



Butterfly Conservation

Regional Action Plan

Thames Region

**(Bedfordshire, Berkshire, Buckinghamshire,
Hertfordshire, Middlesex, Northamptonshire, &
Oxfordshire)**

This action plan was produced in response
to the **Action for Butterflies** project funded by
WWF, EN, SNH and CCW.

This regional project has been supported by

Action for Biodiversity



**Beds and Northants
branch BC**

**Herts and Middlesex
branch BC**

**Upper Thames
branch BC**

Acknowledgements

We would also like to thank all the individuals and organisations listed below as they supplied the information that made this action plan possible and/or made valuable comments on earlier drafts of this report. Our sincere apologies to anyone who may have inadvertently been missed from this list.

Butterfly Conservation Branches.

Hertfordshire and Middlesex – Michael Healy; Malcolm Hull; John Murray; Colin Plant; Brian Sawford; Christine Shepperson; Rob Souter; Gavin Vicary.

Upper Thames (Berkshire, Buckinghamshire & Oxfordshire) – Dr Jim Asher; Martin Albertini; Nick Bowles; Martin Harvey; Stuart Hodges; Roger Kemp; David Redhead; Martin Townsend.

Bedfordshire and Northamptonshire – David Aldridge; Charles Baker; Douglas Goddard; Greg Herbert; Vincent Judd; John Ward.

Other organisations and individuals.

Dr Barry Fox (Consultant); David Green (BC); Dr Jenny Joy (Consultant); Dr Steve Kett and Dr John Langley (Middlesex University); Mark Parsons (BC); Dr Rachel Thomas (EN); Dr Paul Waring (Consultant).

This work was financially supported by English Nature as a contribution to the Species Recovery Programme; their nominated officer for the project was Dr. David Sheppard.

Compiled by Dr S. A. Clarke with assistance from Dr N. Bourn.

2000

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1. Introduction

1.1 Executive summary

This plan highlights the main conservation priorities for butterfly species and High Priority moths in the Thames Region as well as identifying the most important habitats for Lepidoptera. The intention is for actions to be implemented and targets to be met for High Priority species in the next five years, actions for Medium Priority species to be implemented in the next ten years and actions for other species to be implemented in the next ten years once targets for higher priority species have been achieved. However, as Butterfly Conservation must also be able to react to unforeseen circumstances, this timetable must be flexible.

The main conservation priorities identified for Butterfly Conservation branches in the Thames Region are as follows:

a) Species protection

- To safeguard all surviving populations of High and Medium Priority Lepidoptera. In particular to safeguard all populations of the Black Hairstreak butterfly *Satyrium pruni* of which nearly 80% of the national resource is contained in the Thames Region.
- To seek opportunities to extend breeding areas of High and Medium Priority Lepidoptera.
- To encourage survey work to determine the current status of all High and Medium priority Lepidoptera in areas where this is unknown.
- To maintain or increase the level of butterfly recording in the Thames Region.
- To increase the level of moth recording in the Thames Region, including that of microlepidoptera. Microlepidoptera are currently under-recorded and there are likely to be significant species present which have yet to be identified.
- To support ecological research which may assist the long term conservation of High and Medium Priority species. It is of particular importance to increase the knowledge of the habitat requirements for many moth species, especially microlepidoptera.
- Long term aims should be to include species action plans for all Medium Priority moths including key microlepidoptera. While both High and Medium Priority moths have been listed in this plan, there are species accounts for the High Priority moths only. In general, there is, at present, insufficient knowledge or collation of information to provide species action plans for all Medium Priority moths.

b) Computerisation and co-ordination of records

- To give priority to the computerisation of Thames Region butterfly and moth records. All branches in this region have computerised butterfly records for 1995 onwards, but computerisation of pre-1995 butterfly records is patchy. Some moth records are also computerised but again coverage is patchy.
- To ensure that simple, well-advertised routes using local co-ordinators, are maintained for the collection of all records within the branches.
- To ensure that branch records are routinely sent to all appropriate databases, within and outside of Butterfly Conservation.

- To use collected information, together with records obtained from sources other than Thames Region Butterfly Conservation branches, such as the 'Butterflies for the New Millennium' project and moth recording groups:
 - a) to re-assess the priority ratings of all butterfly species.
 - b) to allow more realistic assessment of butterfly populations.
 - c) to continue to assess the importance of the Thames Region butterfly and moth populations in a British context.

- c) **Monitoring**
 - To maintain present butterfly transects and ensure data is computerised and sent to Butterfly Conservation's national monitoring project.
 - To liaise with other organisations involved in monitoring in the Thames Region to make best use of all available information and to provide feedback and encouragement.
 - To increase the level of monitoring in key areas and sites (and thus of key species) so that any changes in abundance can quickly be identified

- d) **Liaison**
 - To collaborate closely with all possible partners to ensure that actions identified in this plan are implemented and so targets met within the proposed timescales
 - To consult with and provide feedback to landowners and land managers and provide them with management recommendations which are realistic and can be maintained in the long term.
 - To continue to build on relationships with other conservation groups in the Thames Region.

- e) **Publicity**
 - To raise the profile of Butterfly Conservation through publicity and education, including the further development and active maintenance of Branch web sites.
 - To publish the results from monitoring work, management regimes and research projects so that the information can be disseminated both regionally and nationally.

1.2 Background

The Action for Butterflies Project and Regional Action Plans: Their role within Butterfly Conservation and the biodiversity planning process.

Background to the Biodiversity planning process

At the Earth Summit in Rio de Janeiro in 1992, the UK Government signed the Convention on Biological Diversity which required the development of a national strategy. In early 1994, the Government produced the UK Biodiversity Action Plan which adopted a systematic approach whereby targets are used to focus conservation action. This has since ensured that there is now considerable effort going into the production of Local Biodiversity Action Plans through the Agenda 21 process. Butterfly Conservation is attempting to maximise the benefits for butterflies and moths and their habitats through the Action for Butterflies project.

The Action for Butterflies Project

The project began in 1994 and is funded by the World Wide Fund for Nature (WWF-UK) and the Country Agencies (English Nature, Scottish Natural Heritage, Countryside Council for Wales). It aims to place the conservation work of the Society within an overall framework, aiding the Society at national and local level to develop priorities for action. National Species Action Plans are being written for the 25 most threatened butterflies by the end of 1998. Butterfly Conservation branches are also producing Regional Action Plans for each of 14 regions in the UK to guide action at a local level.

This Regional Action Plan for the Thames Region is thus one in a series being drawn up by Butterfly Conservation branches in consultation with staff at the Conservation Office, using a standard format devised following a series of workshops held in 1995 and 1996. The plan is intended to incorporate both national and local priorities.

