill Tax Credit Scheme (www.ltcs.org.uk)
- English Heritage
- Town & Country Planning Act 1990, Section 106 (Planning) Agreements

Phase:	Operation:	Cost/0.25 ha (2500m ²):
Site preparation	Hand clearance of woody vegetation (scrub/secondary woodland)	£150
, ,	Harrowing/ripping/rolling	£180
	Soil stripping (depth 5cm)	£600
	£900	
	Disposal of spoil	£245/mile
Seeding	Collection & spreading of cuttings	£250
	Transport of cuttings	£25/mile
	Rolling-in	£180
Aftercare	Herbicide application	£75
(per annum)	Hand pulling of invasives	£180
	Topping & arisings disposal	£150
Other	Fencing	£1.25/metre
	Professional monitoring	£200/day
	Consultation/Interpretation	£800/site

<u>Appendix 3</u>: Costing restoration and creation projects:

Borough	Site	Plants	Invertebrates	Vertebrates
Barnet	Rowley Green Common	Calluna vulgaris; Cladonia spp.; Genista anglica; Vaccinium myrtillus; Sphagnum spp.; Carex echinata; Veronica scutellata; Molinia caerulea; Eleogiton fluitans	Lestes sponsa	
Bexley	Lesnes Abbey Wood	Calluna vulgaris		Lacerta vivipara; Tree pipit
	Joyden's/Chalk Woods	Calluna vulgaris; Erica tetralix, E. cinerea; Cladonia spp.; Molinia caerulea; Sphagnum spp.		Tree pipit
Bromley	Chislehurst Common	Calluna vulgaris		
	Hayes Common	Calluna vulgaris; Erica cinerea; E. tetralix; Ulex minor; Cladonia spp.; Juncus squarrosus; Pedicularis sylvatica	Ammophila sabulosa	Vipera berus
	Keston Common	Calluna vulgaris; Erica tetralix; Vaccinium myrtillus; Hydrocotyle vulgaris; <u>Carex binervis</u> ; C. echinata; Sphagnum spp.; <u>Eriophorum angustifolium;</u> <u>Narthecium ossifragum</u>		
	St Pauls Cray Common	Calluna vulgaris; Erica cinerea; E. tetralix; Cladonia spp.; Molinia caerulea		
	West Wickham Common	Calluna vulgaris		
Camden	Hampstead Heath	[Calluna vulgaris; Erica tetralix, E. cinerea;] Ulex minor; Vaccinium myrtillus; Cladonia spp.; Juncus squarrosus; Molinia caerulea; Salix repens; Sphagnum spp.; Equisetum fluviatile; Carex demissa	<u>Atypus affinis</u>	
Croydon	Croham Hurst	Calluna vulgaris; Vaccinium myrtillus; Erica cinerea; Salix repens		
	Addington Golf Courses	Calluna vulgaris; Erica cinerea; <u>Potamogeton</u> polygonifolius		Triturus helveticus
	Addington Hills	Calluna vulgaris; Erica cinerea; Cuscuta epithymum; Blechnum spicant; Juncus bulbosus; Carex echinata		Vipera berus?
	Shirley Heath	Calluna vulgaris; Erica cinerea; Sphagnum spp.; Viola palustris; Blechnum spicant		
	Hall Grange	Calluna vulgaris; Erica cinerea; Cladonia spp.; Sphagnum spp.; Viola palustris		

Table 1. Presence of key species on London's heathland sites [Species underlined may represent their only locality in Greater London]

