BERKSHIRE HEATHLAND BIODIVERSITY ACTION PLAN 1999 - 2005

(Incorporating species action plans)

04/06/1998

Produced on behalf of the Berkshire Heathland Project

Berks, Bucks & Oxon Naturalists' Trust

Berkshire Heathland Biodiversity Action Plan Executive Summary

- **Berkshire's lowland heathland forms an important element of the UK's and Europe's heathland resource. As such we have a duty to maintain and enhance what remains and restore and re-create suitable areas within the historic range.**
- **The Berkshire Heathland Project, along with significant work by BBONT and Bracknell Forest, achieved a great deal toward this goal during the period 1993 – 1997. 177 ha of heathland were restored, re-created or discovered during this period, bringing the total heathland for the county to approximately 314 ha by spring 1998.**
- **Part of the aim of the BHP was to identify those areas with potential for restoration or re-creation. 386 ha of heathland, on 46 sites, were identified as having potential for restoration or re-creation. The Berkshire Nature Conservation Forum decided that a heathland BAP was the most effective way in which to progress. Table A-1, over, shows the targets by Unitary Authority.**
- **To achieve these targets this Biodiversity Action Plan identifies the sites where work is required, discusses the major issues affecting heathland in Berkshire and suggests broad actions to address them.**
- **The fine detail of site individual management is not the realm of this BAP. This level of detail should be incorporated into Local Biodiversity Action Plans.**
- **The 8 Species Action Plans (SAPs) serve the dual purpose of directing action towards our most high profile and characteristic heathland species and providing a guide for the format of subsequent Local SAPs.**

Figure A-1 Current and potential Heathland in Berkshire 1998

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What is lowland heathland?

Lowland heathland is characterised both by the presence of dwarf ericaceous species such as heather (*Calluna vulgaris*), gorses (*Ulex spp)* and cross-leaved heath (*Erica tetralix*) and by the 'typical' gently undulating landscape forms associated with it. It is generally found below 300 metres in altitude on nutrient poor mineral soils. Areas of high quality lowland heathland will not be solely composed of vast tracts of heather. They will be composed of an ericaceous layer of varied height and structure, some areas of scattered trees and scrub, areas of bare ground, gorse, wet heath, bogs and open water[*]. Lowland heathland is generally considered to be anthropogenic in origin, a product of traditional pastoral activities and the exercising of commoner's rights such as bracken collecting, turf cutting, grazing, firewood collection etc.

For the purposes of this document 'heathland' will refer to dry heath, wet heath and valley mires where they occur.

In Berkshire lowland heathland is often associated with coniferous plantation. Almost all currently extant lowland heathland is adjacent to or within coniferous plantation. Afforestation has, in the past, affected large areas of heathland, however, such sites often retain a significant vestigial heathland flora and fauna that survives along rides, in clearings and in recently felled areas. Such areas respond very well to restoration to open heathland. For this reason coniferous plantation is an important associated habitat.

Why is lowland heathland important?

International distribution
The lowland heathland that occurs in the British Isles is of a type found (with regional variations) only along the western fringes of continental Europe. The 'oceanic' climate, characterised by mild winters and relatively high rainfall throughout the year, favours the formation of heathland habitats if the required acidic and nutrient poor substrates are present. The range of species found on these western European oceanic heathlands are unique and can often be very diverse.

Historical decline
Up until the mid-1800s the area of lowland heathland in the UK was still increasing. However, at about this time advances in agricultural fertilisers and machinery turned the tide as heathland was converted for agricultural production. Extensive tracts of heathland were agriculturally improved or planted for timber. Agricultural improvement and afforestation were joined by urbanisation, cessation of traditional management, mineral extraction and road building as the major causes of loss after 1945.

In addition to contributing to UK heathland Berkshire's lowland heathland is also important for several other reasons:

- ***Species***

Three internationally important bird species are found on the Berkshire heathlands, Dartford Warbler, Nightjar and Woodlark. Many of the other species found on our heathlands are uncommon or absent outside of this habitat. Such species include Adder, Common Lizard, Round and Long-leaved Sundews, Silver-studded Blue butterfly, Bog Bush-cricket, Small Red Damselfly, Hobby, Tree Pipit and Stonechat.

- ***Landscape/recreation***

The open, somewhat 'desolate' nature of even a small heathland site provides the public with a 'wilderness experience', something that is difficult to find in today's substantially urban environment. Lowland heathland has a long history of relatively open public access due to common land status, public ownership and occasionally charitable ownership.

- ***Historical/cultural value***

Berkshire heathland is the result of many thousands of years of continuous management and use. From the times of the first woodland clearances, construction of the fortress at Caesar's Camp, the Devil's Highway constructed during the Roman occupation, the various commons and poors' allotments used for fuel, grazing, bedding, building materials etc. Only in the last century has the cycle of management and use been replaced by destruction, damage and neglect. Those areas that remain are a valuable link to the past

[*] National BAP Heathland Action Plan UKBAPSG 1995.

1 CURRENT STATUS

1.1 In Europe

The total European lowland heathland resource is about 290,000 hectares. Mainland Europe accounts for some 80% of the total area of this heathland – approximately 232,000 hectares found from the Netherlands to northern France. Heathland loss on mainland Europe has been as extensive or greater than that in the UK.

1.2 Statutory recognition

Dry and wet heaths are listed under Annex I of the EC Habitats Directive. Several sites in the UK, including Windsor Forest, have been put forward for Special Area of Conservation (SAC) status under this legislation. Lowland heathland species are listed under the Habitats Directive (e.g. Sand Lizard), the Birds Directive (e.g. Dartford Warbler and Woodlark)

1.3 Berkshire heathland in the European context

Two of Berkshire's heathlands are recognised as having European importance due to the internationally important bird species which they support. Several SSSI sites in Berkshire, Surrey and Hampshire, form the proposed Thames Basin Heaths Special Protection Area (pSPA), notification being due to the presence of internationally important breeding populations of Nightjar *(Caprimulgus europaeus*), Woodlark (*Lullula arborea*) and Dartford Warbler (*Sylvia undata*). The Thames Basin Heaths pSPA will eventually form part of the network of Natura 2000[*] sites across Europe.

1.4 In the United Kingdom

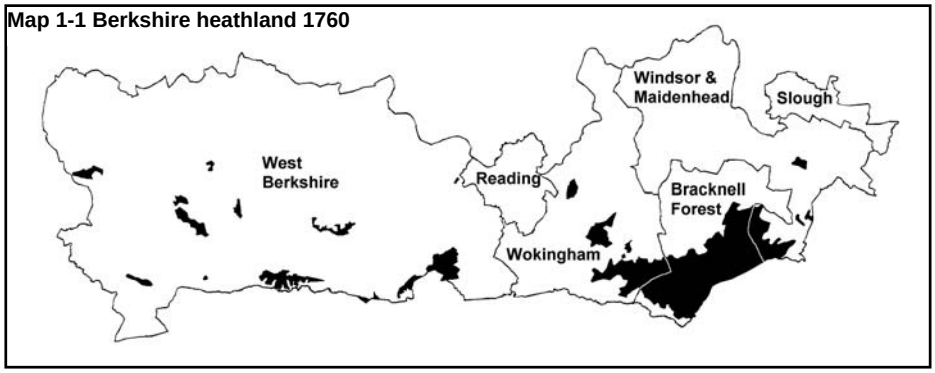
The United Kingdom has about 58,000 hectares of lowland heathland. The most significant areas for lowland heathland include the counties of Hampshire, Cornwall, Dorset, Surrey, Devon, Staffordshire, Suffolk, Norfolk, Pembrokeshire, West Glamorgan and west Gwynedd[†]. The greatest proportion (55% or 31,900 hectares) is found in England. Less than 17% of the (approx.) 191,400 hectares of English lowland heathland present in 1800 now remains.

1.5 In Berkshire

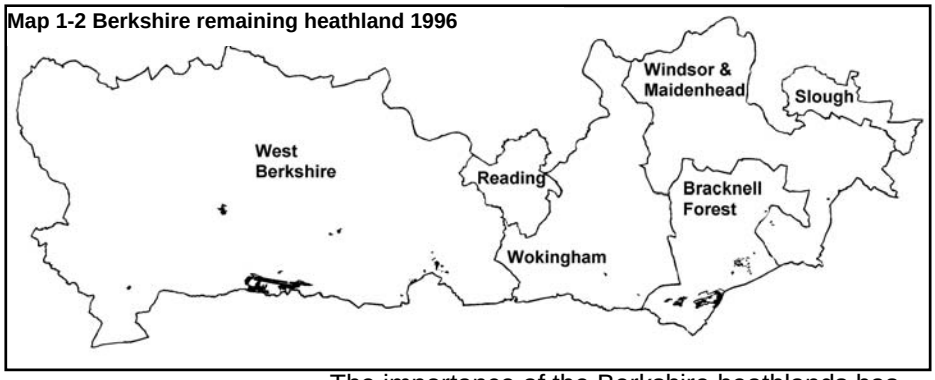
The Berkshire heaths, together with the Buckinghamshire heaths (Stoke Common SSSI, Burnham Beeches NNR[‡] and Black Park SSSI) represent the northern and western extension of a broad band of heathland running along the edge of the Thames basin through Hampshire and into Surrey.

The greatest extent of heathland in Berkshire is estimated to have been 14,933 hectares in around 1761[§]. The current extent of heathland (December 1997) is 314.1 hectares[**], 2% of the former extent, 98% (approx. 14,618 hectares) having been lost or degraded. Maps 1-1 and 1-2, below, illustrate this loss.

Map 1-1 Berkshire heathland 1760



Map 1-2 Berkshire remaining heathland 1996



The importance of the Berkshire heathlands has long been recognised by Local Authorities and conservation bodies and led to the establishment of the Berkshire Heathlands Project (BHP). The BHP ran from January 1994 to December 1997 under the management of the Berkshire Nature Conservation Forum. Its primary role was to

[*] Natura 2000 is a Europe Wide network of SPAs and SACs forming the core European biodiversity.
[†] UKBAP Heathland Action Plan UKBAPSG 1995
[‡] NNR – National Nature Reserve
[§] A Heathland Recreation Plan for Berkshire Dolphin Ecological Surveys Jan. 1995
[**] BHP Final Report BHP Dec. 1997

foster the sympathetic management and understanding of Berkshire's heathland.

1.6 In the London Basin Natural Area,

Berkshire has 7 SSSIs which are primarily heathland sites, these are:

- Broadmoor to Bagshot Woods and Heaths
- Greenham Common
- Inkpen Common
- Longmoor Bog
- Sandhurst to Owlsmoor Bogs and Heaths
- Snelsmore Common
- Wellington College Bog

a further 5 SSSIs have a significant heathland element. These are:

- Decoy Pit, Pools & Woods
- Englemere Pond
- Swinley Park & Brickpits
- Windsor Forest & Great Park (parts of)
- Wasing Wood & Ponds

These heathlands all fall into the London Basin Natural Area and are recognised as a key habitat type. The concentration of heathland of such high value for wildlife in Berkshire, north Hampshire and north Surrey has been described as a prime area for biodiversity.[*]

In addition to the above there are several heathland sites (some of these are open heathland, some are pine plantation or other land use) which have considerable wildlife value and are recognised as WHSs. These include:

- Brimpton Common (part SSSI)
- Bucklebury Common
- Finchampstead Ridges
- Padworth Common
- Wokefield Common
- Crowthorne Woods (part)

Further relict and degraded heathland areas still retain vestigial heathland species including, on some sites, breeding populations of internationally important birds. These include:

- Gorrick Plantation
- Crowthorne Woods (part)
- Thornhill Golf Course

The currently recognised statuses of the above sites are subject to periodic review and revision.

All of Berkshire's open heathland (314.1 ha) falls into the London Basin Natural Area. Also included in this Natural Area are 900 ha of Hampshire's heathland and in excess of 2,000 ha of Surrey heaths. Whilst a small part of the total picture, the Berkshire heathlands are a significant component of this Natural Area. The extent of open lowland heathland in the whole of the Natural Area is in excess of 3,200 ha. (This figure is an estimate and includes habitats such as dry heath, wet heath, lichen heath, mires and some acid grassland within heathland sites.)

1.7 In the Unitary Authorities

All of Berkshire's Unitary Authorities (UAs), with the exception of Slough Borough, have some open heathland. The totals are as follows.

Table 1-1 Open heathland area

Unitary Authority	Area (ha)
West Berkshire	142.8
Bracknell Forest	149.5
Wokingham	17.1
Windsor & Maidenhead	4.45
Reading	0.25
	314.1

The figure 1-1 shows the distribution of open heathland amongst the five UAs where it exists. It is evident that West Berkshire and Bracknell Forest contain over 90% of the heathland resource of the county. Open heathland is that where a heathland flora occurs, free of extensive scrub, bracken and trees. Such areas are under active management which retains their open nature.

Figure 1-1 Open Heathland area (% of 314.1 ha) by Unitary Authority

Figure A-1, previously, illustrates the heathland that could be restored or re-created in Berkshire. Currently open heathland accounts for only 45% of the potential heathland of the county, about 700 ha.

Table 1-2 Berkshire heathland – current and potential

Table 1-2 on the following pages lists all known heathland sites in Berkshire, by Unitary Authority. Details of total area, heathland area, area of mire, ownership, use and status is included.

[*] London Basin Natural Area Profile EN Oct. 1997

Table 1-2 Heathland Sites in Berkshire						
Site name	**Total site area (ha)**	**Total heathland area (ha)…**	**..of which mire area is (ha)**	**Landowner/ manager**	**Primary land use(s)**	**Designations**
Bracknell Forest						
Sandhurst to Owlsmoor Bogs & Heaths	85	35	11.4	BBONT, Bracknell Forest	Nature reserve	SSSI*, LNR†, WHS‡, pSPA§
Broadmoor to Bagshot Woods & Heaths	526	50.5	17.1	MOD, BBONT, Crown Estate	Nature reserve, Military training, Forestry	SSSI, WHS, pSPA
Wellington College Bog	6	4	0.2	Wellington College	Nature reserve	SSSI, WHS
Berkshire Golf Club	165	12	0	Berkshire Golf Club	Golf course	
Swinley Forest Golf Club	67	10	0	Swinley Forest Golf Club	Golf course	
Englemere Pond	26	0.5	relict	Crown Estate	Nature reserve, Forestry	SSSI, LNR, WHS
Crowthorne Woods	500	14	1	Forest Enterprise, Crown Estate	Forestry	WHS
King's Ride	1.5	1	0	Crown Estate	Forestry	
Edgebarrow Hill & Heath	33	0.4	0	Wellington College	Forestry	WHS
Rapley Lakes	30	0.1	0.1	Crown Estate	Forestry	SSSI, WHS
Caesar's Camp	14	7	0	Crown Estate	Archaeological site	Scheduled Ancient Monument
Swinley Brick Pits	22	14	4	Crown Estate	Forestry	SSSI, WHS
Old Bagshot Road Picnic Site	5	relict	0	Crown Estate	Forestry	WHS
Beaufort Park	3	1	0	Met. Office	Nature Reserve	WHS
Wellington College Golf Course	25	relict	0	Wellington College	Golf Course	
Total	**1508.5**	**149.5**	**33.8**			
West Berkshire						
Bucklebury Common	316	19.3	0	Bucklebury Estate	Forestry, nature conservation	WHS
Snelsmore Common	103	23.15	1.4	West Berkshire Council	Nature Reserve	SSSI, LNR, WHS
Padworth Common	35	12.4	0	West Berkshire Council	Nature Reserve	WHS
Greenham Common (including airbase)	286	60	relict	West Berkshire Council	Nature Reserve	SSSI, WHS
Wokefield Common	58	2.65	0	Private	Forestry	WHS
Inkpen Common	12	2.3	1	BBONT, Poors' Allotment	Nature Reserve	SSSI, WHS
Decoy Heath	18	2.5	0.5	BBONT	Nature Reserve	SSSI, WHS

* SSSI – Site of Special Scientific Interest
† LNR – Local Nature Reserve
‡ WHS – Wildlife Heritage Site
§ pSPA – proposed Special Protection Area

Site name	Total site area (ha)	Total heathland area (ha)…	..of which mire area is (ha)	Landowner/ manager	Primary land use(s)	Designations
Bowdown & Chamberhouse Woods	67	0.5	0	BBONT	Nature reserve	SSSI, WHS
Aldermaston AWRE	200	8	0	MOD	Research installation	WHS
Sole Common/ Sole Common Pond NR	2	1	1	Private, BBONT	Forestry, Nature reserve	WHS
Wasing Wood Ponds	12	5	relict	Private		SSSI, WHS
Fields East of Cowpond Piece	5	2	0	Private		WHS
Frilsham Common	1	0.5	0	Private	Forestry	WHS
Upper Moors Gully/Heath	5	3	0	Private		WHS
Wickham Heath & Hermitage Woods	500	0	0	Private	Forestry	
Valentine's Wood	2.3	0.5	0	Private	Forestry	WHS
Englefield Estate (inc. Cowpond piece & Gibbet Piece, , Ufton Common Island Farm, Gravelly Piece & Poor's Allotment.)	300	0	0	Private	Forestry	WHSs (part)
Total	**1922.3**	**142.8**	**4.1**			
Wokingham						
Longmoor Bog	13.7	3.7	0.7	Wokingham, Private	Nature reserve	SSSI, LNR, WHS
East Berks. Golf Course	30	0.5	0	East Berks. Golf Course	Golf Course	
Heath Lake	22	0.3	0	Wokingham	Nature reserve	SSSI, WHS
Finchampstead Ridges	54.5	6	relict	National Trust	Nature reserve	WHS
High Wood	16	1	0	Wokingham	Nature reserve	WHS
Shepperlands Farm	7.5	2	relict	Private	Nature reserve	WHS
Springfield House	5	1.25	relict	Private		
Silverstock Bog	20	1	0	Private		WHS
Woodcray Golf Course	70	0.25	0	Private	Golf Course	
Bearwood Golf Course	100	1	0	Bearwood College	Golf Course	
Total	**338.7**	**17**	**0.7**			
Windsor & Maidenhead						
Windsor Great Park	350	2.5	0	Crown Estate	Royal Park	SSSI, WHS, cSAC*
Ascot Race Course	37	2	0	Ascot Race Course	Race Course	WHS
Total	**387**	**4.5**	**0**			
Reading						
McIlroy's Park & Lousehill	15	0.25	0	Reading	Nature reserve	WHS
Total	**15**	**0.25**	**0**			

* cSAC – candidate Special Area of Conservation

2 CURRENT ISSUES AFFECTING THE HABITAT

2.1 Europe wide issues

The main issues affecting lowland heathland today are much the same across Europe. The following are in no significant order.