Regional Action Plans: The wider context

As well as guiding Butterfly Conservation's own actions, our Regional Action Plans are designed to provide our conservation partners with detailed and sound conservation priorities for Lepidoptera for inclusion in Local Biodiversity Action Plans.

1.3 General aims of the Regional Action Plan for the Thames Region.

- To identify butterfly and moth species most at risk within the region
- To briefly outline the site and management requirements of these species
- To identify the most important areas and sites for butterflies and moths in the region
- To highlight areas where there are large gaps in local knowledge and where survey, management or monitoring should receive priority attention

2. High and Medium Priority butterflies and moths

2.1 Priority butterfly list for the Thames Region

The list of species below has been developed from Butterfly Conservation's British priority list (Appendix 2) using the criteria discussed in Section 2.2. Under the criteria of local decline, rarity or percentage of the national resource a species can be allotted a higher local priority than its national priority.

2.1.1. High Priority species

Adonis Blue *Polyommatus bellargus*
Black Hairstreak *Satyrium pruni*
Brown Hairstreak *Thecla betulae*
Marsh Fritillary *Eurodryas aurinia*
Purple Emperor *Apatura iris*
Silver-spotted Skipper *Hesperia comma*
Silver-studded Blue *Plebejus argus*
Wood White *Leptidea sinapis*

2.1.2 Medium Priority species

Dingy Skipper *Erynnis tages*
Duke of Burgundy *Hamearis lucina*
Grayling *Hipparchia semele*
Grizzled Skipper *Pyrgus malvae*
Small Blue *Cupido minimus*
Wall Brown *Lasiommata megera*
White-letter Hairstreak *Satyrium w-album*

2.1.3 Recently extinct species

Pearl-bordered Fritillary *Boloria euphrosyne*
Small Pearl-bordered Fritillary *Boloria selene*

2.2 Methods used for assigning priorities in the Thames Region

Butterfly Conservation's national guidelines for producing Regional Action Plans (Bourn *et al.*, 1996) suggest that a species qualifies for a higher regional than national rating if it fulfils any one or more of the following criteria:

Criteria 1-(rate of decline) species which have undergone $\geq 32\%$ loss of 10km squares or $\geq 50\%$ loss of tetrads in 25 years.

Criteria 2 - (rarity) species which occupy $\leq 0.6\%$ of the region's area on the basis of its 10km square records.

Criteria 3 – (proportion of national resource) the region contain $\geq 20\%$ of the national resource of the species.

A summary of 10km square records and tetrad records for the Thames Region for the periods 1970-82 and 1995-99 are given in Appendix 3.

Table 1. Species where Criteria 1 was implemented.

All species with decline estimates of $\geq 26.9\%$ over 21 years (equivalent to $\geq 32\%$ over 25 years) are shown in bold in Table 2.

The mid points of the two recording periods (1970-82, mid point 1976; 1995-99, mid point 1997) were used to give a 21 year time period for change estimates for Criteria 1. If these estimates give a decline of $\geq 26.9\%$ over 21 years (which is equivalent to the 32% loss of 10km squares in 25 years given in Bourn *et al.* (1996) if a linear decline over time is assumed) then the species qualified for a higher rating in the Thames Region.

Species	10km square records 1970-82 (from BRC)	10km square records 1995-99 (from BNM)	21 year change estimate	Priority for Thames Region
Chequered Skipper	1	0	-100.00	Extinct
Small Skipper	128	129	0.78%	Remain Low
Essex Skipper	56	129	130.36%	Remain Low
Silver-spotted Skipper	3	5	66.67%	Remain High
Large Skipper	125	130	4.00%	Remain Low
Dingy Skipper	61	56	-8.20%	Remain Medium
Grizzled Skipper	66	70	6.06%	Remain Medium
Swallowtail	2	4	100.00%	Remain Low
Wood White	32	22	-31.25%	Increase to High
Clouded Yellow	24	109	354.17%	Remain Low
Brimstone	125	130	4.00%	Remain Low
Large White	127	130	2.36%	Remain Low
Small White	128	130	1.56%	Remain Low
Green-veined White	127	130	2.36%	Remain Low
Orange Tip	125	130	4.00%	Remain Low

Table 1. continued

Green Hairstreak	40	58	45.00%	Remain Low
Brown Hairstreak	14	5	-64.29%	Increase to High
Purple Hairstreak	72	112	55.56%	Remain Low
White-letter Hairstreak	72	94	30.56%	Remain Medium
Black Hairstreak	16	18	12.50%	Remain Medium
Small Copper	123	129	4.88%	Remain Low
Small Blue	29	40	37.93%	Remain Medium
Silver-studded Blue	6	5	-16.67%	Remain Medium
Brown Argus	42	120	185.71%	Remain Low
Common Blue	126	130	3.17%	Remain Low
Chalkhill Blue	37	31	-16.22%	Remain Low
Adonis Blue	6	9	50.00%	Remain Medium
Holly Blue	104	129	24.04%	Remain Low
Duke of Burgundy	21	16	-23.81%	Remain Medium
White Admiral	41	72	75.61%	Remain Low
Purple Emperor	14	25	78.57%	Remain Medium
Red Admiral	121	130	7.44%	Remain Low
Painted Lady	103	128	24.27%	Remain Low
Small Tortoiseshell	129	130	0.78%	Remain Low
Peacock	129	130	0.78%	Remain Low
Comma	113	129	14.16%	Remain Low
Sm.Pearl-bordered Fritillary	5	1	-80.00%	Increase to High
Pearl-bordered Fritillary	6	1	-83.33%	High
High Brown Fritillary	6	0	-100.00%	Extinct
Dark Green Fritillary	35	47	34.29%	Remain Low
Silver-washed Fritillary	17	37	117.65%	Remain Low
Marsh Fritillary	12	4	-66.67%	High
Speckled Wood	96	130	35.42%	Remain Low
Wall Brown	125	88	-29.60%	Increase to Medium
Marbled White	70	114	62.86%	Remain Low
Grayling	15	6	-60.00%	Increase to Medium
Gatekeeper	123	130	5.69%	Remain Low
Meadow Brown	129	130	0.78%	Remain Low
Ringlet	118	129	9.32%	Remain Low
Small Heath	125	125	0.00%	Remain Low

Table 2. Rare species within the Thames Region in terms of area occupied (Criteria 2).

If species occupy <0.6% of the tetrads (less than 16 tetrads) in the Thames Region then they have an increased regional priority rating as a rare species within the region. All species occupying <0.6% of the regions tetrads are shown in bold below.