	Coulsdon Common	Calluna vulgaris		
Greenwich	Bostall Heath	Calluna vulgaris		
Harrow	Harrow Weald Common	Calluna vulgaris; Juncus squarrosus; J. bulbosus; Blechnum spicant; Hydrocotyle vulgaris; Sphagnum spp.	<u>Cordulia aenea;</u> Callophrys rubi	
	Stanmore Common	Calluna vulgaris; Dactylorhiza maculata; Hydrocotyle vulgaris; Molinia caerulea; Sphagnum spp.; Cladonia spp.	Hoplia philanthus; Cixius similes; <u>Bombus jonellus</u> ; (plus many more scarce and regionally uncommon species)	
Hillingdon	Mad Bess Wood/Poor's Field	Calluna vulgaris; Genista anglica; Dactylorhiza maculate?; Ulex minor; Pedicularis sylvatica		Vipera berus
Hounslow Hounslow Heath		Calluna vulgaris; Erica cinerea; E. tetralix; Genista anglica; Ulex minor; Cladonia spp.; Juncus squarrosus; Molinia caerulea; Pedicularis sylvatica	Lestes sponsa; Pavonia pavonia; (plus many Hymenoptera)	Vipera berus; Lacerta vivipara; Anguis fragilis; Linnet; Skylark; Dartford warbler & Stonechat (wintering only)
Kingston	Coombe Hill Golf Course	Calluna vulgaris; Erica cinerea; Juncus squarrosus; Salix repens		
Merton Mitcham Common		Calluna vulgaris; Genista anglica; Ulex minor; Cladonia spp.; Molinia caerulea	Many - see Morris, 1997; Lees, 1992	Linnet; Skylark
	Wimbledon Common		(see below)	
Redbridge/ Waltham Forest	Epping Forest/Wanstead Flats	Calluna vulgaris; Juncus squarrosus; minor; Genista anglica Diodontus insidiosus; Philan triangulum		Skylark
Richmond	Richmond Park	Calluna vulgaris; Molinia caerulea; Juncus squarrosus; Ulex minor	Aculeate hymenoptera (inc. 9 RDB species)	Lacerta vivipara
	Barnes Common	Calluna vulgaris; Salix repens; Molinea caerulea	Philanthus triangulum	
	East Sheen Common	[Calluna vulgaris – extinct]		
Wandsworth/ Merton	Putney Heath/ Wimbledon Common	Calluna vulgaris; Erica cinerea; E. tetralix; Ulex minor; Cladonia spp.; Juncus squarrosus; J. bulbosus; Molinia caerulea; Hydrocotyle vulgaris; Salix repens; Sphagnum spp.; Eleogiton fluitans; <u>Oreopteris</u> <u>limbosperma</u> ; Carex echinata; Rhynchospora alba?; Menyanthes trifoliata; Lythrum portula; Cuscuta epithymum; <u>Pallavicinia lyellii</u> (Veilwort)	Lestes sponsa; <u>Aeshna juncea;</u> <u>Sympetrum danae; Orthetrum</u> <u>coerulescens; C</u> icindela campestris; Pavonia pavonia	Lacerta vivipara; Triturus helveticus; Skylark; Hobby

Borough	Site	Site-manager (s)	Grant aid?	Key problems	Management achievements *note where RESTORATION begun
Barnet	Rowley Green Common	H&MWT/LWT		 Advanced stage of succession Drying-out & eutrophication of bog Lack of funding/labour 	 Trial Calluna RESTORATION plots Bog RESTORATION
Bexley	Lesnes Abbey Wood	LA/local conservators	CSS	 Scrub & bracken invasion Lack of funding/labour Arson 	 RESTORATION (topsoil-stripping, seeding) Bracken control
	Joyden's & Chalk Woods	Woodland Trust/FA	CSS	Conifers & scrub invasionStump removal (conifer)Recreational intensity	• RESTORATION (exclusion fencing)
Bromley	Chislehurst Common	LA/local conservators		Scrub & bracken invasionRecreational intensity	Scrub control
	Hayes Common	LA/local conservators	CSS; WGS	 Scrub invasion Lack of funding/labour Arson 	 RESTORATION (scarifying & seeding) Scrub control
	Keston Common	LA/local conservators	WGS; EN	 Advanced stage of succession Scrub & bracken invasion Drying-out of bog Lack of funding/labour Arson 	Bog RESTORATION Scrub & bracken control
	St Paul's Cray Common	LA/local conservators	CSS	 Scrub & bracken invasion Recreational intensity Arson 	RESTORATION Bracken control
	West Wickham Common	Corp. of London/local conservators		Advanced stage of successionArson	Scrub control
Camden	Hampstead Heath	Corp. of London/local conservators		 Vandalism Recreational intensity Nutrient levels Local intransigence 	 CREATION (topsoil-stripping, seeding) Bog RESTORATION
Croydon	Croham Hurst	LA/Bioregional Development Group/local conservators	WGS	 Scrub invasion Recreational intensity 	 RESTORATION (topsoil-stripping, seeding) Scrub control Tree removal
	Coulsdon Common	Corp. of London		Advanced stage of successionLocal intransigence (anti-fencing)	• Scrub control