- Encroachment of trees, scrub and bracken (*Pteridium aquilinum*).
- The simplification of vegetation structure due to the cessation of traditional management techniques such as grazing, cutting, turf stripping and controlled burning.
- Fragmentation and disturbance from developments such as housing, industry and roads.
- Nutrient enrichment, particularly due to intensive livestock farming and from atmospheric pollution, the former is not currently an issue in Berkshire.
- Agricultural improvement (this is no longer thought to be an issue in Berkshire).
- Inappropriate management
- Uncontrolled fires
- Afforestation
- Lack of public appreciation of heathland and its management requirements.

2.2 Major issues in Berkshire

There are several issues which can be highlighted as currently having a particular impact in Berkshire. These can be split into the following categories:

Loss of sites and adjacent land

- Fragmentation of and encroachment upon heathland by developments such as housing (eg, Broadmoor Bottom and Valentine's Wood) and roads (eg, Wildmoor Heath).
- Afforestation of former heathland sites (eg, Windsor Forest, Crowthorne Woods, etc.)
- Inappropriate recreational use of heathlands such as conversion to golf courses and use for motorbike scrambling.

Decline of nature conservation interest

- Encroachment of trees and scrub due to neglect, lack of resources and, in the case of mires, a lowering of water tables (most heathland sites).
- Uncontrolled summer fires have a dramatic effect on both the heathland flora and fauna (most heathland sites).
- Increased pressure from various public activities. Walking, bird watching, mountain biking, orienteering etc. all have an impact on heathland flora and fauna.

Negative/inaccurate public perceptions relating to lowland heathlands

- Management works, particularly those involving tree felling are sometimes hampered by concerns for trees/woodland due to ignorance of the importance of open heathland.
- Opposition to fencing and grazing, often linked to the misconception that all heathlands are commons and that fencing and grazing result in an end to public access.
- Perception of heathland sites as 'wasteland' resulting in higher tolerance of activities such as arson, scrambling and fly tipping.
- Some fear of heathland species, particularly snakes and lizards.

Incomplete information for habitats and species on lowland heathland sites

- The current organisation of biological data in Berkshire and its availability to each Unitary Authority is compromised by the lack of a comprehensive co-ordinated database. It is probable that much data for heathland sites exists outside of the Recorder database and as such is difficult or impossible to access.

Pollution and climate change

- Research is currently being carried out into the effects of atmospheric pollution on semi-natural habitats. Recent work indicates that heathland adjacent to roads is impacted by some of the emissions from car exhausts. The report suggests that vegetation can be adversely affected up to 100 metres away from the road.
- Global warming may have various effects upon the flora and fauna of the UK's and Berkshire heathlands. Positive effects may be to create the conditions for enhanced breeding success for birds such as the Dartford Warbler (*Sylvia undata*), for the Silver-studded Blue (*Plebejus argus*) and other invertebrate species, and for reptiles such as the Common Lizard (*Lacerta vivapera*). Detrimental effects of higher temperatures may be greater frequency of damaging summer fires and increased pressure upon the water resources essential to valley mires and wet heath.
- Continuing research in Holland indicates that roads may have an impact on birds in their vicinity. Figures indicate that there may be a reduction in breeding numbers in areas adjacent to roads.

3 CURRENT ACTION

3.1 Legal status

European legislation

Dry heaths are listed under Annex I of the EC Habitats Directive.

The Thames Basin Heaths are to be designated as a Special Protection Area (SPA) under the EC Birds Directive. This is due to the internationally important numbers of breeding Nightjar *(Caprimulgus europaeus*), Woodlark (*Lullula arborea*) and Dartford Warbler (*Sylvia undata*). The Berkshire component of this pSPA is currently made up of the following sites:

- Broadmoor to Bagshot Woods & Heaths SSSI
- Sandhurst to Owlsmoor Bogs & Heaths SSSI

United Kingdom legislation

A large proportion of the UK's lowland heathland habitat has been notified as SSSI, through the Wildlife and Countryside Act, 1981.

In Berkshire

12 SSSIs (Inkpen Common, Snelsmore Common, Greenham Common, Decoy Pit, Pools and Wood, Wellington College Bog, Sandhurst to Owlsmoor Bogs and Heaths, Swinley Brick Pits, Longmoor Bog, Englemere Pond, Broadmoor to Bagshot Woods and Heaths and parts of Wasing Wood Ponds and Windsor Forest & Great Park) form much of the core of Berkshire's heathland resource. Sites that do not meet SSSI criteria but are of substantive nature conservation value are given the status of Wildlife Heritage Site. This confers some protection to the site through the Planning & Development Control process.

3.2 Management, research and guidance

Management

Management terminology

The definitions of **management, restoration** and **re-creation** are those used in the UK Biodiversity Action Plan and will be used as such for the remainder of this heathland BAP[*].

Berkshire Heathlands Project

The BHP was a partnership project funded by Newbury District Council, Wokingham District Council, the Royal Borough of Windsor and Maidenhead, Berkshire County Council, BBONT, RSPB and English Nature. The project was managed through the Berkshire Nature Conservation Forum, representing the UAs, EN, BBONT, RSPB and Berkshire County Council.

[*] Definitions are found in appendix 6 – glossary of terms

Appointment of a project officer enabled the BHP to concentrate on practical management, delivering works of over £130,000 through grant aided schemes and an annual budget of £7,000. The project has enabled work to be carried out in all UAs with heathland. Works such as the maintenance, restoration and re-creation of heathland were initiated under the project's auspices. The areas of heathland managed, re-created and discovered through the BHP are summarised in figure 3-1[†].

Figure 3-1 Heathland management & re-creation 1993 - 1997

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Major projects carried out during the period 1993 – 97 include:

Berkshire Heathlands Project

- Grazing of 24 ha of MOD - owned land on *Broadmoor to Bagshot Woods and Heaths SSSI*.
- Initial restoration works on *Greenham Common* and *Crookham Common SSSIs*.
- Assistance with the introduction of grazing at *Longmoor Bog SSSI*.
- Initial restoration works on *Padworth Common* and the entry of site into Countryside Stewardship (CS) scheme.
- Management and co-ordination of WES works on 7 SSSIs, including the re-creation of 14 ha of heathland at Swinley Park & Brickpits SSSI.
- Setting up photographic monitoring on 22 sites.
- Assisting with application to Secretary of State for the Environment to fence Snelsmore Common. This included much public consultation and 6 public meetings.

Bracknell Forest Borough Council

- *Sandhurst to Owlsmoor Bogs and Heaths SSSI* - During the period 1994 – 97 BFBC have, in partnership with BBONT, fenced and initiated a grazing regime over much of the site (see BBONT below for additional information).
- Restoration works on several mire Wildlife Heritage Sites (WHS) within the Crown Estate lands south of Bracknell have been carried out. Sites include *Gormoor Valley Mire WHS, Nr. Cobbler's Hole WHS* and *Crowthorne Woods WHS*.

[†] Note that these figures include 47 ha managed by BFBC and BBONT.

Berks, Bucks & Oxon Naturalists' Trust (BBONT)

- *Sandhurst to Owlsmoor Bogs and Heaths SSSI* - BBONT has recently purchased the remaining 30 hectares of the site with significant grant aid from the Heritage Lottery Fund and BFBC. This should be grazed in summer 1998. A project officer, to implement restoration works over the first 2 years for the whole site, was appointed in late 1997.
- *Inkpen Common SSSI* has been fenced and cattle grazed for 3 years. Trial turf stripping has been carried out.
- *Decoy Heath* - the BBONT - managed part of the *Decoy Pits and Pools SSSI* has been fenced and cattle grazed since summer 1995.
- *Broadmoor Bottom* – this has been fenced and grazed since summer 1996.

The total areas restored and re-created are as follows:

Table 3-1	
BHP Total Berkshire restoration	104.5 ha
BHP Total Berkshire re-creation	55 ha
Berkshire total 1994 - 97	161.559 .5 ha

Research

Through the duration of the BHP 18 ha of heathland were 'discovered' and added to the Berkshire Heathlands Inventory.
A project to assess the historical heathland cover of the county in 1761 was commissioned in 1994. This flagged up areas where heathland recreation could be targeted[*].

Guidance

Much guidance and advice was given to heathland owners and managers by the BHP. Those in receipt of advice included golf course managers, Crown Estates, MOD, private landowners and local authorities.
The BHP achieved 'profile raising' and 'awareness creation' of heathland issues through talks to local residents and parish groups, events organised for National Heath Week and the Berkshire Heathlands Conference, held in September 1995.

3.3 FUNDING

Funding for heathland management comes mainly from English Nature's Wildlife Enhancement Scheme (WES), MAFF's Countryside Stewardship Scheme (CSS) and English Nature's Reserves Enhancement Scheme (RES), only available to NGOs[†]
Smaller management grants have been secured from the Forestry Commission's Woodland Grant Scheme (WGS) and funding via local authority site management budgets. West Berkshire Authority has invested significant funds for a project to manage and re-create heathland on Greenham Common. Further funding from the Heritage Lottery Fund (HLF) will enable heathland restoration work to be carried out on BBONT heathland reserves.

[*] A HEATHLAND RE-CREATION PLAN FOR BERKSHIRE Dolphin Ecological Surveys Jan. 1995

[†] NGO Non-Governmental Organisation

4 ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

4.1 Proposed objectives and targets – Europe and UK

European objectives and targets

There are currently no available European wide targets. Several countries which have lowland heathland are embarking upon programmes to establish the extent of current heathland and historical loss. However, the availability of this data is unknown and collating what may be available is beyond the scope of this BAP.

United Kingdom objectives and targets

The following are the UK targets laid down in the Lowland Heathland Costed Habitat Action Plan[*†]:

- Maintain, and improve by **management**, all existing lowland heathland (58,000 ha).
- Encourage the **re-establishment** by 2005 of a further 6,000 ha of heathland with the emphasis on the counties of Hampshire, Cornwall, Dorset, Surrey, Devon, Staffordshire, Suffolk and Norfolk in England and Pembrokeshire, Glamorgan and west Gwynedd in Wales, particularly where this links separate heathland areas.

England objectives and targets

The objective and target for England is to re-establish 5,400 ha of lowland heathland by 2005.

London Basin Natural Area, issues, objectives and targets

The objectives and targets for the Natural Area are:

- Maintain all existing heathland.
- Re-establish 175 ha of lowland heathland by 2005.

A full description of London Basin key issues and objectives is found in table 4-2, overleaf. This table is taken from the London Basin Natural Area Profile.

4.2 Berkshire - proposed targets, issues and objectives

The following are the objectives and proposed targets for Berkshire:

- Maintain current heathland (314.1 ha) and restore damaged/ degraded areas (208.95 ha) through enhanced management.
- Re-create 177.8 ha of lowland heathland by 2005.
- Integrate conservation measures into coniferous forestry areas.
- Enhance knowledge, understanding and perceptions of lowland heathland through providing information and interpretative materials to the public, local authorities and landowners/managers
- Review and assess the impact of the Berkshire lowland heathland Biodiversity Action Plan

The objectives and actions required to attain these targets are described in tables 4-3 through 4-6.

Targets for heathland management and re-creation by Unitary Authority are as follows:

Table 4-1 Targets for heathland management and re-creation by Unitary Authority

Unitary Authority	Maintain/restore via management (ha by 2005)	re-creation (ha by 2005)
Bracknell Forest	248.5	32.3
West Berkshire Authority	247.25	134.5
Reading	0.25	1
Windsor & Maidenhead	8.95	0
Wokingham	18.1	10
Total, 2005	**523.05**	**177.8**

Figure 4-1 Heathland management and re-creation targets (by 2005) for Berkshire (% of 700.85 ha)

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It is worth noting that a further 70 ha of restorable heathland is present on the MOD owned area of the Broadmoor to Bagshot Woods and Heaths SSSI. This is not likely to be restored until at least 2010, due to budgetary restrictions.

[*] UKBAP UKBAPSG 1995

[†] Please see appendix 6 for details of management, restoration and re-creation.

Table 4-2 Key issues and objectives for lowland heathland in the London Basin	
KEY ISSUE FOR LOWLAND HEATHLAND	**KEY OBJECTIVES**
1. Loss of sites and adjacent land:	Meet all requirements of international treaties relating to nature conservation i.e. the Ramsar Convention, Birds Directive and Habitat and Species Directive: Identify and protect the most important sites and full range of species, features and ecological processes: and Resist operations which could cause irreversible damage to nature conservation interests • **Resist any further development, reclamation or drainage of heathland areas and also areas adjacent to them.**
2. Loss of nature conservation interest on sites:	Achieve appropriate management by disseminating best practice, re-establishing traditional management and developing realistic incentives: • **Overcome the obstacles to establishing low-intensity stock grazing and undertake management by rotational cutting, turf stripping and/or controlled burning as appropriate.** • **Establish realistic and attractive countryside management schemes for managing all sites with heathland and acid grassland/scrub communities.**
3. Conflicting demands on sites:	Increase the interest and participation in nature conservation by education and publicity: and Promote the cultural relationship between people, the landscape, ecology and geology • **Improve visitor management on heathland sites and promote their value to local people.**
4. Habitat restoration and creation:	Restore degraded habitats and features by appropriate management, where appropriate create new ones and disseminate best practice: and Reverse habitat fragmentation and improve the function of habitat 'links': • **By 2005, establish a further 10% of lowland heathland in the London Basin.** • **Survey and restore wet heath fragments and valley mires where their hydrology has not been damaged irreversibly.**
5. Incomplete scientific information for priority habitats and species:	Complete the necessary survey requirements for priority habitats and species, implementing monitoring programmes where required and carry out research to improve understanding of ecological processes: • **Monitor the status and distribution of targeted heathland species, including plants, fungi, lichens, invertebrates, birds, amphibians and reptiles.** • **Complete the Phase II survey coverage for heathland and acid grassland communities in counties covered by the London Basin.**

Table 4-3 Issues & objectives for lowland heathland in Berkshire

target 1 Maintain current heathland (314.1 ha) and restore damaged/ degraded areas (208.95 ha) through enhanced management.

ISSUES & OBJECTIVES	PROPOSED ACTIONS	**Year 1999 - 2005**						
		99	**00**	**01**	**02**	**03**	**04**	**05**
Loss of sites and adjacent land: *Ensure that all heathland sites in Berkshire are identified and protected by suitable statutory and non-statutory processes and that developments in heathland areas are sympathetic to the adjacent habitats and landscape:*	**1 Ensure that heathland sites which have not been identified as WHSs are given such status by December 1999 (ACTION: BBONT, UAs, EN)**	**X**						
	2 Resist any further development, reclamation or drainage of heathland areas and also areas adjacent to them (ACTION: UAs, BBONT, RSPB, EN)	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	3 Foster existing, and develop new, partnerships with owners/managers of extant and potential heathland and adjacent sites (ACTION: UAs, EN, BBONT)	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	4 Provide a framework of advice/guidance to local planning officers for dealing with heathland issues when dealing with planning issues by December 1999 (ACTION: BBONT, EN, BNCF[*])	**X**						
Loss of nature conservation interest on sites: *Achieve appropriate management/enhancement by disseminating best practice, re-establishing traditional management and developing realistic incentives:*	**5 Overcome the obstacles to establishing low-intensity stock grazing on those sites where such management is feasible (ACTION: UAs, BBONT, EN, MOD, OSS?[†])**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	6 Encourage managers of all lowland heathland sites in Berkshire to bring their sites under sympathetic management by the most appropriate methods/techniques for that site (ACTION: UAs, EN, BBONT)		**X**	**X**	**X**	**X**	**X**	**X**
	7 Seek the establishment of realistic and attractive countryside management schemes for managing all sites with heathland and acid grassland/scrub communities (ACTION: MAFF, FRCA[‡], EN, UAs, FA)		**X**	**X**	**X**	**X**	**X**	**X**
Incomplete information for habitats and species on lowland heathland sites: *Set up and implement monitoring programmes where required and carry out research to improve understanding of ecological processes and the impact upon them of human activities (management, pollution, visitor pressure etc.)*	**8 Monitor the status and distribution of key heathland species, including plants, fungi, lichens, invertebrates, birds, amphibians and reptiles (ACTION: EN, BBONT, RSPB, UAs) see appendix 1 for list of key heathland species.**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	9 Seek to develop, in conjunction with the national BAP simple methods for monitoring the effectiveness of management regimes and the effects of pollution, visitor pressure, etc. upon heathland sites (ACTION: RSPB, EN, UAs, BBONT, Voluntary recorders/recording schemes), (DATE: by summer 1999).	**X**						

[*] BNCF - Berkshire Nature Conservation Forum
[†] OSS Open Spaces Society
[‡] FRCA – Farming & Rural Conservation Agency