Species	No. of tetrads occupied (1995-99)	Percentage of total tetrads occupied (1995-99)	Qualification & priority for Thames Region
Small Skipper	1708	61.82%	Remain Low
Essex Skipper	1381	49.98%	Remain Low
Silver-spotted Skipper	14	0.51%	High
Large Skipper	1549	56.06%	Remain Low
Dingy Skipper	141	5.10%	Remain Medium
Grizzled Skipper	177	6.41%	Remain Medium
Wood White	43	1.56%	Remain Medium
Brimstone	1695	61.35%	Remain Low
Large White	2248	81.36%	Remain Low
Small White	2264	81.94%	Remain Low
Green-veined White	2327	84.22%	Remain Low
Orange Tip	1952	70.65%	Remain Low
Green Hairstreak	143	5.18%	Remain Low
Brown Hairstreak	12	0.43%	Increase to High
Purple Hairstreak	523	18.93%	Remain Low
White-letter Hairstreak	289	10.46%	Remain Medium
Black Hairstreak	38	1.38%	Remain Medium
Small Copper	980	35.47%	Remain Low
Small Blue	90	3.26%	Remain Medium
Silver-studded Blue	10	0.36%	Increase to High
Brown Argus	600	21.72%	Remain Low
Common Blue	1428	51.68%	Remain Low
Chalkhill Blue	93	3.37%	Remain Low
Adonis Blue	16	0.58%	Increase to High
Holly Blue	1511	54.69%	Remain Low
Duke of Burgundy	32	1.16%	Remain Medium
White Admiral	176	6.37%	Remain Low
Purple Emperor	38	1.38%	Remain Medium
Red Admiral	1743	63.08%	Remain Low
Painted Lady	1140	41.26%	Remain Low
Small Tortoiseshell	2288	82.81%	Remain Low
Peacock	2205	79.80%	Remain Low
Comma	1543	55.85%	Remain Low

Table 2. Continued

Sm. Pearl-bordered Fritillary	1	0.04%	Increase to High
Pearl-bordered Fritillary	1	0.04%	High
Dark Green Fritillary	115	4.16%	Remain Low
Silver-washed Fritillary	60	2.17%	Remain Low
Marsh Fritillary	5	0.18%	High
Speckled Wood	1975	71.48%	Remain Low
Wall Brown	250	9.05%	Remain Low
Marbled White	901	32.61%	Remain Low
Grayling	23	0.83%	Remain Low
Gatekeeper	2241	81.11%	Remain Low
Meadow Brown	2364	85.56%	Remain Low
Ringlet	1520	55.01%	Remain Low
Small Heath	827	29.93%	Remain Low

Table 3. The proportion of the British resource for species within the Thames Region (Criteria 3).

If the Thames Region holds 20% or more of the total number of 10km squares in Britain for a particular species then it has an increased priority rating. All species with $\geq 20\%$ of their British records within the Thames Region are shown in bold in the table below. (Britain = England, Scotland and Wales only).

Species	Number of 10km squares recorded in Britain 1995-99	Number of 10km squares recorded in Thames region 1995-99	Percentage of British resource within the Thames Region	Status for Thames Region
Chequered Skipper	28	0	0%	Extinct
Small Skipper	1465	129	9%	Remain Low
Essex Skipper	641	129	20%	On border of criteria. Increased priority inappropriate as species is spreading
Silver-spotted Skipper	31	5	16%	Remain High
Large Skipper	1578	130	8%	Remain Low
Dingy Skipper	572	56	10%	Remain Medium
Grizzled Skipper	382	70	18%	Remain Medium
Wood White	81	22	27%	Increase to High
Clouded Yellow	1111	109	10%	Remain Low
Brimstone	1241	130	10%	Remain Low

Table 3. continued

Large White	2190	130	6%	Remain Low
Small White	2061	130	6%	Remain Low
Green-veined White	2537	130	5%	Remain Low
Orange Tip	2047	130	6%	Remain Low
Green Hairstreak	908	58	6%	Remain Low
Brown Hairstreak	138	5	4%	Remain Medium
Purple Hairstreak	999	112	11%	Remain Low
White-letter Hairstreak	571	94	16%	Remain Medium
Black Hairstreak	23	18	78%	Increase to High
Small Copper	1954	129	7%	Remain Low
Small Blue	243	40	16%	Remain Medium
Silver-studded Blue	99	5	5%	Remain Medium
Brown Argus	698	120	17%	Remain Low
Common Blue	2221	130	6%	Remain Low
Chalkhill Blue	203	31	15%	Remain Low
Adonis Blue	96	9	9%	Remain Medium
Holly Blue	1456	129	9%	Remain Low
Duke of Burgundy	106	16	15%	Remain Medium
White Admiral	373	72	19%	Remain Low
Purple Emperor	90	25	28%	Increase to High
Red Admiral	2328	130	6%	Remain Low
Painted Lady	2109	128	6%	Remain Low
Small Tortoiseshell	2415	130	5%	Remain Low
Peacock	2007	130	6%	Remain Low
Comma	1501	129	9%	Remain Low
Sm.Pearl-bordered Fritillary	764	1	<1%	Remain Medium
Pearl-bordered Fritillary	271	1	<1%	Remain High
Dark Green Fritillary	920	47	5%	Remain Low
Silver-washed Fritillary	493	37	8%	Remain Low
Marsh Fritillary	225	4	2%	Remain High
Speckled Wood	1464	130	9%	Remain Low
Wall Brown	1374	88	6%	Remain Low
Marbled White	662	114	17%	Remain Low
Grayling	581	6	1%	Remain Low
Gatekeeper	1415	130	9%	Remain Low
Meadow Brown	2389	130	5%	Remain Low
Ringlet	1698	129	8%	Remain Low
Small Heath	2055	125	6%	Remain Low

Table 4. Summary of all High Priority butterfly species occurring in the Thames Region. Also summary of all butterfly species in the Thames Region which qualify for a change from British priority rating as judged by implementation of criteria (see Bourn *et al.*, 1996)

Species	National Priority	Criteria 1 Decline (Table 1)	Criteria 2 Rarity (Table 2)	Criteria 3 Resource (Table 3)	Priority Rating Change
Adonis Blue	Medium		Yes		M to H
Black Hairstreak	Medium			Yes	M to H
Brown Hairstreak	Medium	Yes	Yes		M to H
Grayling	Low	Yes			L to M
Marsh Fritillary	High	Yes	Yes		Stays H
Pearl-bordered Fritillary	High	Yes	Yes		Stays H
Purple Emperor	Medium			Yes	M to H
Silver-spotted Skipper	High		Yes		Stays H
Silver-studded Blue	Medium		Yes		M to H
Sm. Pearl-bordered Fritillary	Medium	Yes	Yes		M to H
Wall Brown	Low	Yes			L to M
Wood White	Medium	Yes		Yes	M to H

H = High Priority, M = Medium Priority, L = Low Priority.