 Table 2. Key heathland sites - summary of management issues

	Shirley Heath	LA		 Recreational intensity Scrub & bracken invasion 	Scrub & bracken control
	Spring Park	Corp. of London		Advanced stage of succession	
	Addington Hills	LA		 Advanced stage of succession Scrub invasion Recreational intensity 	 Scrub control RESTORATION (clearance, topsoil- stripping, seeding & exclusion fencing)
	Bramley Bank	LA/LWT	HLF?	 Advanced stage of succession Scrub invasion 	Scrub control
	Hall Grange	Private		 Development threat Drying-out of bog	
Greenwich	Bostall Heath	LA		 Advanced stage of succession Lack of funding/labour Arson 	Scrub control
Harrow	Harrow Weald Common	LA/local conservators		 Advanced stage of succession Vandalism 	
	Stanmore Common	LA/H&MWT/ local conservators	CSS	 Scrub & bracken invasion Drying out of bog Lack of funding/labour 	 Trial Calluna RESTORATION plots Bracken control Scrub rotational control
Hillingdon	Ruislip Woods & Poor's Field	LA		Public/grazing interactions Grazing pressure	Grazing management
Hounslow	Hounslow Heath	LA/Leisure Trust	CSS; EN	 Scrub invasion Recreational intensity Arson & vandalism Habitat eutrophication 	 Scrub control RESTORATION (turf translocation, topsoil stripping & seeding) Exclusion fencing & grazing
Merton	Mitcham Common	LA/local conservators		 Lack of funding Scrub invasion Habitat eutrophication Arson 	Scrub control RESTORATION (topsoil stripping & seeding)
Redbridge/ Waltham F.	Epping Forest	LA/local conservators		 Scrub invasion Recreational intensity Arson & vandalism 	RESTORATION (topsoil stripping on previously burnt area)
Richmond	Richmond Park	Royal Parks Agency		 Scrub & bracken invasion Over-grazing (by deer) Habitat eutrophication 	RESTORATION (exclusion fencing) Bracken control
	Barnes Common	LA/local conservators		 Advanced stage of succession Recreational intensity 	Scrub control

	East Sheen Common	LA/local conservators		• Advanced stage of succession	•
Wandsworth /Merton	Putney Heath/Wimbledon Common	Boroughs/LWT/ local conservators	CSS	 Scrub invasion Falling water-table Bog desiccation Recreational intensity Lack of funding/labour Local intransigence (anti-fencing) 	 Scrub control (mowing) Controlled burning Bog RESTORATION (Farm Bog)

Borough	Site	Extant site area (ha)	Restor -ation area (ha)	Estimate- d cost (£)	Overall diversity	Resistan -ce to change	Optimu- m mgmt likely	Priority tranche
Bromley	Hayes Common	3	10.9	217,890	high	medium	high	
	Keston Common	1.5	2.08	70,640	high	medium	high	
Wandsworth/	Putney Heath/Wimbledon	40	8.3	84,750	high	medium	high	1*
Merton	Common & Golf Courses							
Hounslow	Hounslow Heath	3.9	4	90,935	high	medium	high	
Croydon	Addington Hills	6.4	3.15	50,315	medium	medium	high	2
Merton	Mitcham Common	1.5+	1.1	18,550	high	medium	high	
Bromley	St Pauls Cray Common	2.25	0.4	10,700	medium	medium	medium	
Harrow	Stanmore Common	<1	2	28,000	medium	medium	medium	3
Bexley	Lesnes Abbey Wood	1	0.5	12,215	low	high	medium	
Bromley	West Wickham Common	<1	0.65	15,745	low	medium	medium	
	Chislehurst Common	<1	1.05	25,785	low	medium	low	
Camden	Hampstead Heath	<1	0.42	37,555	low	high	medium	_
Croydon	Croham Hurst	<1	2.6	23,105	low	high	medium	4
	Shirley Heath	<1	0.3	9,300	low	medium	low	
Greenwich	Bostall Heath	1.1	1.4	29,305	low	high	low	
Barnet	Rowley Green Common	<1	0.25	7,850	medium	medium	medium	
Croydon	Coulsdon Common	<1	0.45	12,195	low	high	low	5
		Totals	39.55	744,835				* highest