Table 4-4 Issues & objectives for lowland heathland in Berkshire		*target 2 Re-create 177.8 ha of lowland heathland by 2005*						
ISSUES & OBJECTIVES	PROPOSED ACTIONS	**Year 1999 - 2005**						
		99	**00**	**01**	**02**	**03**	**04**	**05**
Habitat Re-creation: *Re-create habitats and features by appropriate management.* *Disseminate best practice, reverse habitat fragmentation and improve the function of habitat 'links':*	**10 Re-create 177 ha of lowland heathland on recently converted[*] sites as identified by the BHP in December 1997[†] (ACTION: BBONT, UAs, FE, Private landowners, MOD, EN)**	**X**	**X**	**X**	**X**	**X**	**X**	**X**

Table 4-5 Issues & objectives for lowland heathland in Berkshire		***target 3 Integrate heathland conservation measures into coniferous forestry areas.***						
ISSUES & OBJECTIVES	PROPOSED ACTIONS	*Year 1999 - 2005*						
		99	**00**	**01**	**02**	**03**	**04**	**05**
Habitat loss and fragmentation: *Promote forestry management that enhances conservation value through restructuring and diversification:*	**11 Promote management of rides, clearings and firebreaks that enhances the conservation value of such areas for heathland flora and fauna through a single or set of conservation management cards (ACTION: BBONT, FA[‡])**	**X**	**X**					
	12 Promote the structural and species diversification of coniferous plantation to favour re-establishment of typical heathland flora and fauna through interpretative materials, training/open days and site based advice (ACTION: FA, EN, BBONT, UAs, Private landowners, MOD)	*X*	**X**	**X**	**X**	**X**	**X**	**X**
	13 Develop a joint strategy to implement the Forestry Authority's Lowland Heaths and Forestry interim guidance note and consultation paper.(ACTION: FA, EN, UAs, Private landowners, MOD)	*X*	**X**	**X**	**X**	**X**	**X**	**X**

[*] Recently converted sites are those where heathland has been replaced by a different land use that can be returned to heathland with a high expectation of success. The period since conversion to qualify for such status is about 100 years, though this depends upon the land use to which heathland is converted.
[†] A detailed site by site breakdown of both re-creation and restoration targets can be found in appendix 5.
[‡] FA Forestry Authority

Table 4-6 Issues & objectives for lowland heathland in Berkshire			*target 4 Enhance knowledge, understanding and perceptions of lowland heathland through providing information and interpretative materials to the public, local authorities and landowners/managers*							
ISSUES & OBJECTIVES	PROPOSED ACTIONS		*Year 1999 - 2005*							
			99	**00**	**01**	**02**	**03**	**04**	**05**
Negative/inaccurate public perceptions relating to lowland heathlands: *Increase the interest and participation in nature conservation by education and publicity:*	**14**	**Improve visitor management on heathland sites and promote their value to local people (ACTION: BBONT, UAs, FE, Private landowners)**	*X*	**X**	**X**	**X**	**X**	**X**	**X**
	15	**Develop effective partnerships for heathland conservation between local authorities, with the public, friends groups, business and schools (ACTION: EN, BBONT, UAs)**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	16	**Provide on and off site interpretative materials to promote discussion of the cultural relationship between people, the landscape, ecology and geology (ACTION: BNCF, UAs)**	**X**	**X**	**X**	**X**	**X**	**X**	**X**

Table 4-7 Issues & objectives for lowland heathland in Berkshire			*target 5 Review and assess the impact of the Berkshire lowland heathland Biodiversity Action Plan.*						
ISSUES & OBJECTIVES	PROPOSED ACTIONS		**Year 1999 - 2005**						
			99	**00**	**01**	**02**	**03**	**04**	**05**
Assessment of successes/failures of Berkshire lowland heathland Biodiversity Action Plan: *Ensure that some assessment of the progress of the BHBAP is made. This would essentially be based around an assessment of which targets have been met, exceeded or not met*:	**17**	**Review the progress of the BHBAP through an annual report to be presented to the Berkshire Nature Conservation Forum. (ACTION: BBAPG[*])**	**X**	*X*	**X**	**X**	**X**	**X**	**X**
	18	**Produce a report summing up the achievements of the Berkshire Heathlands BAP Prepare a new BHBAP in 2005 if this is thought necessary (ACTION: BBAPG)**							**X**

[*] BBAPG – Berkshire Biodiversity Action Plan Group.

5 IMPLEMENTATION, CO-ORDINATION AND REVIEW

5.1 Implementation

Berkshire Heathland Biodiversity Action Plan

The Berkshire Heathland Biodiversity Action Plan will be implemented in much the same way as the Berkshire Heathlands Project. Each Unitary Authority has a target for management and re-creation of lowland heathland. Attaining this target will require a partnership between the UA, government agencies, NGOs and landowners/managers. The three UAs that share boundaries with Surrey and Hampshire may wish to co-operate with adjacent districts in these counties under the auspices of the Thames Basin Heaths pSPA which links them.

Local Biodiversity Action Plans

Each Unitary Authority will be taking biodiversity forward through Local Biodiversity Action Plans (Bracknell Forest and Wokingham have already completed local BAPs). Those Districts with important heathland and therefore a responsibility for heathland will take forward heathland objectives through their own heathland habitat and species action plans. These plans should translate national and Berkshire targets to the local level and identify issues and objectives with a particular local relevance. Monitoring will be done at the local scale and be fed back through the system described in 5.2, below.

Prioritising implementation

Box 5-1 (right) illustrates the SSMART system. This is a useful tool in judging the relative merits and probable outcomes of various projects.

5.2 Co-ordination and monitoring

Co-ordination and monitoring of the Berkshire Heathland BAP will be carried out by the Berkshire Biodiversity Action Plan Group, a subgroup of the Berkshire Nature Conservation Forum. The BBAPG will gather information from the UAs and then report to the BNCF on an annual basis.

5.3 Review

Reviewing the progress of the BHBAP 'on the ground' will necessitate the setting up of simple but reliable methods of monitoring species and habitats. The following are suggestions, detailed arrangements for monitoring are beyond the scope of this work:

- Fixed point photography (gross habitat change)
- Aerial photographs (habitat change)
- Fixed quadrats and transects (habitat change, species composition)
- Butterfly/dragonfly transects (population changes)
- Bird counts (population changes)
- Review of species introductions – fixed quadrats/counts.

Data should flow from Unitary Authorities to the BBAPG via Local BAPs. Overall progress of the BHBAP will be assessed on an annual basis in the form of a report presented to the BNCF by the BBAPG.

Box 5-1 Using SMART to assess a project

SSMART can be used to identify potential problems and likely resource needs of a project.

The acronym SSMART stands for:

- **S**ustainable
- **M**easurable
- **R**ealistic
- **S**pecific
- **A**chievable
- **T**ime - limited

Sustainable

Is the project sustainable? Are there the resources to manage a site after initial restoration or recreation works? Can management be incorporated into that of an adjacent site?

Specific

Are the proposals for the site specific? With limited resources any expenditure on a site must be carefully targeted. The best method for achieving this is through producing and implementing a site management plan.

Measurable

Can the effects/benefits etc. of the project be measured? What is the best manner in which to measure them? Are resources available to measure them (particularly the case with monitoring a site for change)?

Achievable

Is the potential of the project really achievable? Does the potential of a site need to be realised in several stages rather than in a single ambitious project?

Realistic

Are the resource forecasts against which the project is being assessed realistic? Are expectations of partner organisations' involvement or co-operation realistic?

Time – limited

A project cannot be totally open ended, even if it is a very long term programme such as managing a site it needs to be broken down into time-limited goals and objectives.

All of these factors are interlinked and to some extent interdependent

6 SPECIES ACTION PLANS

6.1 Introduction

This section of the Berkshire Heathland Biodiversity Action Plan deals with 8 species which are currently priorities in Berkshire and in some cases are of international importance. These are:

- Woodlark (*Lullula arborea*)
- Nightjar (*Caprimulgus europaeus*)
- Dartford Warbler (*Sylvia undata)*
- Silver-studded Blue (*Plebejus argus*)
- Bog Bush-cricket (*Metrioptera brachyptera*)
- Adder (*Vipera berus*)
- Sand Lizard (*Lacerta agilis*)
- Pale Dog-violet (*Viola lactea)*

A second list (see appendix 1) contains those species which are felt to be key heathland species. These are the characteristic flora and fauna of Berkshire's lowland heathland.

6.2 Guidelines for species management on lowland heathland

6.2.1 Species extant on a site

If a protected species is found on a site it must be safeguarded through management. Populations may also, where appropriate, be enhanced, again by managing to provide optimum conditions.

Key issues

- Populations of all protected species on a site should be maintained, and where appropriate, enhanced.
- Species populations should only be expanded if necessary management **does not interfere with the requirements of any notable species found on the site.**

6.2.2 Species re-introductions

There are currently few opportunities for species re-introductions on Berkshire heathland sites.

6.2.3 Species introductions

It is currently proposed that **no species introductions are undertaken**. Introductions will divert resources away from managing species already present in Berkshire and in need of further management.

6.3 General factors affecting species populations in Berkshire

All of the species covered in the following pages are affected by a common set of factors, these are covered here.

6.3.1 Historical factors

- Physical loss of heathland to other land uses has had the most detrimental effect on Berkshire heaths. Conversion to agriculture, construction of houses, factories and roads and widespread afforestation to coniferous plantation have replaced over 90% of Berkshire's heathland area. As habitat extent decreased populations of heathland species contracted.
- Alongside this destruction, remaining heathland fell into disuse. This has had a major effect on all heathland species. Heathland and its flora and fauna developed in response to human activities that maintained certain conditions such as areas of bare ground and few mature trees. With the decline of these activities suitable habitat for specialist heathland species became scarcer, resulting in a decline of those species. The most obvious form of such change is the invasion of open heathland by scrub, followed by woodland within a relatively short number of years.

6.3.2 Current factors

- Absence of management on some sites.
- Sub-optimal management techniques on managed heathlands.
- Continuing loss of open heathland to scrub, tree and bracken invasion.
- Atmospheric pollution favouring the growth of scrub, grasses etc on open heathland.
- Loss of heathland to development, particularly roads, and mineral extraction.
- Uncontrolled fires
- Lack of detailed knowledge of specific species requirements.
- Commercial forestry operations that are in some cases insensitive to the needs of heathland flora and fauna.

6.4 General management requirements for heathland species

The underlying management requirements for all heathland species are essentially the same. All species found on heathlands have adapted their lifestyles to exploit specific niches found in typical heathlands. At the height of heathland coverage and utilisation in the county heathlands were made up of a rich mosaic of habitats and age structures. Heathland extent was great enough to support large areas representing all stages of succession; from bare disturbed ground to scrub and secondary woodland. A combination of human activity and natural processes constantly 'renewed' these habitats, maintaining diversity.

As heathland extent and diversity decreased, niche habitats and the species that exploited them

became confined to larger sites where natural processes could still create a diversity of habitats.

The task of conservation management is to replicate the patterns of use that supported a diverse heathland flora and fauna. This job is made harder because of the greatly reduced area of heathland remaining. This means that we cannot expect to support the whole range of typical Berkshire heathland species on every site, there is not room to cater for all their diverse habitat requirements. Each site must be managed primarily for those species it already supports. If these can be comfortably managed and surplus capacity exists on a site, management for other species can be considered.

Heathland management literature references can be found in appendix 3.

WOODLARK (*LULLULA ARBOREA*)

Schedule 1 WCA 1981
Annex 1 EC Birds Directive
Appendix II Bern Convention
SPEC2 European Species of Conservation Concern
Red List Birds of Conservation Concern*
NBAP Priority Species†, national plan in preparation (RSPB)

1 CURRENT STATUS

1.1 International:

The Woodlark breeds from southern Britain and southern Scandinavia to southern Europe and East to the Urals.

1.2 British Isles:

In the first half of the 19th century the Woodlark nested in most counties of England and Wales. After about 1850, due to habitat loss, the population began to contract southwards. 1965 saw only 100 pairs recorded in Britain. By 1988 the population had increased to around 226 pairs. The 1997 survey gave a figure of 1552 pairs, representing an increase of both population and range. The Thames Basin is now a national stronghold.

1.3 Berkshire:

It is probable that the national decline in Woodlark numbers was reflected in Berkshire. 1994 figures give a figure of 6 breeding pairs – numbers have risen since that time due to wider availability of suitable habitat due to increased felling activity on forestry plantation. 1997 figures for the Berkshire, Surrey, Hampshire borders give 316 pairs.

2 RELEVANT ECOLOGY & MANAGEMENT

2.1 Ecology:

Woodlark prefer to nest in open areas with patches of bare ground suitable for excavating a small nest depression amongst a mixture of short grass, heather, long grass and bracken. Favoured habitats are open heathland (particularly after fires, during the recolonisation stage); rabbit grazed grass-heaths; derelict pasture; tree and shrub nurseries and clear-felled conifer plantation. Food includes caterpillars, beetles and spiders. Seeds are taken outside the breeding season. The species appears to be quite able to colonise new areas some distance from any existing colonies.

2.2 Management:

The creation and maintenance of short vegetation and bare ground are the key management actions required for Woodlarks. Grazing of heathland creates the mixed age/structure mosaic suited to Woodlark and a host of other heathland fauna and flora. Recent investigation by the BTO‡ has indicated that Woodlark need disturbed ground to successfully construct their nests§.

3 HISTORICAL FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

Loss of habitat and the cessation of traditional heathland activities such as grazing, collection of wood, bracken and gorse and turf cutting have been the major impacts in Berkshire. All of these have reduced available nesting sites.

4 CURRENT FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

The Woodlark is probably enjoying an upsurge in numbers in Berkshire at present. This 'boom' in population is due to areas of recently felled and re-planted coniferous woodland in the county, particularly around the south east. It is possible that numbers will begin to decline in the coming years as newly planted areas become unsuitable. Increased recreational use of heathland may reduce breeding success due to disturbance.

5 CURRENT ACTION & ISSUES IN BERKSHIRE

5.1 RSPB is currently setting up an Important Bird Area (IBA) monitoring strategy for the Thames Basin and Wealden Heaths. This will cover the Berkshire heaths. This important initiative will provide data for monitoring purposes.

5.2 During 1997 BTO, RSPB and EN co-ordinated the National Woodlark Survey. This has provided important data for Berkshire.

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* **Birds of Conservation Concern**, RSPB et al 1996

† NBAP status of Priority Species replaces short and middle list status. Long list species now known as Species of Conservation Concern.

‡ BTO British Trust for Ornithology

§ Farming Woodlarks Peter Davis, BTO News 202 pp 8-9. 1996

6 ACTION PLAN OBJECTIVES AND TARGETS FOR BERKSHIRE

- Seek to continue sympathetic management of sites where Woodlark breed. Where conditions are suitable, experiment with management to facilitate Woodlark nesting.
- Integrate heathland conservation measures into coniferous forestry areas to ensure a sustainable availability of suitable nest sites.
- Continue and enhance survey and monitoring of the species' distribution and breeding success through the IBA monitoring project.

7 Objectives and proposed actions *WOODLARK*

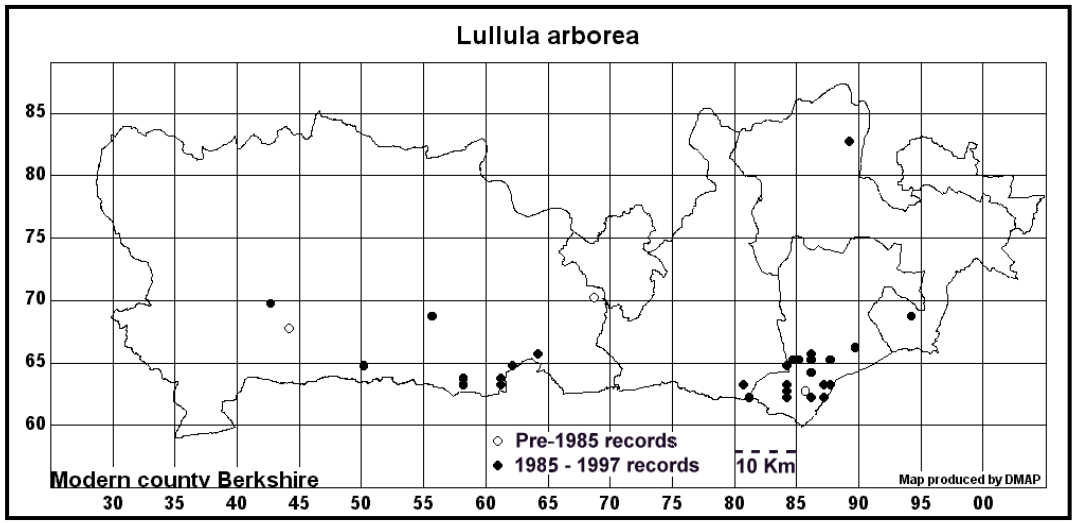
OBJECTIVES	PROPOSED ACTIONS		Year 1999 - 2005						
			99	00	01	02	03	04	05
Seek to continue sympathetic management of sites where Woodlark breed. Where conditions are suitable, experiment with management to facilitate Woodlark nesting.	1	**Continue management of all sites currently managed and seek to enhance management techniques where possible, (eg introduction of grazing). (ACTION: BBONT, UAs, EN, Private landowners)**	*X*	X	X	X	X	X	X
	2	**Disseminate best practice through site visits, and management literature such as the RSPB/Forestry Authority *Forests and Birds**.**	X	X	X	X	X	X	X
Integrate heathland conservation measures into coniferous forestry areas to ensure a sustainable availability of suitable nest sites.	3	**Promote the structural and species diversification of coniferous plantation through measures such as the phased felling and replanting of coniferous coups in order to maximise the availability of suitable Woodlark (and nightjar) nesting habitat to favour re-establishment of typical heathland flora and fauna (ACTION: FE, EN, UAs, BBONT, Private landowners, MOD)**	X	X	X	X	X	X	X
Continue and enhance survey and monitoring of the species' distribution and breeding success through the IBA monitoring project	4	**Monitor Woodlark population/breeding status in Berkshire and produce annual report via IBA monitoring scheme (ACTION: RSPB, bird clubs, EN).**	X	X	X	X	X	X	X

29 total records for Berkshire as of 1997

Berkshire Sites for Woodlark

Benham Park; Decoy Heath Nature Reserve; Burghfield Gravel Pits; Roundwood Copse and Gully; Upper Star Post; Broadmoor to Bagshot Woods & Heaths SSSI; Decoy Pit, Pools and Woods SSSI; Wickham Heath; Wasing Wood Ponds (inc. SSSI); Ufton Park to Wokefield Common; Padworth Common; Moor Green Lakes; Sandhurst to Owlsmoor Bogs & Heaths SSSI; Windsor Forest, south of Bracknell; Transport & Road Research Laboratory; Swinley Park to Swinley Bottom; Summerleaze Gravel Pit; Silwood Park BTO site; Greenham Common; Snelsmore Common

Woodlark *Lullula arborea* Berkshire distribution



* See references

NIGHTJAR (*CAPRIMULGUS EUROPAEUS*

Annex 1 **EC Birds Directive**
Appendix II **Bern Convention**
Red List **Birds of Conservation Concern***
NBAP **Priority Species, national plan in preparation (RSPB)**
SPEC2 European Species of Conservation Concern

1 CURRENT STATUS

1.1 International:

The north-western European population was estimated at 22,000 pairs in 1990†. The Nightjar is in decline across its European range.