2.3 High Priority macro-moths in the Thames Region

While six of the following species (Autumnal Snout, Heart Moth, Olive Crescent, The Four-spotted, The Triangle and White-spotted Pinion) have already been identified as High Priority macro-lepidoptera for this region (see Bourn *et al.*, 1996), four Red Data Book (RDB) species have also been added and 14 UK BAP priority species all of which have post 1980 records for the region. Current status is taken from Waring, in press (also see Waring, 1994). The vice-counties in which the species have recently been recorded are given in Appendix 5 and the areas or sites which are known to contain these species are listed in Section 5. Species accounts for these High Priority moths are given in Section 3.5. Scientific names as Skinner (1998).

Species	Scientific Name	National Status
Argent & Sable	<i>Rheumaptera hastata</i>	Nb, UK BAP Priority Species
Autumnal Snout	<i>Schrankia intermedialis</i>	RDBK
Barberry Carpet	<i>Pareulype berberata</i>	RDB1, UK BAP Priority Species
Barred Tooth-striped	<i>Trichopteryx polycommata</i>	Na, UK BAP Priority Species
Bordered Gothic	<i>Heliophobus reticulata marginosa</i>	UK BAP Priority Species
Brighton Wainscot	<i>Oria musculosa</i>	Na, UK BAP Priority Species
Buttoned Snout	<i>Hypena rostralis</i>	Nb, UK BAP Priority Species
Chalk Carpet	<i>Scotopteryx bipunctaria</i>	Nb, UK BAP Priority Species
Common Fan-foot	<i>Pechipogo strigilata</i>	Na, UK BAP Priority Species
Concolorous	<i>Photedes extrema</i>	RDB3, UK BAP Priority Species
Double Line	<i>Mythimna turca</i>	Nb, UK BAP Priority Species
Drab Looper	<i>Minoa murinata</i>	Nb, UK BAP Priority Species
Four-spotted	<i>Tyta luctuosa</i>	RDB3, UK BAP Priority Species
Heart Moth	<i>Dicycla oo</i>	RDB3, UK BAP Priority Species
Light Crimson Underwing	<i>Catocala promissa</i>	RDB3, UK BAP Priority Species
Lunar Yellow Underwing	<i>Noctua orbona</i>	Na, UK BAP Priority Species
Olive Crescent	<i>Trisateles emortualis</i>	RDB3, UK BAP Priority Species
Orange Upperwing	<i>Jodia croceago</i>	RDB1, UK BAP Priority Species
Pale Shining Brown	<i>Polia bombycina</i>	Nb, UK BAP Priority Species
Square-spotted Clay	<i>Xestia rhomboidea</i>	Nb, UK BAP Priority Species
Striped Lychnis	<i>Shargacucullia lychnitis</i>	Na, UK BAP Priority Species
Triangle	<i>Heterogenea asella</i>	RDB3
White-line Snout	<i>Schrankia taenialis</i>	Nb, UK BAP Priority Species
White-spotted Pinion	<i>Cosmia diffinis</i>	Na, UK BAP Priority Species

For definitions of status see Appendix 4.

2.4 Medium Priority moths - notable species occurring in the Thames Region

At present these include one Red Data Book (RDB) macro-moth and all nationally notable (Na or Nb) macro-lepidoptera which are currently known to occur in this region and have been recorded since 1980. Also included are all nationally notable and RDB microlepidoptera. Current status is taken from Waring, in press & 1994, Parsons, 1984, 1993 & 1996 also Surry & Parsons, in prep.. It is anticipated that the status of many of these species may change in the next few years as a result of increasing recording levels. In particular, this is a provisional list only for microlepidoptera and a fuller list may be produced in the light of further information. For these reasons, the status of these Medium Priority moths will be reviewed in five years time, when there may be sufficient data available to write an action plan for each species. The vice-counties in which the species have recently been recorded are given in Appendix 5 and the areas or sites which are known to contain these species are listed in Section 5. Scientific names as Skinner (1998).

Species	Scientific Name	National Status
a tortricid moth	<i>Aethes rutilana</i>	pRDB2
a pyralid moth	<i>Alipsa angustella</i>	Nb
a yponomeutid moth	<i>Argyresthia abdominalis</i>	Na
a yponomeutid moth	<i>Argyresthia praecocella</i>	Na
a micro-moth	<i>Blastodacna atra</i>	Nb
a pterophorid moth	<i>Buckleria paludum</i>	pRDB3
a pyralid moth	<i>Calamotropha paludella</i>	Nb
a micro-moth	<i>Caloptila falconipennella</i>	pRDB3
a gelechiid moth	<i>Caryocolum proximum</i>	pRDBK
a tortricid moth	<i>Cochylis flaviciliana</i>	Nb
a coleophorid moth	<i>Coleophora currucipennella</i>	pRDB3
a coleophorid moth	<i>Coleophora frischella</i>	Nb
a coleophorid moth	<i>Coleophora hemerobiella</i>	Nb
an elachistid moth	<i>Cosmiotes stabilella</i>	pRDB3
a cosmopterygid moth	<i>Cosmopterix lienigiella</i>	Na
a cosmopterygid moth	<i>Cosmopterix zieglereella</i>	Na
a tortricid moth	<i>Cydia caecana</i>	pRDB3
a tortricid moth	<i>Cydia pallifrontana</i>	pRDBK
a micro-moth	<i>Depressaria pimpinellae</i>	Nb
a nepticulid moth	<i>Ectoedemia atrifrontella</i>	Na
a nepticulid moth	<i>Ectoedemia quinquella</i>	Nb
a nepticulid moth	<i>Ectoedemia turbidella</i>	pRDB2
a tortricid moth	<i>Endothenia ustulana</i>	pRDB3
a micro-moth	<i>Enicostoma lobella</i>	Nb
an epermeniid moth	<i>Epermenia insecurella</i>	pRDBK
a tortricid moth	<i>Epiblema grandaevana</i>	pRDB1
a tortrix moth	<i>Epinotia demarniana</i>	Nb
an ethmiid moth	<i>Ethmia funerella</i>	Na
a tortrix moth	<i>Eucosma conterminana</i>	Nb
a tortricid moth	<i>Eucosma pauperana</i>	pRDB3