Table 3. Potential restoration sites

Borough	Site	Area (ha)	Cost (£)	Existing land-use	Existing habitat	Status	GR (TQ)
Brent	Fryent Country Park			Public Open Space	Acid grassland	SMI	194 878
	Gladstone Park			Public Open Space	Acid grassland	SBII	220 858
Bexley	Franks Park			Public Open Space	Woodland/Acid grassland	SBI	500 787
Barnet	Hadley Green			Public Open Space	Acid grassland	SMI	246 973
	Monken Hadley Common			Public Open Space	Acid grassland	SBI	263 972
	Scratchwood	0.25	7,650	Public Open Space	Acid grassland	SMI/LNR	200 946
Bromley	Scadbury Park	0.5	10,000	Public Open Space	Acid grassland/ Parkland	LNR/SMI	449 695
	Farnborough Common			Public Open Space	Woodland/Acid grassland	SBII	427 652
	Pett's Wood	1.5		National Trust	Woodland	SMI	452 685
Croydon	Bramley Bank			Public Open Space	Woodland/Acid grassland	SBI	355 634
Greenwich	Blackheath			Public Open Space	Neutral/Acid grassland	SMI	390 765
	Greenwich Park			Royal Park	Acid grassland/ Parkland	SMI	390 773
Havering	Ingrebourne Valley			Various		SBI	-
Hounslow	Bedfont Lakes Country Park			Public Open Space	Neutral/Acid grassland	LNR/SMI	081 726
	De Brome Playing Fields	5		Public Open Space	Amenity grassland	pSBII	
	Hanworth Park	10		Public Open Space	Acid/Amenity grassland	SBII	115 724
	Thornbury Playing Fields	1		Public Open Space	Amenity grassland	pSL	
Lambeth	Streatham Common			Public Open Space	Neutral/Acid grassland		311 708
Merton	Cranmer Green	1	24,275	Public Open Space	Neutral/Acid grassland	SBII/LNR	279 681
Redbridge	Fairlop Country Park			Public Open Space	Neutral/Acid grassland	SBI	460 905
	Fairlop Plain			Gravel/agricultural		SBI	472 910
	Hainault Forest CP			Public Open Space			478 930
Richmond	Richmond Park			Royal Park	Acid grassland	SSSI/NNR	200 730
	Barnes Common	1.5	36,030	Public Open Space	Neutral/Acid grassland	LNR/SMI	223 758
	Bushy Park			Royal Park	Acid grassland	SMI	158 699
Sutton	Beddington land-fill site			Land-fill		SMI	292 664
Wandsworth	Wandsworth Common			Public Open Space	Neutral grassland/Scrub	SBI	274 740
	Tooting Bec			Public Open Space	Neutral/Acid grassland	SMI	292 724
	Wandsworth Cemetery			Cemetery	Neutral/Amenity grassland	SBII	264 734
	Totals (identified)	20.75	77,955				<u>.</u>

Table 4. Potential creation sites

Status key: SMI/SBI/SBI/SBI/SLI=Metropolitan/Borough/Local SINC; NNR/LNR=National/Local Nature Reserve; SSSI=Site of Special Scientific Interest; p = proposed

Borough	Course	SINC
5		status
Croydon	Addington GC	SMI
	Addington Palace GC	SMI
Bexley	Bexleyheath GC	SBI
Bromley	Sundridge Park GC	SBI
Harrow	Grim's Dyke GC	SMI
Hillingdon	Northwood GC	SBI
	Haste Hill GC	SBI
Richmond	Twickenham Park GC	SBII
	Fulwell GC	SBII
	Strawberry Hill GC	SBII
Kingston	Coombe Wood GC	SBII
	Coombe Hill GC	SMI
Merton	Royal Wimbledon GC	SMI
	London Scottish GC/Wimbledon GC	SMI
	Mitcham GC	SMI

Table 5. Golf courses in Greater London supporting relict heathland

Table 6.	Golf	courses	in	Greater	London	sup	porting	acid	grass	and	l

Borough	Course	SINC
		status
Greenwich	Shooter's Hill GC	SBI
	Eltham Warren GC	SBI
	Royal Blackheath GC	SMI
Bromley	Chislehurst GC	SBI
	Shortlands GC	SBII
	Langley Park GC	SBII
Lewisham	Beckenham Place Park GC	SMI
Redbridge	Wanstead GC	SMI
Havering	Romford GC	SBI
Waltham Forest	Woodford GC	SMI
Enfield	Crew's Hill GC	SBI
Ealing	Horsenden Hill GC	SMI
	West Middlesex GC	SBI
	Perivale Park GC	SBI
	Ealing GC	SBI
Richmond	Royal Mid-Surrey GC	SBI
	Richmond GC	SMI
	Richmond Park GC	SMI
	Home Park GC	SMI



MAYOR OF LONDON