1.2 British Isles:

The British population of Nightjar was estimated at about 2,000 males in 1981, the 1992 survey recorded 3,093 churring males. This figure represents both enhanced recording methodology and a real increase in population of about 74%. Over half the British population is found in four counties: Dorset, Hampshire, West Sussex and Surrey.

1.3 Berkshire:

The 1992 survey recorded 1000 males in south-east England, a rise of 38% from the 1982 figure of 724 males. Nightjar are known to breed regularly at 10 sites in Berkshire‡. National survey data from the 1982 and 1992 surveys actually shows a reduction in numbers of males from 41 in 1982 to 39 in 1992, a reduction of 5%. This must be set against a 74% increase in numbers nationally over the same period. The population of this species may have increased in south-east Berkshire, since 1992, due to felling and replanting within conifer plantations. These habitats, though, may only offer a short term nesting site 'boom'.

2 RELEVANT ECOLOGY & MANAGEMENT

2.1 Ecology:

Nightjars prefer to nest on bare ground in a shallow unlined scrape. Such scrapes are often located in a small clearing (less than 2m in diameter) among bracken or heather at the base of a birch or pine sapling. Prey consists mainly of moths, flies and beetles, caught on the wing. Prey is caught over open heathland or along wide rides where unhindered aerial hunting can be carried out.

2.2 Management:

The key management action for Nightjar is to maintain large areas of open heath with scattered saplings and clearings. Glades can be opened up in woodland and dense thickets of scrub. Of great importance to Berkshire's Nightjar population are the coniferous forestry operations carried out in several heathland areas. Recently cleared and replanted plantation provides excellent Nightjar nesting habitat.

3 HISTORICAL FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

As with most heathland species loss of habitat and cessation of traditional management practices has severely reduced numbers of Nightjar over the last 150-200 years

4 CURRENT FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

Road building schemes such as the Rackstraw Road in Bracknell Forest and the Newbury Bypass in West Berkshire may have reduced breeding numbers of Nightjar through noise disturbance. Climatic change may also be affecting Nightjar populations by reducing prey availability§. Increased recreational use of heathland may reduce breeding success due to disturbance.

5 CURRENT ACTION & ISSUES IN BERKSHIRE

- RSPB is currently setting up an Important Bird Area (IBA) monitoring strategy for the Thames Basin and Wealden Heaths. This will cover the Berkshire heaths. This important initiative will provide data for monitoring purposes
- During 1991-92 BTO, RSPB and EN co-ordinated the National Nightjar Survey. This provides important data for Berkshire.

6 ACTION PLAN OBJECTIVES AND TARGETS FOR BERKSHIRE

- Seek to continue sympathetic management of sites where Nightjar is known to breed. Where conditions are suitable, experiment with specific management to facilitate Nightjar nesting.
- Integrate conservation measures into coniferous forestry areas to ensure a sustainable availability of suitable nest sites.
- Continue and enhance survey and monitoring of the species' distribution and breeding success through the IBA monitoring project.

* **Birds of Conservation Concern**, RSPB et al 1996
† Bowden & Cadbury, Red Data Birds in Britain 1990 RSPB NCC pp228-231
‡ Peter Standley 1994
§ Bowden & Cadbury, Red Data Birds in Britain 1990 RSPB NCC pp228-231

7 Objectives and proposed actions *NIGHTJAR*

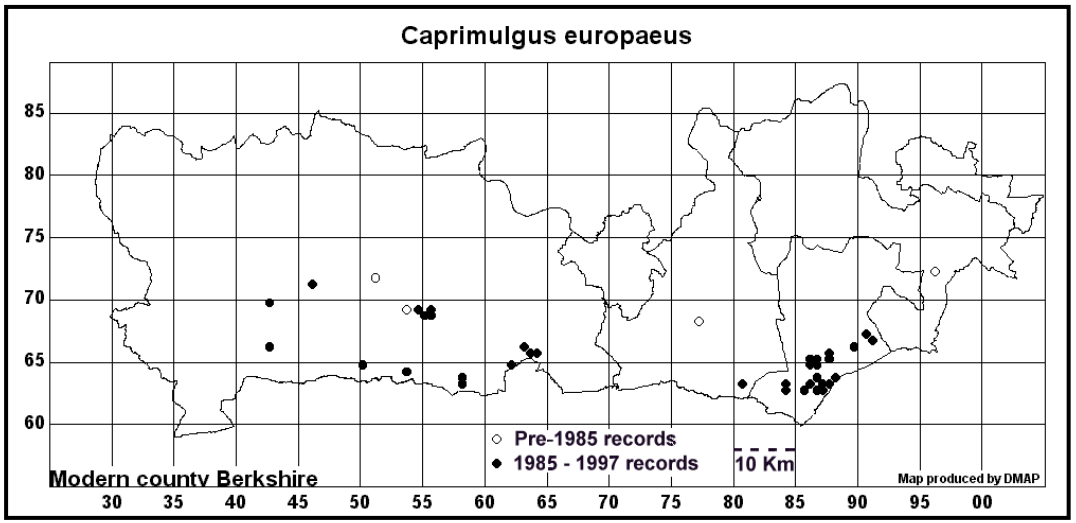
OBJECTIVES	PROPOSED ACTIONS		Year 1999 - 2005						
			99	00	01	02	03	04	05
Seek to continue sympathetic management of sites where Nightjar is known to breed. Where conditions are suitable, experiment with specific management to facilitate Nightjar nesting.	**5**	**Continue management of all sites currently managed and seek to enhance management techniques where possible, (e.g. introduction of grazing). (ACTION: BBONT, UAs, EN, Private landowners)**	*X*	**X**	**X**	**X**	**X**	**X**	**X**
	6	**Disseminate best practice through for a, site visits, and management literature such as the RSPB/Forestry Authority Forests and Birds.**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Integrate biodiversity conservation measures into coniferous forestry areas to ensure a sustainable availability of suitable nest sites.	**7**	**Promote the structural and species diversification of coniferous plantation to favour re-establishment of typical heathland flora and fauna through measures such as the phased felling and replanting of coniferous coups in order to maximise the availability of suitable Nightjar (and Woodlark) nesting habitat (ACTION: FE, EN, UAs, Private landowners, MOD)**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Continue and enhance survey and monitoring of the species' distribution and breeding success through the IBA monitoring project	**8**	**Monitor Nightjar population/breeding status in Berkshire and produce annual report (ACTION: RSPB, bird clubs, EN).**	**X**	**X**	**X**	**X**	**X**	**X**	**X**

Nightjar *Caprimulgus europaeus* Berkshire distribution

44 Total records for Berkshire as of 1997

Berkshire Sites for Nightjar

Bearwood - Woods and Lakes; Streatley Warren SSSI; Broadmoor to Bagshot Woods & Heaths SSSI; Windsor Forest and Great Park SSSI; Cowpond Piece and Gibbet Piece; Padworth Common; Wasing Wood Ponds SSSI; Bucklebury Common; Hamstead Park and adjoining wetland; Snelsmore Common and environs; Greenham Common airfield and gullies; Crookham Common; Ufton Park to Wokefield Common; Finchamstead Ridges; Sandhurst to Owlsmoor Bogs & Heaths SSSI; Windsor Forest, south of Bracknell; Swinley Park to Swinley Bottom (inc. SSSI); Buttersteep/ Fernhill/Swinley Golf Course



DARTFORD WARBLER (*SYLVIA UNDATA*)

Schedule 1 WCA 1981
Annex 1 EC Birds Directive
Appendix II Bern Convention
Red List RSPB Birds of Conservation Concern*
NBAP Priority Species, no national plan
SPEC2 European Species of Conservation Concern

1 CURRENT STATUS

1.1 International:

There are estimated to be ??? pairs of Dartford Warbler in Europe.

1.2 British Isles:

This species was formerly more common and widespread in England. It has, however, suffered from severe winters and habitat destruction. After the hard winters of 1961-3 mortality was estimated at 80-90%, the population crashed to about 12 pairs in two English counties. Numbers increased in the mild winters of the 1980s and by 1988 it was estimated that Britain held 600 breeding pairs† and between 600 - 1,500 wintering individuals‡. It has now spread back to most of the heathlands formerly occupied south of the Thames. The main populations are restricted to Dorset, Hampshire and Surrey.

1.3 Berkshire:

Little is known of the historical distribution of the species in Berkshire. Individuals must have regularly crossed into the Berkshire heathlands from Surrey but would rarely be spotted as the areas around the Berks – Surrey border are predominantly forestry and military training areas and have limited public access. Recent breeding of the species was first confirmed in 1990 on the Sandhurst to Owlsmoor SSSI. Between 1 and 2 pairs have bred annually on this site since 1990.

2 RELEVANT ECOLOGY & MANAGEMENT

2.1 Ecology:

The Dartford Warbler is at the northern edge of its range in England and can be severely affected by hard winters unless adequate cover is available. Gorse (*Ulex europaeus*) is of great importance, providing summer and winter cover, nesting sites and a host to high densities of invertebrates, the bird's prey. The open gappy nature of older gorse (10-15 yrs old) is of little use for either shelter or as a host for prey. Nests are constructed in gorse or heather about 18" above the ground. Populations are higher on sites with a scattering of gorse. Though hard winters can result in local extinction of the species, recovery can be rapid – the population is able to double every 2 years.

2.2 Management:

Management for this species is primarily aimed at maintaining a scattering of gorse of various age and structure amongst a matrix of heathers. Gorse approaching the senescent stage should be coppiced to stimulate regrowth. Invasive scrub and bracken need to be suppressed.

3 HISTORICAL FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- Loss and fragmentation of habitat through destruction and succession.
- Severe winters will have affected past populations, though detail is unknown.
- Replacement of open heathland with coniferous plantations.

4 CURRENT FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- Loss and fragmentation of habitat due to development.
- Degradation of habitat due to invasion and succession to scrub, bracken, woodland etc.
- Increased recreational use of heathland may reduce breeding success due to disturbance.

5 CURRENT ACTION & ISSUES IN BERKSHIRE

- RSPB is currently setting up an Important Bird Area (IBA) monitoring scheme for the Thames Basin and Wealden Heaths. This will cover the Berkshire heaths. This important initiative will provide data for monitoring purposes
- During 1994 BTO, RSPB and EN co-ordinated the National Dartford Warbler Survey. This provides important data for Berkshire.

6 ACTION PLAN OBJECTIVES AND TARGETS FOR BERKSHIRE

- Continue to manage currently known breeding site for Dartford Warbler paying particular attention to long term provision of suitable stands of gorse.
- Establish the current extent of Dartford Warbler in the area south of Bracknell

* **Birds of Conservation Concern**, RSPB 1996
† **Red Data Birds in Britain** Batten, et al 1990
‡ **The Atlas of Wintering Birds in Britain & Ireland** JTR Sharrock 1976

- Integrate Dartford Warbler management into the management of forestry and MOD areas south of Bracknell with a view to encourage further breeding sites.

7 Objectives and proposed actions *Dartford Warbler*

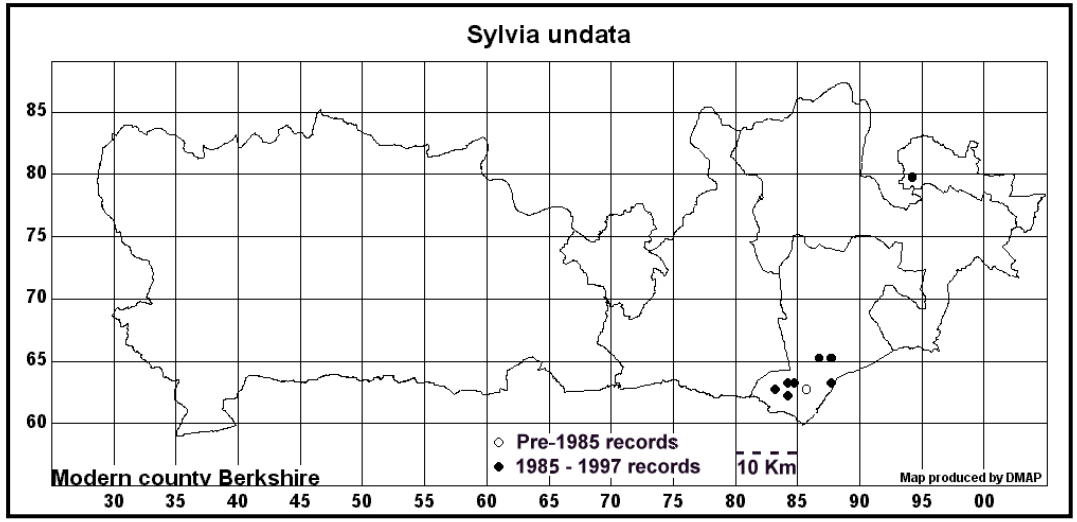
OBJECTIVES	PROPOSED ACTIONS	Year 1999 - 2005						
		99	00	01	02	03	04	05
Continue to manage currently known breeding site for Dartford Warbler paying particular attention to long term provision of suitable stands of gorse.	***Maintain varied age/ structure stands of gorse on Wildmoor Heath. This should be carried out across whole site and not just where Dartford Warbler is currently found (ACTION: BBONT, Bracknell Forest).***	*X*	X	X	X	X	X	X
	Take appropriate action to prevent invasion of Dartford Warbler areas by bracken and scrub (ACTION: BBONT, Bracknell Forest).	X	X	X	X	X	X	X
Establish the current extent of Dartford Warbler in the area south of Bracknell	***Monitor Dartford Warbler population/breeding status in Berkshire (particularly the areas south of Bracknell) and produce annual report (ACTION: RSPB, bird clubs, EN).***	X	X	X	X	X	X	X
Integrate Dartford Warbler management into the management of forestry and MOD areas south of Bracknell with a view to encourage further breeding sites.	***Promote the structural and species diversification of coniferous plantation to favour re-establishment of typical heathland flora and fauna through measures such as the phased felling and replanting of coniferous coups (ACTION: FE, EN, UAs, Private landowners, MOD).***	X	X	X	X	X	X	X

Dartford Warbler *Sylvia undata* Berkshire distribution

8 Total records for Berkshire as of 1997

Berkshire Sites for Dartford Warbler

Broadmoor to Bagshot Woods & Heaths SSSI; Sandhurst to Owlsmoor Bogs and Heaths SSSI; Windsor Forest, south of Bracknell; Slough sewage works (passage)



SILVER-STUDDED BLUE *(PLEBEJUS ARGUS)*

Schedule 5 WCA 1981
NBAP Priority Species, national plan written (Butterfly Conservation)
Notable

1 CURRENT STATUS

- **International**: The silver-studded Blue occurs over the temperate areas of Europe and Asia to Japan. It is found in most of Europe except northern Scandinavia.
- **British Isles**: An estimated 50+% decline in population/range in the last 25 years and 65% contraction of range has resulted in the species being extinct in Scotland, northern England, and throughout most of central and south-eastern England. Strongholds are the heaths of west Surrey, Hampshire and Dorset.
- **Berkshire**: In Berkshire it is now restricted to remnant colonies on the heathlands bordering Hampshire and the mosaic of heathland and forestry found on the Berkshire/Surrey border between Ascot and Sandhurst.

2 RELEVANT ECOLOGY & MANAGEMENT

- **Ecology:** The species needs sheltered areas, with a southerly aspect, of pioneer stage (up to second growing season) heath dominated by Bell Heather, Ling, Cross-leaved Heath and Gorse. Adjacent older, taller plants are also essential for providing shelter and sites in which to roost. Caterpillars may also critically depend upon the presence of certain species of black ant (*Lasius niger* and *L. alienus*). Colonies occur at high densities of up to 20,000 individuals. The species is highly sedentary, adults moving less than 50m over their life.
- **Management:** Active management to maintain a mosaic of varied age/height structure heathland is essential to the continued existence of populations. Open/disturbed ground is beneficial both for the germination of heather seeds and for the requirements of the black ants.

3 HISTORICAL FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- The direct loss and fragmentation of heathland and cessation of traditional heathland land uses has impacted upon Silver-studded Blue populations. The succession of open heathland to scrub and woodland has been particularly devastating.