Continued

Species	Scientific Name	National Status
a tortrix moth	<i>Eucosmomorpha albersana</i>	Nb
a tortricid moth	<i>Eudemis porphyrana</i>	pRDBK
a gelechiid moth	<i>Gelechia turpella</i>	pRDBK
a cosmopterygid moth	<i>Glyphypterix linneella</i>	Na
a pyralid moth	<i>Homeosoma nebulella</i>	Nb
a plume moth	<i>Leioptilus carphodactyla</i>	Nb
a pyralid moth	<i>Mecyna flavalis</i>	pRDB2
a pyralid moth	<i>Microstega hyalinalis</i>	Nb
a momphid moth	<i>Mompha subdivisella</i>	pExtinct
a tineid moth	<i>Nemapogon wolfiella</i>	Nb
a micro-moth	<i>Ochsenheimeria vaculella</i>	Nb
a tortricid moth	<i>Pammene suspectana</i>	pRDB1
a tortricid moth	<i>Pammene trauniana</i>	pRDB3
a micro-moth	<i>Pancalia leuwenhoekella</i>	Nb
a tortrix moth	<i>Phalonidia manniana</i>	Nb
a micro-moth	<i>Phyllonorycter platanoidella</i>	Nb
a psychid moth	<i>Proutia betulina</i>	Na
a pyralid moth	<i>Sitochroa palealis</i>	Nb
a cosmopterygid moth	<i>Sorhagenia janiszewskae</i>	Na
a cosmopterygid moth	<i>Sorhagenia lophyrella</i>	Na
a nepticulid moth	<i>Stigmella minusculella</i>	pRDB2
a nepticulid moth	<i>Stigmella prunetorum</i>	pRDB3
a pyralid moth	<i>Synaphe punctalis</i>	Nb
a pyralid moth	<i>Thisanotia chrysonuchella</i>	Nb
Angle-striped Sallow	<i>Enargia paleacea</i>	Nb
Balsam Carpet	<i>Xanthorhoe biriviata</i>	Na
Bleached Pug	<i>Eupithecia expallidata</i>	Nb
Blomer's Rivulet	<i>Discoloxia blomeri</i>	Nb
Broad-bordered Bee Hawk	<i>Hemaris fuciformis</i>	Nb
Broom-tip	<i>Chesias rufata</i>	Nb
Campanula Pug	<i>Eupithecia denotata</i>	Na
Cistus Forester	<i>Adscita geryon</i>	Nb
Cloaked Carpet	<i>Euphyia biangulata</i>	Nb
Cream-bordered Green Pea	<i>Earias clorana</i>	Nb
Currant Clearwing	<i>Synanthedon tipuliformis</i>	Nb
Dentated Pug	<i>Anticollix sparsata</i>	Nb
Dotted Border Wave	<i>Idaea sylvestraria</i>	Nb
Dotted Chestnut	<i>Conistra rubiginea</i>	Nb
Dotted Fan-foot	<i>Macrochilo cribrumalis</i>	Nb
Festoon	<i>Apoda limacodes</i>	Nb
Goat Moth	<i>Cossus cossus</i>	Nb
Grass Wave	<i>Perconia strigillaria</i>	Nb
Great Oak Beauty	<i>Boarmia roboraria</i>	Nb
Hornet Moth	<i>Sesia apiformis</i>	Nb
Horse Chestnut	<i>Pachynemias hippocastanaria</i>	Nb

Continued

Species	Scientific Name	National Status
Juniper Carpet	<i>Thera juniperata</i>	Nb
Kent Black Arches *	<i>Meganola albula</i>	Nb
Large Red-belted Clearwing	<i>Synanthedon culiciformis</i>	Nb
Large Thorn	<i>Ennomos autumnaria</i>	Nb
Lead-coloured Pug	<i>Eupithecia plumbeolata</i>	Nb
Least Carpet	<i>Idaea vulpinaria atrosignaria</i>	Nb
Light Feathered Rustic	<i>Agrotis cinerea</i>	Nb
Light Orange Underwing	<i>Archiearis notha</i>	Nb
Little Thorn	<i>Cepphis advenaria</i>	Nb
Marbled Clover *	<i>Heliothis viriplaca</i>	RDB3
Marbled Green	<i>Cryphia muralis</i>	Nb
Marbled Pug	<i>Eupithecia irriguata</i>	Nb
Marsh Oblique-barred	<i>Hypenodes humidalis</i>	Nb
Mere Wainscot	<i>Photedes fluxa</i>	Nb
Mocha	<i>Cyclophora annulata</i>	Nb
Orange Footman	<i>Eilema sororcula</i>	Nb
Orange-tailed Clearwing	<i>Synanthedon andrenaeformis</i>	Nb
Pale-lemon Sallow	<i>Xanthia ocellaris</i>	Na
Pimpinel Pug	<i>Eupithecia pimpinellata</i>	Nb
Pinion-spotted Pug	<i>Eupithecia insigniata</i>	Nb
Plumed Prominent	<i>Ptilophora plumigera</i>	Na
Purple-bordered Gold	<i>Idaea muricata</i>	Na
Red-belted Clearwing	<i>Synanthedon myopaeformis</i>	Nb
Red-necked Footman	<i>Atolmis rubricollis</i>	Nb
Ringed Carpet	<i>Cleora cinctaria</i>	Na
Rosy Marbled	<i>Elaphria venustula</i>	Nb
Ruddy Carpet	<i>Catarhoe rubidata</i>	Nb
Sallow Clearwing	<i>Synanthedon flaviventris</i>	Nb
Scarce Burnished Brass	<i>Diachrysia chryson</i>	Na
Silky Wainscot	<i>Chilodes maritimus</i>	Nb
Silvery Arches	<i>Polia trimaculosa</i>	Nb
Six-belted Clearwing	<i>Bembecia scopigera</i>	Nb
Sloe Carpet	<i>Aleucis distinctata</i>	Nb
Small Black Arches	<i>Meganola strigula</i>	Na
Small Chocolate-tip	<i>Clostera pigra</i>	Nb
Small Eggar	<i>Eriogaster lanestris</i>	Nb
Sword-grass *	<i>Xylena exsoleta</i>	Nb, UK BAP Priority Species
Waved Black	<i>Parascotia fuliginaria</i>	Nb
White-banded Carpet *	<i>Spargania luctuata</i>	Na
White-barred Clearwing	<i>Synanthedon spheciformis</i>	Nb
White-marked	<i>Cerastis leucographa</i>	Nb
Wormwood	<i>Cucullia absinthii</i>	Nb
Yellow-legged Clearwing	<i>Synanthedon vespiformis</i>	Nb

For definitions of status see Appendix 4.