4 CURRENT FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- Uncontrolled fires can sweep through isolated colonies decimating the local population.
- Continued succession of heathland to scrub/woodland and possibly the increase in the coverage of Bracken on many heathland sites.
- The fragmented and isolated nature of the many small heathland sites supporting the species results in small vulnerable colonies.
- Poor summers with high rainfall and cooler temperatures can have a marked effect on breeding success of all butterflies.

5 CURRENT ACTION & ISSUES IN BERKSHIRE

- King's Ride in Windsor Forest is mown to maintain early stage heather essential for this species.
- Decoy Heath, and Wildmoor Heath (Owlsmoor SSSI) are both being managed for small colonies.
- Management of mown heathland under electricity pylons has been made more sensitive to the colony of Silver-studded Blue found there.

6 ACTION PLAN OBJECTIVES AND TARGETS FOR BERKSHIRE

- Ensure that all extant colonies of Silver-studded Blue are managed sympathetically and that management to expand colonies is carried out where populations are sub-optimal.
- Set up monitoring of all colonies.
- Investigate possible locations for re-introduction of the species.

7 Objectives and proposed actions *Silver-studded Blue*

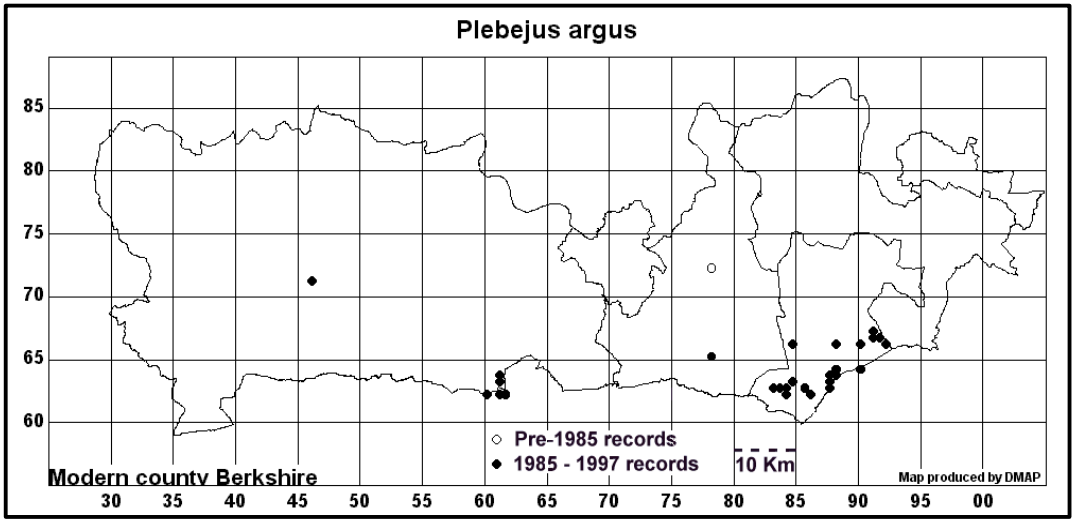
OBJECTIVES		PROPOSED ACTIONS	Year 1999 - 2005						
			99	00	01	02	03	04	05
Ensure that all extant colonies of Silver-studded Blue are managed sympathetically and that management to expand colonies is carried out where populations are sub-optimal.	1	**Ensure that a managed heather rotation is established adjacent to all Silver-studded Blue colonies to provide a continuous successional range of heather. Particular emphasis should be paid to the bare ground and pioneer stages (ACTION: BBONT, UAs, Private landowners).**	X	X	X	X	X	X	X
	2	**At sites where populations are small and vulnerable carry out works to promote colony expansion (ACTION: BBONT, UAs, Private landowners).**	X	X	X	X	X	X	X
Set up monitoring of all colonies.	3	**Set up transects to enable monitoring of all colonies. Pay particular attention to vulnerable colonies and any attempts to enhance their populations (ACTION: BBONT, UAs, Butterfly Conservation).**	X	X	X	X	X	X	X
	4	**Produce an annual report outlining the results of the previous year's monitoring. Indicate population trends and probable contributing factors (ACTION: Butterfly Conservation, UAs, BBONT).**		X	X	X	X	X	X
Investigate possible locations for re-introduction of the species	5	**If resources permit carry out a desktop survey and follow up field work to identify suitable sites for Silver-studded Blue re-introduction. Priority sites should be those where the species has been lost relatively recently and creation of suitable habitat is feasible (ACTION: EN, BBONT, Butterfly Conservation, UAs).**		X	X	X	X	X	X

Silver-studded Blue *Plebejus argus* Berkshire distribution

Total records for Berkshire as of 1997

Berkshire Sites for Silver-studded Blue

Edgebarrow Hill and Heath WHS; Longmoor Bog SSSI; Broadmoor Bottom Reserve; Decoy Pit, Pools and Woods SSSI; Beaufort Park conservation area; Broadmoor to Bagshot Woods & Heaths SSSI; Windsor Forest, south of Bracknell; Swinley Park; Swinley Brick Pits; Sandhurst to Owlsmoor Bogs & Heaths SSSI; Decoy Heath, Nature Reserve; Snelsmore Common and environs; Greenham Common SSSI; Padworth Common



BOG BUSH-CRICKET (*METRIOPTERA BRACHYPTERA*)

Notable

1 CURRENT STATUS

- **International:** The species is palearctic. It occurs across central and northern Europe across the Russia to Siberia.*
- **British Isles:** The species is only found in England and Wales. Strongholds for the species are the heaths of east Dorset and east Devon. Counties adjoining Berkshire where the species is found are Buckinghamshire, Surrey and Hampshire.
- **Berkshire:** In Berkshire the species occurs on most heathland sites where humid heath or mire occurs. It is not known if numbers are stable, increasing or in decline.

2 RELEVANT ECOLOGY & MANAGEMENT

- **Ecology**: The Bog Bush-cricket is restricted to lowland heathland and clearings in moist, heathy woodland. The preferred vegetation is dominated by Cross-leaved Heath (*Erica tetralix*) and Purple Moor-grass (*Molinia caerulea*). The species may not be confined to humid heath, adjacent dry heathland may support adults of the species. Nymphs may be confined to the more tender vegetation and higher humidity of humid heath and mire.
- **Management:** The maintenance of mire and humid heath with a variety of ages and structural stages of Purple Moor-grass and Cross-leaved Heath appears to be essential. General mire/humid heath management is currently the best form of management for this species. Sympathetic management of water levels and the control of scrub and trees are necessary. No other specific management needs are currently known.

3 HISTORICAL FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- Loss of habitat due to direct destruction and degradation of habitat through drainage and disruption of hydrological regimes.
- Invasion of mire and humid heath by scrub and bracken.
- Domination of mire and humid heath by rank growth of Purple Moor-grass due to cessation of grazing.

4 CURRENT FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- Disruption and lack of knowledge of hydrological systems on mire sites.
- Lack of detailed knowledge of Bog Bush-cricket ecology.
- Loss of habitat through scrub, bracken and Purple Moor-grass invasion.
- Lack of traditional management regimes on mires and humid heaths.

5 CURRENT ACTION & ISSUES IN BERKSHIRE

- Several areas of humid heath and mire are now under a sympathetic grazing regime. It is expected that several other sites will enter grazing regimes over the next couple of years.

6 ACTION PLAN OBJECTIVES AND TARGETS FOR BERKSHIRE

- Maintain all known colonies of Bog Bush-cricket
- Collect detailed distribution data for this species
- Improve knowledge of detailed ecological needs of this species.
- Monitor population responses to changed/enhanced management of Bog Bush-cricket colonies.

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* **Grasshoppers and Allied Insects of Great Britain and Ireland**, Marshall & Haes 1990

7 Objectives and proposed actions — *Bog Bush-cricket*

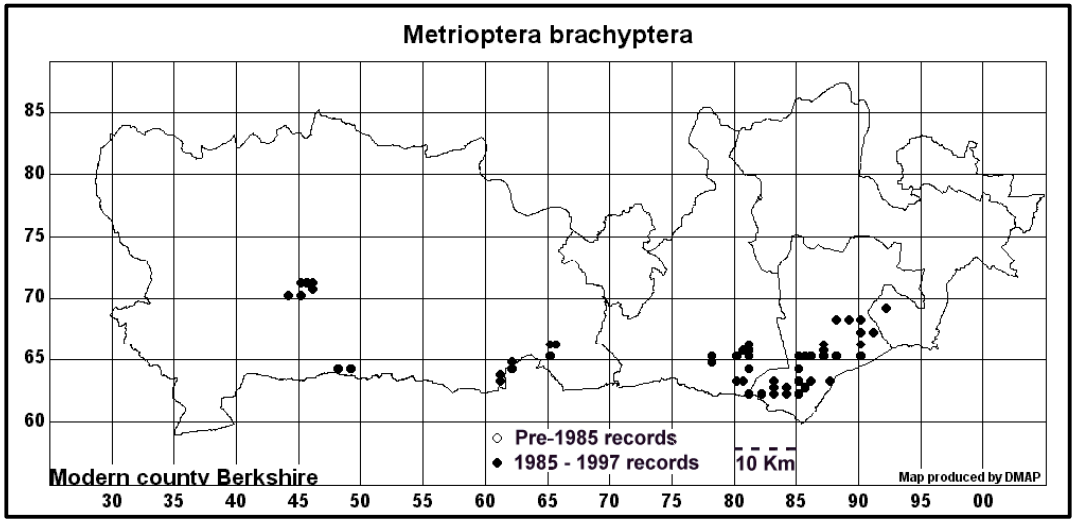
OBJECTIVES	PROPOSED ACTIONS		Year 1999 - 2005						
			99	00	01	02	03	04	05
Maintain all known colonies of Bog Bush-cricket	1	**Maintain current distribution of Bog Bush-cricket through sympathetic management at all known sites (ACTION: BBONT, UAs, Private landowners).**	X	X	X	X	X	X	X
Collect detailed distribution data for this species.	2	**Collect up to date distribution data for the Bog Bush-cricket (ACTION: BBONT, EN, UAs).**	X	X					
	3	**Collate existing data and enter onto Recorder database (ACTION: BBONT, EN).**	X	X	X				
Improve knowledge of detailed ecological needs of this species.	4	**Collate any existing data on Bog Bush-cricket ecology, seek the undertaking of further research (ACTION: BBONT, EN, BENHS*).**		X	X	X	X	X	X
Monitor population responses to changed/enhanced management of Bog Bush-cricket colonies.	5	**Monitor the responses of Bog Bush-cricket colonies to changes in management to ascertain which management has a positive effect (ACTION: UAs, BBONT, EN).**		X	X	X	X	X	X

Bog Bush-cricket *Metrioptera brachyptera* Berkshire distribution

61 Total records for Berkshire as of 1997

Berkshire Sites for Bog Bush-cricket

Gormoor Valley Mires - Valley Mires; Greenham Common SSSI; Withy Copse; Snelsmore Common SSSI; Wokefield Common (N&S); Wellington College Bog SSSI; Finchamstead Ridges; Moor Green Lakes; Crowthorne Woods WHS; Sandhurst to Owlsmoor Bogs & Heaths SSSI; Broadmoor Bottom Reserve; Oregon Bog; Silverstock Bog; Woodcray Cottage Wood; Longmoor Bog SSSI; Broadmoor to Bagshot Woods & Heaths SSSI; Decoy Heath Nature Reserve; Padworth Common; Shepperlands Farm



* BENHS British Entomological Natural History Society

ADDER (*VIPERA BERUS*)

Appendix III Bern Convention
Appendix 5 WCA 1981
NBAP Species of conservation concern*

1 CURRENT STATUS

1.1 International: This species is widespread across Europe and into Asia.

1.2 **British Isles:** The species is widely distributed across the British Isles though it increasingly thought that the national population is in decline.

1.3 Berkshire: Little is known of the exact distribution of the species, particularly outside of heathland areas from which it is most often reported. It is probable that populations have decreased over the last few decades, purely from the loss of suitable habitat over that period.

2 RELEVANT ECOLOGY & MANAGEMENT

2.1 Ecology: Adders hibernate in long standing communal hibernacula located in open sunny areas (to facilitate pre and post hibernation basking) with scattered scrub for shelter. These should be identified and protected from disturbance from the public and management. The areas immediately surrounding the hibernacula should be kept free of scrub and dense bracken as pre and post hibernation basking is an important part of the Adder life cycle. Hibernacula and associated basking sites are usually found on south-east facing slopes – maximising availability of light.

Feeding areas can be close by or up to 2km away. These areas are usually damper than hibernation sites – wet meadows, damp woodland and humid heath/mire. Hibernacula and feeding sites are linked by old established dispersal routes, followed each year in spring and autumn.

Sufficient space is needed for Adder colonies and other reptile species such as Slow Worm and Common Lizard to bask and feed. A lack of such space increases competition and stress on the Adders, leading to illness and possibly death.

2.2 Management: Before any management for Adders (or some other species) is undertaken, key hibernation, feeding, basking and combat sites should be identified.

Key areas need to be protected from establishment of secondary woodland. A mosaic of vegetation types and heights with abundant basking sites should be aimed for.

Establishment of glades and wide rides with scalloped edges is an option in areas where Adders are found in conjunction with secondary woodland.

In grassy areas (including mires) some areas of tussocky grass should be left as basking sites and refugia.

Rotovation of fire breaks etc. should be avoided in and around hibernacula, particularly between November and April.

3 HISTORICAL FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- Loss and degradation of habitat.
- Persecution.

4 CURRENT FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- Loss and degradation of habitat.
- Persecution.

5 CURRENT ACTION & ISSUES IN BERKSHIRE

- No ‘Adder specific’ action is currently known for Berkshire. The species will to some extent be benefiting from general heathland enhancement such as grazing and scrub clearance.

6 ACTION PLAN OBJECTIVES AND TARGETS FOR BERKSHIRE

- Maintain Adder at all known sites.
- Compile better distribution data for the Adder through both collation of existing records and field survey for each Unitary Authority.
- Survey Adder colonies with the aim of identifying hibernacula, basking areas,

* This status replaces the ‘long list’

fighting areas, feeding areas and dispersal routes.

- Carry out Adder specific management works to ensure optimum conditions.
- Try to counter negative public attitudes to the Adder through interpretation and education.

7 Objectives and proposed actions *Adder*

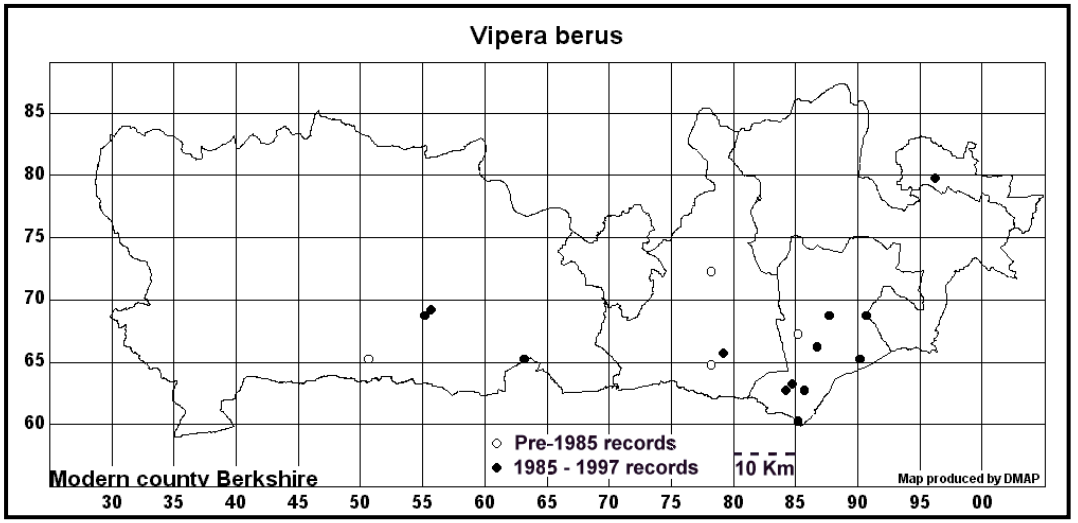
OBJECTIVES	PROPOSED ACTIONS		Year 1999 - 2005						
			99	00	01	02	03	04	05
Maintain Adder at all known sites.	1	**Ensure that management sympathetic to the Adder is carried out at all sites where it is found, particularly where hibernacula are located (ACTION: BBONT, UAs, Private landowners).**	*X*	X	X	X	X	X	X
Compile better distribution data for the Adder through both collation of existing records and field survey for each Unitary Authority.	2	**Collate data held by various bodies and put onto Recorder database (ACTION: BBONT, UAs, EN).**	*X*	X					
	3	**Carry out surveys of sites where there is no recent data for Adder to confirm old records (ACTION: BBONT, UAs).**	X	X					
Survey Adder colonies with the aim of identifying hibernacula, basking areas, fighting areas, feeding areas and dispersal routes.	4	**Carry out surveys where colonies are known to exist, particularly on those sites where management is either currently undertaken or likely to in the near future (ACTIONS: BBONT, UAs, EN, HCT?, BHS)**	X	X	X	X	X	X	X
	5	**Arrange training days for surveyors in identifying key Adder sites (ACTION: BBONT, UAs HCT, BHS).**	X	X	X	X	X	X	X
Carry out Adder specific management works to ensure optimum conditions.	6	**Introduce appropriate management of hibernacula, feeding and basking sites (ACTION: BBONT, EN, UAs, Private landowners, FE)**	X	X	X	X	X	X	X
Try to counter negative public attitudes to the Adder through interpretation and education	7	**Use on-site interpretation and produce leaflets etc. to promote value and relative harmlessness of Adder. Possibly carry out school visits to get message across to children (ACTION: BBONT, EN, UAs).**	X	X	X				

Adder *Vipera berus* Berkshire distribution

20 Total records for Berkshire as of 1997

Berkshire Sites for Adder

Dinton Pastures Country Park; Bucklebury Lower Common; Shepperlands Copse; Keel Drive Cressbeds; Woodland Barkham Ride; Easthampstead Park; Sandhurst to Owlsmoor Bogs and Heaths SSSI; Bowdown and Chamberhouse Woods SSSI; Birch Hill; Bagshot Road - Swinley Bottom WHS; Englemere Pond SSSI; Blackwater Valley SSSI (South); Broadmoor Bottom Reserve; Ufton Park; Snelsmore Common; Padworth Common; Greenham Common; Longmoor Bog



SAND LIZARD (*LACERTA AGILIS*)

Annex IV Habitats Directive
Annex II Bern Convention
Schedule 2 Conservation Regulations, 1992
Schedule 5 WCA 1981
NBAP Priority Species, national plan written (EN, HCT).

1 CURRENT STATUS

1.1 International**:** The sand lizard is under threat throughout its palearctic range and beyond. Populations are declining in Belgium, Denmark, northern France, northern Germany, Luxembourg, the Netherlands and Sweden.*

1.2 British Isles: Natural populations have been lost from much of the former range, including coastal dunes, and the Wealden heaths. Lost from the New Forest and Wales. Surviving colonies are limited to heathland habitat within coniferous forests, dry heaths of Dorset, a few populations in heathlands of south-west Surrey and the Merseyside sand dunes and a long established, introduced colony in Scotland. *L. agilis* has recently been re-introduced to sites in the New Forest, the Weald and Wales**.**

1.3 **Berkshire:** It is now thought that *L. agilis* is extinct in Berkshire. Colonies were extant at Windsor Great Park (1956), Ascot Race Course (1965), Wellington College (Bog SSSI?) a location in Wokingham and possibly Cold Ash (1946).

2 RELEVANT ECOLOGY & MANAGEMENT

2.1 Ecology: The Sand Lizard requires a focus of mature heather. The area of this can be less than 1 ha, though the larger the area of mature heather the better. The focus must include areas of bare unshaded sand in which eggs can be laid and incubation can occur. The whole focus must be protected from fires with a 2-3 metre wide fire break**.**

Scrub and trees must be prevented from establishing in such an area. Cattle must be excluded from the focus as they trample and kill the stands of mature heather. Cattle can also cause damage to buried eggs.

2.2 **Management**: Initial management of Sand Lizard sites can be costly, involving scrub and tree removal, bare sand creation, fire break installation and exclosure of cattle from the focus.

Subsequent management of Sand Lizard foci is less intensive and concentrates on maintaining the previously established bare sand and firebreaks. Scrub has to be controlled and stock proof fencing maintained.

3 HISTORICAL FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- Loss of habitat through direct destruction and degradation/succession.

4 CURRENT FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- The species is currently extinct in the county, however, current factors restricting possible re-introduction are:
- Lack of suitable areas of mature heather in suitable locations.
- Extensive public pressure on most heathland sites in Berkshire
- Regular uncontrolled fires on many heathland sites.
- Lack of resources for the required management.

5 CURRENT ACTION & ISSUES IN BERKSHIRE

5.1 There is currently a plan to re-introduce the sand lizard to a suitable Berkshire heathland site. Only preliminary investigation has been carried out. It is desirable that HCT will be involved in site selection for any Berkshire re-introductions**.**

6 ACTION PLAN OBJECTIVES AND TARGETS FOR BERKSHIRE

- Re-introduce the Sand Lizard as a breeding species to sites where long term viability of a colony is likely.
- Carry out management of selected location(s) to optimise conditions.

* National Biodiversity Action Plan, BAPSG 1995

- Review suitability of site(s) for (re)-introduction of species. The timescale for this part of the process will depend on the status of the re-introduction site. If there is sufficient mature heather review can take place immediately after site optimisation has been concluded. If heather cover needs to develop a period of 2-3 years may be required before review takes place i.e. 2002/03.
- (Re)-introduce Sand Lizard to chosen site(s) if funding and trial management indicate probable long term success.

7 Objectives and proposed actions *Sand Lizard*

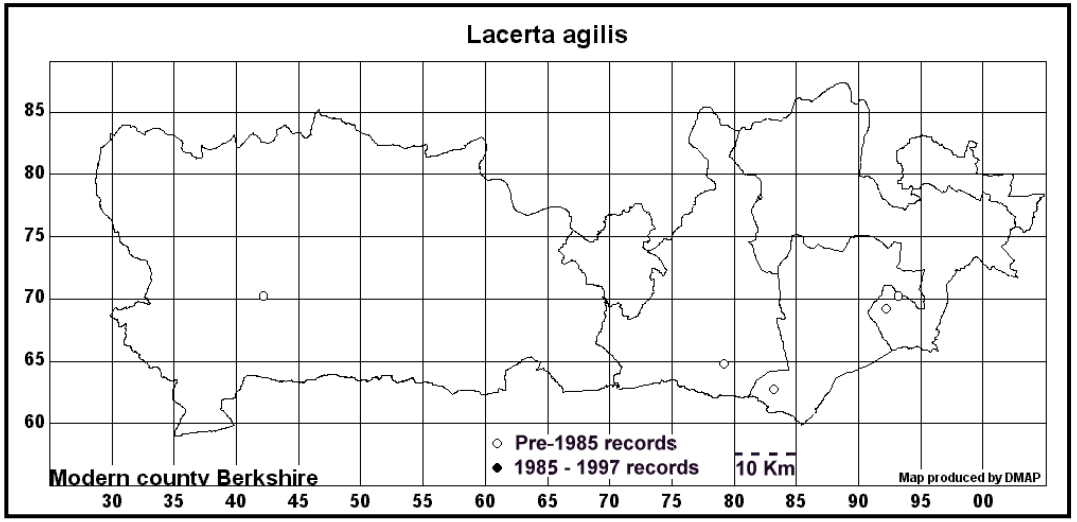
OBJECTIVES	PROPOSED ACTIONS		Year 1999 - 2005						
			99	00	01	02	03	04	05
Re-introduce the Sand Lizard as a breeding species to sites where long term viability of a colony is likely.	**1**	**Carry out a field survey of sites that meet or will meet the criteria for successful Sand Lizard re-introduction (ACTION: BBONT, EN, HCT).**		X					
	2	**This project can only proceed if funding for management is secured. This is essential as the Sand Lizard would require intensive management to establish a Berkshire colony/colonies (ACTION: BBONT, EN, UAs, HCT).**		X					
Carry out management of selected location(s) to optimise conditions.	**3**	**Sympathetic management to optimise conditions for Sand Lizard should be carried out at the chosen location(s). Such work may be required for up to 2 years before the species is (re)-introduced depending on the condition of heather cover. (ACTION: BBONT, EN, HCT, UAs, MOD).**			X	X	X	X	X
Review suitability of site(s) for (re)-introduction of species after 2-3 years i.e. 2002/03.	**4**	**When management for site optimisation is thought to be complete a final re-assessment should take place. This will finally decide the site's suitability for the species and that provision has been made for ongoing management needs. (ACTION: BBONT, EN, HCT, UAs, MOD).**					X	X	X
(Re)-introduce Sand Lizard to chosen site if funding and trial management indicate probable long term success.	**5**	**If re-assessment of the site indicates that there is a good chance of (re)-establishing a viable colony of Sand Lizard (re)-introduction should be progressed under the supervision of HCT and EN (ACTION: EN, HCT, BBONT, UAs, MOD).**					X	*X*	X

Sand Lizard *Lacerta agilis* Berkshire distribution

5 Total records for Berkshire as of 1997. Note this specie has been extinct in the county for some time.

Berkshire Sites for Sand Lizard

Below Hoar Hill; Wood north of Warren Lodge; Ascot heath, race course; Windsor Great Park; Wellington College (Most probably Wellington College Bog SSSI)



PALE DOG-VIOLET *(VIOLA LACTEA)*

Nationally Scarce

1 CURRENT STATUS

- **International**: In mainland Europe the range of the Pale Dog-violet is confined to the south-west of the Atlantic seaboard. It extends down France's Atlantic coast, through north-west Spain and into Portugal it is not, however, widespread through any of its range.

- **British Isles**: The preference for south-westerly locations is reflected in the distribution of the Pale Dog-violet in the British Isles. Colonies being found from East Sussex westwards to Cornwall. Scattered colonies are found along the west coast into Wales. The species is also found on the west coast of Ireland. The species is less common on inland sites. Populations of Pale Dog-violet are generally declining across the British Isles.

- **Berkshire**: There is currently only a single colony of Pale Dog-violet in Berkshire. This is located on Inkpen Common a Site of Special Scientific Interest and BBONT nature reserve. The population appears to be stable at this site (though see section 5).

2 RELEVANT ECOLOGY & MANAGEMENT

- **Ecology:** In England Pale Dog-violet shows a marked preference for open ground amongst heathland vegetation. It characteristically grows on shallow, sterile soils with good drainage. Other than this little is currently known of the exact ecological needs of the species. Nothing appears to be known about the long term viability of the Pale Dog-violet seed bank, something that may influence management of former sites.

- **Management:** The species' intolerance of a closed vegetation cover and the need for bare, disturbed ground for the setting of seed will necessitate the clearance of scrub and rank vegetation and provision of suitable patches of disturbed soil adjacent to colonies.

3 HISTORICAL FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- It is apparent from historical records that Pale Dog-violet was once more widely distributed. Druce's records* locate it at several heathland sites in the late 19th century, one of which was extant in 1927. It is likely that loss of open heathland to agricultural improvement, aforrestation and the cessation of traditional heathland management all contributed to the decline and eventual loss of the species on all sites except Inkpen Common. The exact reason for the species surviving at Inkpen Common is unknown.

4 CURRENT FACTORS CAUSING LOSS OR DECLINE IN BERKSHIRE

- Deterioration of the heathland habitat on Inkpen Common over many years has seen the reduction of suitable Pale Dog-violet habitat.
- There is some potential for cross pollination of *Viola lactea* with *Viola riviniana.* This results in a hybrid, thus reducing the reproductive potential of the Pale Dog-violet colony
- It is also possible that the isolation of this colony has resulted in loss of genetic vigour, reducing plant vigour and seed production.
- Following amendments to the boundary of the BBONT owned part of Inkpen Common grazing of the southernmost colony has been prevented. The owners are unwilling to allow this colony to be managed as part of the main site. This may pose a serious threat to the long term viability of this colony as long term management cannot be planned.

5 CURRENT ACTION & ISSUES IN BERKSHIRE

- Inkpen Common has been managed with light grazing for three years. Both colonies have been managed with scrub clearance

- Possible hybridisation has occurred within the colonies at Inkpen Common. Detailed population survey/analysis is required.

- The Pale Dog-violet population of Inkpen Common is monitored annually. The two major colonies are measured in great detail, each plant being marked using a fixed grid.

6 ACTION PLAN OBJECTIVES AND PROPOSED TARGETS – BERKSHIRE

- Maintain present colonies of the species

- Establish the extent, if any, of hybridisation amongst the colonies at Inkpen Common.

- Encourage continued monitoring of existing population and carry out monitoring of sites where the species has previously been recorded from..

- Extend current knowledge of Pale Dog-violet ecology.

* **The Flora of Berkshire**, Clarendon 1897

7 Objectives and proposed actions *Pale Dog-violet*

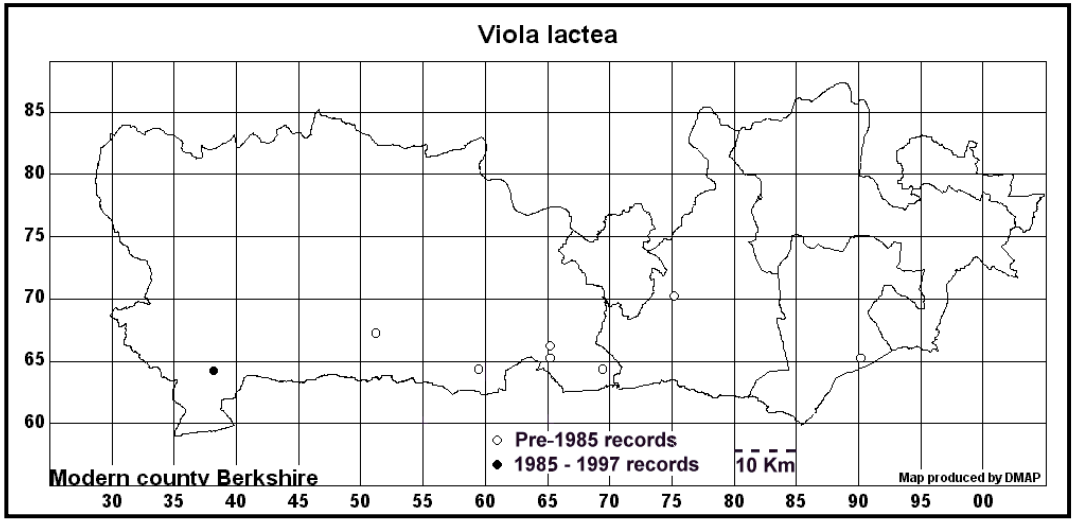
OBJECTIVES	PROPOSED ACTIONS		Year 1999 - 2005						
			99	00	01	02	03	04	05
Maintain present colonies of the species	9	**Collate management experience/expertise from other wildlife trusts managing this species (ACTION: BBONT, EN)**	*X*	**X**	**X**				
Establish the extent, if any, of hybridisation amongst the colonies at Inkpen Common.	10	**Carry out a detailed survey and possibly a DNA test to ascertain the extent of hybridisation between Pale Dog-violet and Common Dog-violet (ACTION: BBONT, EN, Reading University ?)**	*X*	**X**					
Encourage continued monitoring of existing population and carry out monitoring of sites where the species has previously been recorded from..	11	**Continue annual monitoring of Pale Dog-violet population at Inkpen Common (ACTION: BBONT).**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	12	**Monitor sites where Pale Dog-violet has historically occurred and where current management may promote renewed germination within seed bank (ACTION: EN, UAs, Private landowners).**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Extend current knowledge of Pale Dog-violet ecology.	13	**Explore the possibility of getting further research carried out into Pale Dog-violet ecology (ACTION: BBONT, EN, Universities, BSBI, Plantlife).**		**X**	**X**	**X**	**X**	**X**	**X**

Pale Dog-violet *Viola lactea*

9 Total records for Berkshire as of 1997

Berkshire Sites for Pale Dog-violet

Inkpen Common SSSI; Aldermaston; Mortimer Common; Burghfield Common; Loddon Bridge; Between Ascot and Bagshot; Three Firs - Burghfield Common; Thatcham



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APPENDICES

APPENDIX 1

Berkshire key heathland species

National Biodiversity Action Plan Species found on Berkshire heathlands

Species	Woodlark (Key)	Nightjar (Key)	Dartford Warbler (SCC)	Sand Lizard (Key)	Adder (SCC)	Silver-studded Blue (Key)	Hobby (SCC)	Tree Pipit (SCC)	Marsh Clubmoss (Key)	Pillwort (Key)	Broom Tip Moth (SCC)	Goat Moth (SCC)	Heath Grasshopper (SCC)	Potter Flower Bee (SCC)	Large Garden Bumble Bee (Key)	*Xysticus luctator* (a crab spider) (SCC)	Hornet Robberfly *Asilus crabroniformis (Key)*
Site name																	
Bracknell Forest																	
Sandhurst to Owlsmoor SSSI	P	P	P		P	P	P	P									
Broadmoor to Bagshot SSSI	P	P	P			P	P	P									
Wellington College Bog SSSI	?	?	P	EX				P/V									
Berkshire Golf Club																	
Swinley Forest Golf Club	?																
Englemere Pond SSSI																	
Crowthorne Woods	P	P															
King's Ride	?					P											
Edgebarrow Hill	P	P				P		P									
Rapley Lakes						P											
Caesar's Camp	P	P	P/V														
Swinley Brick Pits SSSI	P	P				P	P	P	P								
Old Bagshot Road Picnic Site	?	?															
Beaufort Park						P											
Wellington College Golf Course																	
West Berkshire																	
Bucklebury Common	P	P					P	P									
Snelsmoor Common SSSI		P				P		P									

Berkshire Heathland BAP

1999 - 2005

Species	Woodlark (Key)	Nightjar (Key)	Dartford Warbler (SCC)	Sand Lizard (Key)	Adder (SCC)	Silver-studded Blue (Key)	Hobby (SCC)	Tree Pipit (SCC)	Marsh Clubmoss (Key)	Pillwort (Key)	Broom Tip Moth (SCC)	Goat Moth (SCC)	Heath Grasshopper (SCC)	Potter Flower Bee (SCC)	Large Garden Bumble Bee (Key)	*Xysticus luctator* (a crab spider) (SCC)	Hornet Robberfly *Asilus crabroniformis (Key)*
Padworth Common	P	P						P									
Greenham Common SSSI (including airbase)	P	P						P/V									
Wokefield Common																	
Inkpen Common SSSI								P									
Decoy Heath SSSI	P					P	P	P									
Bowdown Woods SSSI								P									
Aldermaston AWRE	?	?				?		?									
Sole Common								P									
Wasing Wood Ponds SSSI	P	P						P									
Fields East of Cowpond Piece		P															
Frilsham Common																	
Upper Moors Gully/Heath																	
Wickham Heath & Hermitage Woods	P	P															
Valentine's Wood	P	P															
Englefield Estate (inc. Cowpond & Gibbet Piece, Ufton Common, Island Farm & Gravelly Piece.)	?	P															
Poor's Allotment																	
Wokingham																	
Longmoor Bog SSSI						P											
East Berks. Golf Course																	
Heath Lake SSSI										E?							
Finchampstead Ridges	P	P						P									
High Wood																	
Shepperlands Farm																	

Springfield House																	
Silverstock Bog																	
Woodcray Golf Course																	
Bearwood Golf Course																	
Windsor & Maidenhead																	
Windsor Great Park		P		EX			P										
Ascot Race Course				EX													
Reading																	
McIlroy's Park & Lousehill																	

KEY	
P	Present
P/V	Present in vicinity
EX	Extinct
Key	Key Species = BAP lists 1& 2
SCC	Species of Conservation Concern - BAP list 3

Note that distribution of some species is more widespread than indicated on table. This is due to species being present on sites not included in this BAP. Species with no entries are associated with heathland habitat but currently not known from any heathland sites. They may, however, be 're-discovered'.