Note: The Great Brocade *Eurois occulta* (Notable/NA) is not included in the above list as all recorded specimens are known to be immigrants.

*** Probably migrant species included in Section 2.4.**

There is only a single post 1980 record for White-banded Carpet *Spargania luctuata* (Notable/Na) which is almost certainly a migrant individual. There is no evidence of a breeding population.

The post 1980 records of Kent Black Arches *Meganola albula* (Notable/Nb), Marbled Clover *Heliothis viriplaca* (RDB3) and Sword-grass *Xylena exsoleta* (Notable/Nb, UK BAP Priority Species) are believed to refer to migrant individuals. There is no evidence of breeding populations of these species in the Thames Region, so Marbled Clover and Sword-grass are not allocated to High Priority, despite their national status.

3. Species accounts

3.1 High Priority butterflies present in the Thames Region

The following information is largely taken from UK Biodiversity Group 1999a/b, individual species action plans published by Butterfly Conservation, Branch newsletters, Branch annual reports, published county atlases and BBOWT Wildlife Trust Biodiversity reports (Harvey, 1998a/b/c). Also included are various Butterfly Conservation Branch draft action plans covering the region, in particular the draft action plan for Bedfordshire and Northamptonshire. Appendix 6 gives full references.

3.1a Adonis Blue – *Polyommatus bellargus*

National distribution and status- This butterfly is confined to unimproved south-facing downs in southern England, with strongholds in Dorset and the Isle of Wight. The species underwent a severe decline in the 1950s following a decline in domestic stock grazing and also in rabbit grazing. Since the 1970s there has been a partial recovery, due to increased grazing, both domestic and rabbit. Much of the recent stock grazing has been specifically for conservation management and now recent records suggest there are approximately 250 populations in 272 tetrads.

The butterfly is a UK BAP Priority Species. The butterfly is protected under Schedule 5 of the WCA 1981 (in respect of sale only). For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Bourn and Warren, 1998).

Distribution and abundance in the Thames Region- This species is at its northern limit here and it was always very localised. A few colonies exist on chalk downland in the region, and the distribution has not altered greatly in the last decade.

Hertfordshire vc 20 – No extant colonies. Last recorded in 1950s.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22 – One large colony at Lardon Chase (NT) and some recent satellite populations on NT and privately-owned land nearby.

Oxfordshire vc 23 – A cluster of about four sites on the downs of the Berks/Oxon border. The largest is probably at Fiddle Hill.

Buckinghamshire vc 24 – The last colony was at Turville Hill but this had become isolated and was lost in the late 1980s, mainly due to the grassland being improved for grazing. There have been odd records in the county since then and it is possible the Buckinghamshire Chilterns could be naturally recolonised, if habitat is available.

Bedfordshire vc 30 – Probably no extant colonies. Last definite colony died out in 1950s. There is a very recent record of Adonis Blue breeding in the south of the county, this is an unattributed re-introduction.

Northamptonshire vc 32 - No extant colonies.

Habitat – A warmth-loving butterfly of short-turf chalk grassland with a caterpillar that feeds on Horseshoe Vetch *Hippocrepis comosa*. The butterfly lays its eggs on small plants growing in especially warm conditions (e.g. depressions on south-facing slopes). Larvae are strongly associated with ants, and can only survive on sites which provide sufficiently warm microclimate conditions for both ants and larvae. The butterfly is fairly sedentary

however, when populations are high and weather conditions are favourable wider dispersal is possible.

Threats – Mainly, loss of unimproved downland habitat, including loss through scrub invasion. Also, this species is very dependant on close-cropped turf and is great affected by changes in grazing either by domestic stock or by rabbits.

Management – Controlled grazing of sites and scrub control. Maintain areas of 2.5-6 cm tall sward particularly on south-facing slopes. Management should involve grazing of sites with domestic stock, without over-reliance on rabbit grazing.

Survey – None in the region.

Monitoring – The Upper Thames Branch organises a transect at Lardon Chase (Berks), where there is a large colony.

Present conservation action – Butterfly Conservation has produced an national action plan for this species (Bourn & Warren, 1998a). The Upper Thames Branch has produced a conservation advice leaflet for this species in their region.

Actions and targets

Targets - Maintain the present range of the species, concentrating on networks of sites that contain some large populations. These may then provide natural re-colonisation of suitable areas.

- Reduce the reliance on rabbit grazing as habitat management.

Action	BC's Targets	Possible Partners
1. Annual survey of previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, NT.
2. Monitor all known colonies using timed counts to determine the effects of specific grazing regimes.	By 2001 then ongoing	EN, Wildlife Trusts, local volunteers, NT.
3. Provide management advice, based on monitoring. Encourage favourable management of all known sites and of associated potential areas, to encourage the formation of site networks.	Ongoing	EN, Wildlife Trusts, County Councils, NT.
4. Provide feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Wildlife Trusts, County Councils, NT.

3.1b Black Hairstreak – *Satyrrium pruni*

National distribution and status- The Black Hairstreak is a highly restricted species in the UK occurring only in the woodlands between Oxford and Peterborough where it breeds on dense stands of Blackthorn, *Prunus spinosa*, growing on heavy clay soils.

It has been listed as a species of conservation concern in the Governments Steering Group report (UK Biodiversity Steering Group, 1995). The butterfly is protected under Schedule 5 of the WCA 1981 (in respect of sale only). For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Bourn & Warren, 1998b).

Distribution and abundance in the Thames Region- The region contains nearly 80% of the national population.

Hertfordshire vc 20 – No extant colonies.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22 – At least one colony.

Oxfordshire vc 23 – Approximately 13 sites.

Buckinghamshire vc 24 – Approximately 14 main sites

Bedfordshire vc 30 – Approximately two sites. Marston Thift is the main site.

Northamptonshire vc 32 – Approximately nine sites.

Habitat –The butterfly lays its eggs on *Prunus* spp., largely Blackthorn. The species needs a varied Blackthorn structure with sunny, sheltered hollows, often along woodland edges. Eggs tend to be laid at 2+ metres high, on 2-4 year old twigs. The adult is very sedentary.

Threats – This species can be badly affect by the cutting of its foodplant, at any time of the year. Another threat is the fragmentation and isolation of breeding habitat.

Management – Aim to produce a mosaic of Blackthorn heights and aspects with sheltered hollows. Only cut or lay a small part of each site in a single year, if possible on a 25 year rotation. If habitat is on the edge of cultivated fields or improved grassland then avoid spraying fertiliser or pesticide into hedges, leave a wide unsprayed field margin. Habitat can be created by planting Blackthorn.