APPENDIX 2

National BAP Habitat Statements & Costed Habitat Action Plans relevant to Berkshire heathland:

ACID GRASSLANDS HABITAT STATEMENT

1. CURRENT STATUS

Acid grasslands are probably one of the most extensive semi-natural habitats in Britain, yet surprisingly little is known about their true extent or conservation management requirements, especially in the lowlands. Estimates suggest that there is in excess of 1,200,000 ha of acid grassland in the uplands but in the lowlands it is unlikely to exceed 30,000 ha. Lowland acid grassland is becoming increasingly rare in Britain. However, in the uplands much acid grassland is often of low biological interest and is the product of poor management of other priority habitats, such as dwarf-shrub heath. Acid grassland also occurs in the montane zone, however, montane habitats are covered by a separate Statement.

Acid grasslands occur on acid rocks such as sandstones, acid igneous rocks and on superficial deposits such as sands and gravels. Although the habitat is typically species-poor a wide range of communities occur in the UK. Large expanses of acid grassland, uniform in character, occur in the uplands. These areas have a limited biodiversity interest, but a proportion contribute to the conservation interest of the moor. In the lowlands, acid grasslands are now rare and particularly in areas such as East Anglia they provide an important reservoir of rare species.

2. CURRENT FACTORS AFFECTING THE HABITAT

In the lowlands this habitat is affected by:

- Agricultural intensification, particularly fertilisation, ploughing and drainage.
- Lack of grazing leading to an invasion by coarse grasses and scrub.

In the uplands the main causes of change are:

- Inappropriate grazing regimes by sheep, cattle, ponies and deer, typically excessive grazing levels at the wrong time of the year, which causes the habitat to become degraded.
- Forestry planting.
- Abandonment and neglect leading to encroachment by bracken Pteridium aquilinum.
- Liming, ploughing and reseeding around the lower fringes of upland areas.

3. CURRENT ACTION

3.1 Legal status

Some lowland acid grassland habitat lies within the SSSI network in Great Britain. Large areas are also included within upland 555 Is, although usually only as features of subsidiary interest. However, in Northern Ireland only a small proportion of the estimated 11,787 ha of this habitat is contained in ASSIs.

The application of environmental conditions to livestock headage payment schemes can benefit acid grassland management objectives In the uplands. In 1994 the UK introduced national measures under EC law to limit CAP payments for Suckler Cow Premiums, Sheep Annual Premium Scheme and the Beef Special Premium Scheme. Farmers claiming Hill Livestock Compensatory Allowance can have their payments limited if they overgraze the land. This could help prevent serious deterioration in the growth and quality of vegetation. Overgrazing is a problem associated with upland areas, whilst in lowland areas insufficient grazing is generally the problem.

3.2 Management, research and guidance

Important acid grassland sites may also be recognised as Wildlife Sites and as such are protected by relevant local planning policies.

Non-statutory nature reserves managed by a variety of conservation organisations also

include important examples of acid grassland communities. Acid grassland also forms a significant component of a number of ESAs notably Breckland, Pennine Dales, Whitlaw and Eildon, Clun, Exmoor, Lake District, Shetland, and Cambrians.

In Wales the Tir Cymen scheme includes guidance for the appropriate management of acid grassland.

Many examples of acid grasslands, particularly in the uplands, occur on degraded ex-woodland sites of low nature conservation interest. Many of these areas are suitable for afforestation aimed at the establishment of native and non native woodlands. Other areas may be targeted for heathland restoration.

4. CONSERVATION DIRECTION

Maintain and enhance important areas of acid grasslands, restore areas of degraded acid grassland, in particular to buffer existing important areas.

Measures to be considered further include:

- Identify the true extent and quality of the acid grassland resource.
- Encourage appropriate livestock grazing to conserve the habitat.
- Protect acid grasslands of conservation importance from inappropriate land use and intensification.
- Restore habitat adjacent to important or vulnerable sites.
- Research appropriate methods of managing and restoring acid grasslands in the uplands.

LOWLAND HEATHLAND A COSTED HABITAT ACTION PLAN

1. CURRENT STATUS

Lowland heathland is characterised by the presence of plants such as heather, dwarf gorses, and cross-leaved heath and is generally found below 300 metres in altitude. Areas of good quality heathland should consist of an ericaceous layer of varying heights and structures, some areas of scattered trees and scrub, areas of bare ground, gorse, wet heaths, bogs and open water. The presence and numbers of characteristic birds, reptiles, invertebrates, vascular plants, bryophytes and lichens are important indicators of habitat quality.

Lowland heathland is a priority for nature conservation because it is a rare and threatened habitat. In England only one sixth of the heathland present in 1800 now remains. The UK has some 58,000 ha of lowland heathland of which the largest proportion (55%) is found in England. The most significant areas for lowland heathland include the counties of Hampshire, Cornwall, Dorset, Surrey, Devon, Staffordshire, Suffolk, Norfolk, Pembrokeshire, West Glamorgan and west Gwynedd. The UK has an important proportion (about 20%) of the international total of this habitat.

2. CURRENT FACTORS AFFECTING THE HABITAT

In the past heathland was lost primarily to agriculture, forestry, mineral extraction and development. Uncontrolled burning has also been a particular threat to bryophyte and lichen-rich heathland. The main factors affecting the habitat at present are:

- Encroachment of trees and scrub and the simplification of vegetation structure due to a lack of conservation management such as light grazing, controlled burning and cutting.
- Nutrient enrichment, particularly deposition of nitrogen compounds emitted from intensive livestock farming, or from other sources.
- Fragmentation and disturbance from developments such as housing and road constructions.
- Agricultural improvement including reclamation and overgrazing, especially in Northern Ireland.

3 CURRENT ACTION

3.1 Legal status

Through the Wildlife and Countryside Act 1981, a large proportion of the lowland heathland habitat has been notified as SSSI.

3.2 Management, research and guidance

The Countryside Stewardship scheme included 9,413 ha of lowland heathland in England by March 1994. This is the only country-wide heathland management and re-creation scheme. A number of counties in England. however, have heathland management projects which receive financial support through EN's National Lowland Heathland Programme. A number of other bodies including the National Trust, MoD, County Wildlife Trusts and RSPB are also actively involved in heath land management and the Forestry Authority is promoting heathland regeneration within woodlands.

The CCW is carrying out a lowland heathland survey in Wales to identify all the remaining important sites and improve management and protection. A survey of the distribution, extent and condition of lowland heathland in Scotland is required.

Management of lowland heathland is carried out through EN's Wildlife Enhancement Scheme which is expected to cover 9,000 ha of heathland by I 997; management agreements are negotiated with SNH over SSSIs containing lowland heathland and also through MAFF's ESAs, notably in Breckland and West Penwith in Cornwall. In Northern Ireland some lowland heath is managed within DANI's ESAs.

4 ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

- Maintain, and improve by management, all existing lowland heathland (58.000 ha).
- Encourage the re-establishment by 2005 of

a further 6,000 ha of heathland with the emphasis on the counties of Hampshire. Cornwall, Dorset, Surrey, Devon, Staffordshire, Suffolk and Norfolk in England and Pembrokeshire, Glamorgan and west Gwynedd in Wales, particularly where this links separate heathland areas.

Through the Change in Key Habitats Project (CKH) it has been estimated that there is 67,000 ha of recently modified heathland with the potential for restoration. The figure of 6,000 ha therefore represents a modest attempt to recreate approximately 10% of the existing lowland heathland resource. This target could be realistically met using existing Countryside Management Schemes. The careful targeting of 6,000 ha of lowland heathland recreation will also make a modest contribution to reversing the effects of past fragmentation of the resource.

5. PROPOSED ACTION WITH LEAD AGENCIES

5.1Policy and legislation

Where significant gaps in the SSSI/ASSI coverage of
lowland heathland are identified the appropriate SSSI/
ASSI procedure should be implemented by 1998.
(Action: CCW, DoE(NI) EN, SNH)

- Consider expanding Countryside Stewardship, Tir Cymen, Environmentally Sensitive Area (ESA) and Wildlife Enhancement Schemes (WES) to meet the targets for heathland management and re-creation. Determine the applicability of a new scheme similar to Countryside Stewardship for Scotland. (ACTION: CCW, DANI, EN, MAFF, SNH, SO, WOAD)
- Take account of the conservation requirements of lowland heathland in developing and adjusting agrienvironment schemes. (ACTION: DANI. MAFF, SOAEFD, WOAD)
- Simplify the process for submission of applications to the Secretary of State to fence lowland heathland that is common land for grazing, to maintain its wildlife interest. (ACTION: DoE, WO)
- In areas that support lowland heathland, there should be a presumption in favour of re-establishing heathland on derelict land or land that has been used for mineral extraction. (ACTION: DoE, SO, WO)
- Encourage Forest Enterprise and the MoD to agree action plans with specific targets for heathland restoration or management for all heathland sites in their ownership with the statutory nature conservation agencies by the end of 2000. (ACTION: Forest Enterprise. MoD)

5.2 Site safeguard and management

- The long term funding of county heathland management projects, most of which have full time project officers and which play a key role in delivering heathland management needs to be addressed. Consideration should be given to establishing county heathland projects In Wales. (ACTION: EN, CCW). Relevant local authorities should incorporate heathland Wildlife Site protection policies in development plans by 2000. (ACTION: LAs)

5.3 Advisory

- Organisations with experience of heathland management should continue to provide advice on how to manage and restore lowland heathland.
(ACTION: CCW, EN, LAs, SNH).
- Continue existing training courses on heathland management and conservation and target these at land management advisors and officers running countryside management schemes. (ACTION: RSPB) Produce county lowland heathland re-creation plans identifying areas with a high potential for heathland re-establishment by 2000 for all lowland heathland counties. (ACTION: EN, CCW, SNH)
- Seek to disseminate lowland heathland inventories to key organisations involved in heathland management for all counties in England by 1 997. Seek to complete the Welsh national survey of lowland heathland so that inventories can be published to guide the targeting of countryside management schemes. Consider the need for a survey and subsequent inventory project in Scotland. Inventories will need periodic updating (see the requirements of the information sub group). (ACTION: CCW, EN, RSPB, SNH)

5.4International

- Continue to develop contacts between international experts in heathland conservation, through mechanisms such as the European Heathland Workshop. This is essential to exchange experience and avoid duplication of effort. (ACTION: CCW, EN, SNH)
- The European Environment Agency should be encouraged to develop an inventory of lowland heathland to support EU policy development. (ACTION: DoE)

5.5 Future research and monitoring

- Develop a rapid monitoring method to be used at a sample of sites to ensure that heathland management schemes are meeting their objectives. (ACTION: CCW, EN, SNH)
- Seek to ensure that appropriate studies to evaluate new labour saving technologies for heathland restoration especially for techniques such as turf cutting and rotovation are implemented. (ACTION: CCW, DoE, EN, SNH, SO, WO)
- Establish a baseline survey for monitoring the extent, condition and restoration of lowland heathland in England. (ACTION: DoE)

5.6 Communications and publicity

Undertake a publicity campaign to raise awareness of the importance of lowland heathland by 1998. (ACTION: CCW, EN).

COSTINGS

The successful implementation of the action plan will have resource implications for both the private and public sectors. The data in Table 1 below provide a preliminary estimate of the likely resource costs to the public sector in the years 1997, 2000 and 2010, in addition to existing public expenditure commitments in 1995. Figures are provided for central estimates of costs and also for a range of alternative costs (low and high) .These alternative figures reflect different payment (and cost) levels and different scheme coverage assumptions.

The data are based on targets whereby 58,000 hectares of existing heathland habitat will be appropriately maintained and improved and 6,000 hectares of heathland will be re. established through to 2010.This results in a central estimate of about £95 per hectare per year (including existing commitments) required for management and enhancement costs (by 201 0).The figures also are based on the assumption that the area of land under management schemes will increase from 48% in 1995 to 92% of private sector land by 201 0. The figures also include a public sector land purchase component of 50 hectares each year, and a 50% grant to private sector land purchases of 120 hectares each year, through to 2010.

In order to re-establish 6.000 hectares of lowland heathland additional costs will be as shown in Table 1 .This results in an average expenditure of about £300 per hectare established per year (including existing commitments) by 2010, as the proportion of ongoing management relative to new establishment increases.

It should be noted that the above figures will not necessarily be the net cost to the public sector. While significant increases in environmentally based payment schemes would be required to make payments to land managers there could be some savings in terms of reduced agricultural support payments. On the other hand, there may be additional opportunity costs that are excluded from this analysis. An example would be lost timber revenue for public sector landowners such as Forest Enterprise.

COSTINGS

Habitat Type: Lowland Heathland (£000 per annum)

Total Area to be maintained and enhanced (Ha) 58,000	**1997**			**2000**			**2010**		
	Low	Central	High	Low	Central	High	Low	Central	High
	300	900	1,800	500	1,700	3,600	1,800	2,600	4,700
Area to be re-established (Ha)	**1997**			**2000**			**2010**		
	Low	Central	High	Low	Central	High	Low	Central	High
6,000	200	200	400	300	400	700	700	800	1,200

PLANTED CONIFEROUS WOODLAND HABITAT STATEMENT

1. CURRENT STATUS

Many woods composed wholly or mainly of conifer species, both native and introduced, have been planted on habitats which had significant biodiversity value as open grounds. Habitat Statements for other habitats such as broadleaved and yew woodland, heath, moor and bog recommend a programme of clearance of plantation woodland to allow recreation of the former habitat. This Statement considers the existing or potential importance for biodiversity of large UK plantations where wholesale restoration is not the main conservation need. It should be considered in conjunction with Statements for other habitats,

Approximately 7% (1,516,000 ha) of Great Britain is covered by conifer woodlands. The stands are usually of a single species, with approximately 40% being sitka spruce, however, at the forest scale species composition is normally mixed: in thinned older stands and at edges and glades, a variety of native trees and shrubs develop as an understorey. 775,000 ha are managed by Forest Enterprise and 741,000 ha are privately owned.

Many first rotation forests are reaching harvestable age. This provides opportunities to restructure the habitat which will lead to diversification of the plant and animal communities they contain. Second rotation forests are more likely to be planned to take account of nature conservation needs through creating internal forest diversity, in tree and stand age. Many forests also have a number of associated features and habitats that are important for wildlife. Woodland rides and glades for example can be important for vascular plants and invertebrates. They could also provide areas for targeting limited restoration of semi-natural habitat in conifer plantations. Old stands with dead and dying trees, understorey vegetation and open canopies are also important for a variety of species.

A number of GB Red Data Book bird species may occur in plantations. These include goshawk *Accipiter gentilis,* Scottish crossbill *Loxia scotica* and firecrest *Regulus ignicapillus* and in clear-felled or early growth stages nightjar *Caprimulgus europaeus* and woodlark *Lullula* arborea.

2. CURRENT FACTORS AFFECTING THE HABITAT

There is no particular threat to the conifer resource as a whole. However, some factors could either reduce the existing wildlife interest of plantations or mean that potential improvements are not realised. These include:

- Decreases in the structural diversity of stands and forests through insensitive management.
- Clear-felling and replanting that disrupts other elements of the forest ecosystem, for example through erosion or effects on water bodies.

3. CURRENT ACTION

3.1 Legal status

The overall UK policy aims are set out in *Sustainable Forestry:*
The UK Programme (1994) and Biodiversity in Britain's Forests (I 993). An expansion of planted conifer woodland is envisaged, which will increase the diverse benefits that forests can provide. The UK also signed the Resolution *for the* Conservation of Biodiversity of *European* Forests as agreed in Helsinki (1 993).This resolution provides for the enhancement
of biodiversity as part of a sustainable forest management programme by integrating the requirements of native, natural and managed woodlands.

In 1986 the Countryside Commission for Scotland proposed that all Local Authorities should undertake the preparation of Indicative Forestry Strategies and in 1987 the Convention of Local Authorities recommended that all Regional Councils should prepare such strategies, These have been produced and are being reviewed. Essentially, Local Authorities draw up maps which direct afforestation onto areas which are known to have a low conservation interest. In England and Wales County Councils have started the process of producing Indicative Forestry Strategies.

There is a strong emphasis on wildlife conservation and management in licences and grants administered by the Forestry Authority. The Forestry Commission, through its Regional Advisory Committees and Environmental Panels, consults conservation specialists on its activities.

3.2 Management, research and guidance

Forest Enterprise is preparing Forest Design Plans with local conservation experts which are subject to Forestry Authority approval. The Forest Design Plans are the major means of delivering biodiversity gains in FE forests through promoting structural diversity and populations of key species.

The Forestry Commission has also produced documents *Forest and Water Guidelines* (1 993), *Nature* Conservation *Guidelines* (1990) and *Landscape Guidelines* (I 989) which they use as the basis for prescribing management for wildlife conservation, The Forestry Commission is currently drawing together these, and other environmental guidelines, to produce standards for enhancing the biodiversity of planted forests. These standards will reflect the structural and functional elements of the forest as well as the species interest.