Various sites within the Upper Thames Branch area have management specifically for the Black Hairstreak. An example is the Blackthorn areas with the Bernwood Forest complex (Bucks/Oxon) which have been managed for Black Hairstreak since the 1980s. Recently, an area adjacent to one colony has been cleared to allow Blackthorn regeneration and has been fenced to prevent deer browsing the suckers. Other management include, allowing wood edges to sucker out and spread to give a wider range of Blackthorn, clear felling or cutting of Blackthorn on a very long rotation, planting Blackthorn, cutting rides to maintaining a sunny aspect and scalloping wood edges to encourage regeneration.

In Northamptonshire, Glapthorn Cow Pasture is managed specifically for this species and on FC sites in the county management is aimed at removing any shading vegetation from Blackthorn areas. Trimmings are left on the ground to allow any pupae to emerge.

In Bedfordshire, on the one main Black Hairstreak site there has been scrub and some tree clearance to encourage new growth.

Survey – An assessment was recently carried out by Butterfly Conservation and CEH of the habitat suitability of 105 possible, probable and definite sites (Roberts *et al.*, 1999).

Further surveys have been carried out in 2000 by BC and CEH nationally. A Black Hairstreak Recording Group has been set up by Upper Thames Branch led by Stuart Hodges (31 present and previous sites were visited in 1999) and the results are fed into the review by BC/CEH.

Further surveys have been undertaken by the Woodland Trust in 2000.

Monitoring – The Black Hairstreak is poorly assessed by the butterfly transect method of monitoring.

In Northamptonshire, all FC sites are monitored by employees using “half hour standing counts” where possible.

At Glapthorn Cow Pastures a scaffolding system has been developed to enable systematic monitoring to take place.

Present conservation action – Butterfly Conservation has produced an national action plan for this species (Bourn & Warren, 1998b) and a Site Dossier (Roberts *et al.*, 1999)

The Upper Thames Branch has produced a conservation advice leaflet for this species in their region.

Charles Baker is producing a Species Action Plan for this species in Bedfordshire.

Actions and targets

Targets - Maintain the present range of the species.

- Establish favourable management on all known sites and associated potential sites.

Action	BC's Targets	Possible Partners
1. Protect all remaining populations	Ongoing	EN, Wildlife Trusts, FC, WT.
2. Survey previous sites and possible sites for adults.	Ongoing	EN, Wildlife Trusts, WT, local volunteers.
3. Monitor all known colonies for adults and for “health” of breeding habitat.	Ongoing	EN, Wildlife Trusts, local volunteers, FC, WT.
4. Provide management advice. Encourage favourable management of all known sites and of associated potential areas, to encourage the formation of site networks.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT.
5. Provide feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Wildlife Trusts, County Councils, FC, WT.

3.1c Brown Hairstreak – *Thecla betulae*

National distribution and status- This butterfly was once very widespread in England and Wales. It is now very local and mainly confined to the south of Britain. It is common only in Ireland, north Devon, southwest Wales and the west Weald, with scattered colonies outside of these areas.

It has been listed as a species of conservation concern in the Governments Steering Group report (UK Biodiversity Steering Group, 1995). The butterfly is protected under Schedule 5 of the WCA 1981 (in respect of sale only). For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Bourn & Warren, 1998c).

Distribution and abundance in the Thames Region- Confined to a few small areas, although this species is hard to locate and so is under-recorded. The stronghold extends from the Bernwood Forest complex to the southern half of Otmoor (Bucks/Oxon).

Hertfordshire vc 20 – Probably only one site (Bricket Wood), possibly another near the Essex border.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22 – Probably no extant colonies.

Oxfordshire vc 23 – Probably about four main sites, but likely to be under-recorded.

Buckinghamshire vc 24 – The main concentration of records is around the Bernwood complex on the Bucks/Oxon border.

Bedfordshire vc 30 – No extant colonies.

Northamptonshire vc 32 - No extant colonies.

Habitat – This species uses wooded areas with sheltered hedges containing the larval foodplant Blackthorn *Prunus spinosa*, often on heavy clay. The butterfly tends to lay eggs on 1-2 year old sucker growth in sunny and sheltered conditions, usually less than 1 m from the ground.

Threats – This species can be badly affected by the cutting of its foodplant at any time of the year. In particular annual hedge trimming is most harmful as it can remove the over-wintering eggs. Another threat is the fragmentation and isolation of breeding habitat.

Management – Full details are given in the Action Plan (Bourn & Warren, 1998c) and in the “Hedgerows for Hairstreaks. Hedgerow and Woodland Management to Conserve the Brown Hairstreak” EN & BC leaflet 1998.

Avoid cutting all Blackthorn in a single year. Establish 3 to 5 year rotational scrub/hedge or wood edge cutting, and cut only a third or less in any one year. Likewise, if coppicing or felling woodland where this butterfly exists, then cut on a rotation. Longer rotations of seven or more years, together with hedge-laying or coppicing are suitable. If coppicing a hedge, then it is best to protect the re-growth from stock browsing. Also if possible, avoid spraying fertiliser or pesticide into hedges. Habitat can be created by planting Blackthorn to produce new hedges, or to gap up existing ones.

There is a slight conflict with management for Black Hairstreak, which requires older Blackthorn growth.

Survey – Upper Thames Branch organises surveys of Brown Hairstreak eggs, particularly on the RSPB Otmoor reserve, MoD rifle range Otmoor, Bernwood Forest and the M40 Compensation Area.

Monitoring – The species is monitored with a transect at Bricket Wood (Herts), however the Brown Hairstreak is poorly assessed by the butterfly transect method. A recently developed method is to searching for eggs over-winter and to quantify in terms of time spent searching to allow comparisons between years.

Present conservation action – Butterfly Conservation has produced an national action plan for this species (Bourn & Warren, 1998c). The Upper Thames Branch has produced a conservation advice leaflet for this species in their region.

Actions and targets

Targets - Maintain the present range of the species.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites (egg searches)	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils FC, WT.
2. Monitor all known colonies.	By 2001, then ongoing	EN, Wildlife Trusts, local volunteers, County Councils FC. WT.
3. Provide management advice. Encourage favourable management of all known sites and of associated potential areas, to encourage the formation of site networks.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT.
4. Provide feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Wildlife Trusts, County Councils, FC, WT.

3.1d Marsh Fritillary – *Eurodryas aurinia*

For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Barnett & Warren, 1995a).