Other practical examples of multi-purpose forest development exist in the National Forest and Community Forest initiatives, and in Woodland Parks, Community Woodlands and Forest Parks.

Some conifer plantations have been notified as SSSI for their bird interest and many others fall within SSSIs notified for other reasons,

Forest Enterprise has initiated a number of restoration schemes, removing trees from heathland, restructuring forests and working to restore native woodlands.

4. CONSERVATION DIRECTION

Maintain and enhance the wildlife potential of the existing conifer resource through continued restructuring and diversification.

Measures to be considered further include:

- Develop a strategy to implement the Resolution for *the* Conservation of Biodiversity of European Forests as agreed in Helsinki (1993)
- Continue to direct the expansion of planted conifers to land of low conservation value (such as derelict industrial and low grade arable land) ensuring habitats of a high nature conservation value are not further threatened - using Indicative Forest Strategies where available.
- Promote systems of monitoring the biodiversity conservation value of planted conifer woodlands, for example by assessing critical habitat features and selected key or indicator species.

National Species Action Plans relevant to Berkshire heathland:

SAND LIZARD *(LACERTA AGILIS)*

1. CURRENT STATUS

1.1 The sand lizard is under threat throughout its palearctic range and beyond. In the UK, natural populations have disappeared over much of its former range, including coastal dunes and the Wealden heaths, and were lost from the New Forest and from Wales. Surviving colonies are mostly confined heathland habitats within coniferous forests, dry heaths of south Dorset, with only a few populations remaining in heathlands of south-west Surrey and the Merseyside sand dunes and one long established, introduced colony in Scotland on the Isle of Coil. The species is absent from Northern Ireland. Sand lizards have recently been re-introduced to sites in the New Forest, the Weald and Wales.

1.2 Populations are declining in Belgium, Denmark, northern France, northern Germany, Luxembourg, the Netherlands and Sweden. It is listed on Annex IV of the Habitats Directive and Annex II (and Recommendation 26) of the Bern Convention. It is protected under Schedule 2 of the Conservation (Natural Habitats, etc.) Regulations, 1994 (Regulation 38) and Schedule 5 of the WCA 1981.

2. CURRENT FACTORS CAUSING LOSS OR DECLINE

2.1 Loss, deterioration and fragmentation of heathland and dune habitat to a wide range of competing uses and pressures, for example development, forestry, mineral extraction, etc.

2.2 Birch, pine, bracken and other scrub (for example *Gaultheria shallon)* encroachment of dune and heathland habitats.

2.3 Uncontrolled fires.

2.4 Shortage of suitable breeding sand on heathland sites.

3. CURRENT ACTION

3.1 Populations have been successfully re-introduced to some heaths in south-east England, Dorset and Wales. An introduction to the Inner Hebrides has survived for 25 years.

3.2 Research on distribution, status and habitat resulted in a programme of habitat management led by the British Herpetological Society (BHS),grant-aided by the World-Wide Fund for Nature (WWF) and the statutory agencies. This has recently been expanded by the Herpetofauna Conservation Trust (HCT). A programme of translocations to former sites is continuing work begun by BHS in the I 970s.

3.3 This species is the subject of a 3-year Species Recovery Programme, initiated in 1994 by CCW, EN, HCT and WWF.

4. ACTION PLAN OBJECTIVES AND TARGETS

4.1 Re-establishment of 10 populations seems to be both achievable and feasible. The current Species Recovery Programme, now in its second year, achieved four translocations in the first year and one further site was included in 1995. Eleven sites have been identified for further consideration (although it is unlikely that all will be suitable). A target of 10 is achievable, and hopefully could be exceeded by the year 2000. A longer target would be unwise,

4.2 Re-establish 10 populations to restore the range and distribution in suitable habitat within its former range by the year 2000.

4.3 Maintain all breeding populations at current levels, and enhance where possible.

4.4 Reverse the fragmentation of sites by habitat re-creation and management.

5. PROPOSED ACTION WITH LEAD AGENCIES

5.1Policy and legislation

5.1.1 Encourage the development and uptake of management schemes and incentive payments for heathland management and restoration in southern England, and ensure these include provision to assist sand lizard conservation. (ACTION: MAFF)

5.1.2 Consider removal of limited areas of woodland on former heathland to allow linkages of fragmented heathland populations and expand populations within forests. (ACTION: FA, FE)

5.1.3 Seek to ensure that dune management policies are consistent with sand lizard needs in occupied areas. (ACTION: LAs)

5.2Site safeguard and management

5.2.1 Review SSSI coverage of sand lizard sites in Wales and seek to ensure all significant populations are designated. (ACTION: CCW)

5.2.2 Identify all sites with sand lizards to LAs for identification in Development Plans. (ACTION: CCW, EN, LAs)

5.2.3 Consider habitat re-creation on suitable heathland and dune vegetation to consolidate and expand the current range. (ACTION: CCW, EN, FA, FE, LAs, MAFF)

5.3 Species management and protection

5.3.1 Ensure sand lizard needs are catered for in programmes of cutting, burning or grazing management on sites supporting populations, or likely to do so. (ACTION: CCW, EN, SNH)

5.3.2 Maintain all breeding populations at current levels, and enhance where possible. (ACTION: CCW, EN)

5.3.3 Where feasible, and following the identification of suitable sites, consider translocations to re-establish the former range and distribution of the species in suitable habitats (for example coastal sand dunes). (ACTION: CCW, EN)

5.4 Advisory

5.4.1 Ensure that relevant LAs and landowners and **managers** of sites containing sand lizard are aware of **its** needs, legal status and importance of conserving the species and that advice on management is available. (ACTION: CCW, EN, FA, SNH)

5.5 Research and monitoring

5.5.1 Investigate and refine methods for permanently controlling and redressing habitat degradation by bracken and *Gaultheria*. (ACTION: CCW EN, JNCC, MAFF)

5.5.2 Evaluate the genetic differences between the Merseyside, Weald and Dorset populations. (ACTION: EN, JNCC)

5.5.3 Encourage the regular monitoring of known populations. (ACTION: CCW, EN, JNCC)

5.5.4 Pass information gathered during survey and monitoring of this species to JNCC or BRC in order that it can be incorporated in a national database and contribute to the maintenance of an up-to-date Red List. (ACTION: CCW EN, SNH)

5.6 Communication and publicity

5.6.1 Publicise the importance, rarity and conservation needs of sand lizard through the use of interpretative materials and the involvement of the media, zoos and other captive collections. (ACTION: CCW, EN)

APPENDIX 3
Heathland Management Literature

It is not within the scope of this document to give in depth management advice. Land owners and managers who read this document will, on the whole, have considerable knowledge of heathland management techniques.

Several sources of information and expertise are presented in the following contacts appendix. There are, however, several books that are worthy of mention due to the extensive information and practical advice contained in them.

The Lowland Heathland management handbook	Gimmingham, C.H.	English Nature	ISBN 1 85716 0770	1992
The Lowland Heathland management booklet Ver. 1.0	Michael, N.	English Nature	ISBN 1 85716 086 X	1993
Forests and Birds	Currie, F., Elliot, G.	RSPB/FA	ISBN 0 90313 8913	1997
Heathland Restoration: a handbook of techniques	Putwain, P.D., Rae, P.A.S.	British Gas	ISBN 0 903545 39 X	1988
Habitat Management for Invertebrates; a practical handbook	Kirby, P.	JNCC/RSPB	ISBN 0 903138 55 7	1992

APPENDIX 4

Contacts

The following are contact addresses for individuals and organisations with particular expertise in heathland matters.

English Nature
Thames and Chilterns Team
Foxhold House
Crookham Common
Newbury
Berkshire RG15 8EL
TEL:01635 268881
FAX:01635 268940

RSPB (Central England)
Royal Society for the Protection of Birds
The Green
South Bar
Banbury
Oxon OX16 9AB
TEL:01295 253330
FAX:01295 265734

Berks, Bucks & Oxon Naturalists' Trust (BBONT)
3 Church Cowley Road
Oxford
Oxon OX4 3JR
TEL:01865 775476
FAX:01865 771301

Appendix 5 Detailed breakdown of heathland maintenance, restoration and re-creation targets

Using this table

Due to the initially complicated appearance of this table columns A - E are explained here:

A This column simply indicates the area of maintenance from 1999 - 2005. Figures for maintenance show initial and 2005 figures (i.e. area to be maintained before and **after** all restoration and re-creation is carried out).

B This column shows the total cost of works over the period 1999 - 2005. Note that for maintenance the total reflects the year on year increase in area needing maintenance after having been restored or re-created.

C This column shows the average cost per year for each management activity - maintenance, restoration and re-creation.

D This shows the total average costs per year for the site, i.e. the totals of those averages carried in column **C**.

E This column shows the figure for maintaining the site after all restoration and re-creation has been carried out (final site area in ha X £250).

Site name	**Total site area (ha)**	**Total 1998 heathland area inc. mire (ha)**	**Heathland restoration targets inc. mire (ha)**	**Heathland re-creation targets (ha)**	Targets for maintenance, restoration and re-creation by 2005*	*A Estimated cost per hectare/ per year*	**B Estimated total cost 1999 - 2005**	**C Average annual cost 1999 - 2005)**	**D Average total annual cost 1999 - 2005**	**E Annual costs, post 2005**
Bracknell Forest										
Sandhurst to Owlsmoor SSSI	85	33	12	3	Maintain and enhance heathland and mire.	33 ha - 51 ha @ £250/ ha	£73,500	£10,500	£13,285	£12,750
					Restore 12 ha of heathland/mire by 2005.	12 ha @ £1000/ ha	£12,000	£1,714		
					Re-create 3 ha of heathland by 2005	3 ha @ £2500/ ha	£7,500	£1,071		
Broadmoor to Bagshot SSSI (BBONT)	10.78	6	3	0	Maintain and enhance heathland and mire.	6 ha - 9 ha @ £250/ ha	£13,125	£1,875	£2,303	£2,250
					Restore 3 ha of heathland/mire by 2005.	3 ha @ £1000/ ha	£3,000	£428		
Broadmoor to Bagshot SSSI (MOD)	515.22	41	71	0	Maintain and enhance heathland.	41 ha @ £250/ ha	£133,875	£19,125	£29,268	£28,000
					Restore 71 ha of heathland/mire by 2005.	71 ha @ £1000/ ha	£71,000	£10,143		

* Targets are taken from BHP Final Report December 1997.

Wellington College Bog SSSI	6	4.2	0	0	Maintain and enhance heathland	4.2 ha @ £250/ ha	£7,350	£1,050	£1,050	£1,050
Berkshire Golf Club	165	12	0	0	Maintain and enhance heathland	12 ha @ £250/ ha	£21,000	£3,000	£3,000	£3,000
Swinley Forest Golf Club	67	10	7	0	Maintain and enhance heathland	10 ha @ £250/ ha	£20,250	£3,375	£4,375	£4,250
					Restore 7 ha of heathland/mire by 2005.	7 ha @ £1,000/ ha	£7,000	£1,000		
Englemere Pond SSSI	26	0.5	0	1.7	Maintain and enhance heathland	10 ha - 11.7 ha @ £250/ ha	£18,988	£2,713	£2,965	£2,295
					Re-create 1.7 ha of heathland by 2005	1.7 ha @ £1,000/ ha	£1,700	£243		
Crowthorne Woods	500	15	0.25	23	Maintain and enhance heathland/mire	15 ha - 38.25 ha @ £250/ ha	£46,594	£6,656	£10,334	£9,563
					Restore 0.75 ha of heathland mire by 2005	.75 ha @ £1,000/ ha	£750	£107		
					Re-create 23 ha of heathland by 2005	23 ha @ £2,500/ ha	£25,000	£3,571		
King's Ride	1.5	1	0.25	0.25	Maintain and enhance heathland	1 ha @ £250/ ha	£2,188	£313	£436.5	£375
					Restore 0.25 ha of heathland by 2005	.25 ha @ £,1000/ ha	£250	£36		
					Re-create 0.25 ha of heathland by 2005	.25 ha @ £2,500/ ha	£625	£89		
Edgebarrow Hill	33	0.3	0	0	Maintain and enhance heathland	.3 ha @ £250/ ha	£525	£75	£75	£75
Rapley Lakes	30	0.2	0	?	Maintain and enhance 0.2 ha of heathland	.2 ha @ £250/ ha	£350	£50	£50	£50
Caesar's Camp	14	7	0	0	Maintain and enhance heathland	7 ha @ £250/ ha	£12,250	£1,750	£1,750	£1,750
Swinley Brick Pits SSSI	22	18	0	0	Maintain and enhance heathland	18 ha @ £250/ ha	£31,500	£4,500	£4,500	£4,500
Old Bagshot Road Picnic Site	5	0.2	3	0	Maintain and enhance heathland	.2 ha - 3.2 ha @ £250/ ha	£2,975	£425	£853.5	£800
					Restore 3 ha of heathland by 2005	3 ha @ £1,000/ ha	£3,000	£429		
Beaufort Park	3	1	0.5	0	Maintain and enhance heathland	1 ha - 1.5 ha @ £250/ ha	£2,188	,£313	£384	£375
					Restore 0.5 ha of heathland by 2005	.5 ha @ £1,000/ ha	£500	£71		
Wellington College Golf Course	25	0	0	3	Maintain and enhance heathland	0 ha - 3 ha @ £250/ ha	£2,625	£375	£1,446	£750
					Re-create 3 ha of heathland by 2005	3 ha @ £2,500/ ha	£7,500	£1,071		

Appendix 6

Glossary of terms

(c)SAC	(candidate)Special Area of Conservation – an area supporting internationally important flora or fauna (not birds, see SPA). Species are identified in the Habitats Directive
(p)SPA	(potential)Special Protection Area – an area supporting internationally important breeding bird species identified in the Birds Directive.
WHS	Wildlife Heritage Site. Non-statutory designation given to a site that exhibits significant conservation/ wildlife value in Berkshire.
BAP	Biodiversity Action Plan
UKBAPSG	United Kingdom Biodiversity Action Plan Steering Group. Steering group for the National Biodiversity Action Plan.
BBAPG	Berkshire Biodiversity Action Plan Group. Forms the link between the Unitary Authorities and the Berkshire Nature Conservation Forum
BBONT	Berkshire, Buckinghamshire & Oxfordshire Naturalists' Trust. One of over 40 wildlife trusts throughout the UK. Concerned with the conservation and promoting the conservation of wildlife.
BENHS	British Entomological Natural History Society. Society for the study of invertebrate species.
BHS	British Herpetological Society
Biodiversity	Biodiversity is a catchphrase for *biological diversity*. This term refers to the diversity of all living things, from single celled organisms to humans.
BNCF	Berkshire Nature Conservation Forum. A forum for all the parties with interests and duties concerning nature conservation in Berkshire
BTO	British Trust for Ornithology
CE	Crown Estates. Name of the lands and the body managing lands owned by the Crown.
EA	Environment Agency. Government agency concerned with policing a wide range of environmental areas, though primarily concerned with water resources and pollution. Replaced NRA.
EN	English Nature. Government agency responsible for nature conservation in England.
FA	Forestry Authority. Government agency setting standards and policies for UK forestry.
FE	Forest Enterprise. Agency which manages state owned forestry operations.
FRCA	Farming & Rural Conservation Agency. Formerly part of ADAS (Agricultural Development Advisory Service.
HAP	Habitat Action Plan
HCT	Herpetological Conservation Trust
IBA	Important Bird Area.
Management	Heathland **management** is defined as operations (such as low intensity stock grazing, controlled burning, heather cutting, rotovation and the creation of bare ground) which are carried out to maintain the quality of *existing* lowland heathland vegetation and landscapes. This is often referred to as **enhancement.**
LNR	Local Nature Reserve. A site with important community and wildlife value.
MOD	Ministry of Defence.
Natura 2000	The network of European SACs and SPAs that form the core of European biodiversity
Natural Area	An area defined by characteristic landscape, land use, wildlife etc which give an area a 'distinctiveness'.
NGO	Non-Governmental Organisation such as BBONT, RSPB etc.
NNR	National Nature Reserve. The largest and most important conservation sites in the UK.
OSS	Open Spaces Society
Restoration	Heathland **restoration** is defined as operations (such as scrub removal, bracken and rhododendron control) which are

carried out to improve the quality of existing lowland heathland vegetation and landscapes by recovering heathland vegetation in situations where it has been partly, but not totally lost to the invasion of other vegetation types such as bracken, scrub and rhododendron. For the purposes of the [National] heathland habitat plan, heathland management and restoration are considered under the target of maintaining, or improving, all existing lowland heathland vegetation. Combining heathland management and restoration is appropriate because the distinction between management and restoration operations is often a rather fine one.

Re-creation Heathland **re-creation**, by contrast, refers to situations where the intention is to re-establish heathland within its known historical range. This implies a change of land use in situations where heathland vegetation is currently absent. Examples include arable and improved grassland, forestry and established deciduous woodland. The classification of forestry plantations is a difficult area because heathland vegetation may be present in rides and other places, but it is suggested here that this should generally be regarded as re-creation because in most situations only a relatively low proportion of heathland vegetation remains in relation to the overall area of the relevant parcel of land.

RSPB Royal Society for the Protection of Birds. UK charity protecting birds and their habitats.

SAP Species Action Plan

(p)SSSI (proposed)Site of Special Scientific Interest. Sites chosen for the classic examples of particular habitat and species assemblages they exhibit.

UA Unitary Authority

UKBAP United Kingdom Biodiversity Action Plan. This forms part of the UK government's commitment to the Rio Declarations.

WTs Wildlife Trusts. County based non-governmental conservation charities such as BBONT.