National distribution and status- The UK is probably one of the major European stronghold for the species, but even here it has declined substantially over the last 150 years. In Britain, its range has reduced by over 62%, and it has recently disappeared from most of eastern England and eastern Scotland. It is still quite widespread in parts of south-west England and Wales, but colonies are estimated to be disappearing at a rate of more than 10% per decade.

The butterfly is a UK BAP Priority Species, listed on Annex II of the EC Habitats Directive and Appendix II of the Bern Convention. It is also protected under Schedule 5 of the WCA 1981 (in respect of sale only).

Distribution and abundance in the Thames Region- At present, it is likely only two colonies exist, both in Berkshire.

Hertfordshire vc 20 – No extant colonies. Last recorded in 1960s.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22 - Small populations still exist on the south-west Oxon/west Berks Downs. Has been recorded at Seven Barrows and Crog Hill, BBOWT reserves.

Oxfordshire vc 23 – The colony at Otmoor was last seen in 1995, so now it may be extinct. Scattered records still occur along the downs on the Berks/Oxon border.

Buckinghamshire vc 24 – Formally found locally in the Chilterns and at Bernwood Forest. It was last seen in 1996 (singleton) at Rushbeds Wood and Railway Cutting SSSI, and if not seen in 2001, should be considered extinct.

Bedfordshire vc 30 – No extant colonies. Last recorded in the 1950s.

Northamptonshire vc 32 - No extant colonies.

Habitat – Marsh Fritillary colonies in Britain occur in two distinct habitats; damp, neutral or acidophilous grassland and in dry, calcicolous grassland. The main larval foodplant is Devil's-bit Scabious *Succisa pratensis*, but Small Scabious *Scabiosa columbaria* has also been commonly reported as a foodplant in this region.

Threats – Agricultural improvement of marshy and chalk/limestone grasslands, including drainage. Changes in grazing stock and practice are known to strongly affect this species. Habitats are also lost due to afforestation and to development. A major threat in recent decades in the Thames Region, as seen throughout its range, has been the increasingly fragmentation and isolation of Marsh Fritillary habitat. Colonies are often small and prone to extinction, so extensive networks of habitat patches which permit re-colonisation are essential to their long term survival.

Management – See Hobson (2000a/b/c/d) for detailed management advice

- For damp grassland aim for an uneven sward between 8-25 cm high throughout the grazing season. On chalk grassland aim for an uneven sward between 7-15 cm high throughout the year.

- Extensive grazing is ideal, though stocking rates may need to vary from year to year.

- Where possible run chalk grassland with improved land to allow rapid removal of stock.

- Feed supplements on improved land only to avoid damaging the grassland.

- Only burn on sites with a history of burning and burn a maximum of a third of each site/field in a year. Find the larval webs in early September and avoid burning these areas.
- On damp grassland, mow dense rushes or tussocky grasses in March and June if necessary and remove the litter.
- Cut scrub as necessary from part of the site only each year.

On Otmoor the local Butterfly Conservation branch is involved with the Conservation Group formed by EN to advise the MoD on management, however, there is some conflict with the needs of tenant farmers.

Survey - A national re-survey of all known 1990 sites is underway and should be complete by the end of 2000 (Hobson, BC News spring/summer 2000).

Monitoring – There are no butterfly transects that include present colonies in this region. Various sites have monitored by larval web and/or adult counts. Closer monitoring of known sites is required.

Present conservation action – Butterfly Conservation has produced an national action plan for this species (Barnett and Warren, 1995a) and a series of management advice leaflets (Hobson, 2000a/b/c/d). English Nature has produced a species action plan for the Marsh Fritillary in Berkshire, Buckinghamshire and Oxfordshire (Greves, 1997a).

Actions and targets

Targets - Halt current decline and maintain the present range of the species.

- Identify networks of existing suitable habitat.
- Identify areas where habitat restoration is necessary.
- Identify and manage possible future re-introduction sites.

Action	BC's Targets	Possible Partners
1. Protect all remaining populations	Ongoing	EN, Wildlife Trusts.
2. Survey of all known 1990 sites for the presence of the butterfly.	By end of 2000	EN, Wildlife Trusts, local volunteers.
3. Survey work to determine areas of suitable habitat near existing sites.	By 2005	EN, Wildlife Trusts, local volunteers, EA, MoD.
4. Establish monitoring of all extant sites. Larval web counts and adult counts.	By 2001, then ongoing.	EN, Wildlife Trusts, local volunteers.
5. Identify priority areas for re-introductions (Greves, 1997a).	By 2005	EN, Wildlife Trusts, local volunteers.
6. Provide feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	Ongoing.	EN, Wildlife Trusts, local volunteers, MoD, County Councils.
7. Give management advice on all known sites. (Encourage favourable management of all known sites with large and medium populations, and of associated occupied or potential sites.)	Ongoing	EN, Wildlife Trusts, local volunteers, MoD, County Councils.
8. Continue to raise awareness of the significance of the landscape scale conservation necessary for this species (the importance of a large number of habitat 'patches').	Ongoing	EN, Wildlife Trusts, County Councils.

3.1e Purple Emperor – *Apatura iris*

National distribution and status- A scarce species, now restricted to central southern England with strongholds in Hampshire, Wiltshire and West Sussex. In the past, this range was greater, but it has disappeared from much of its former northern and eastern areas.

It has been listed as a species of conservation concern in the Governments Steering Group report (UK Biodiversity Steering Group 1995). The butterfly is protected under Schedule 5 of the WCA 1981 (in respect of sale only). For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Bourn & Warren, 2000b).

Distribution and abundance in the Thames Region-

Hertfordshire vc 20 – 16 sightings at 9 different sites recently. There is a small colony in the south of the county with good numbers of sightings here in 2000.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22 – Scattered records, mostly in the west of the county.

Oxfordshire vc 23 – Scattered records, but known to occur in approximately five large woodlands, including the Warburg Reserve.

Buckinghamshire vc 24 – Scattered records over all of county. The main concentration is around the Bernwood complex on the Bucks/Oxon border. Also found at Rushbeds Wood, Finemere Wood and Frieth.

Bedfordshire vc 30 – A few scattered records only.

Northamptonshire vc 32 – Appears to be increasing its range northwards. Two strong colonies in the Brigstock area (Rockingham Forest).

Habitat – A butterfly of mature deciduous or mixed woodland, with abundant Oaks *Quercus spp.* Eggs are laid on Sallows (mainly Goat Sallow *Salix caprea* and Common Sallow *S. cinerea*) often in clearings or on ride edges. The adult also requires tall trees and an undulating canopy where a “master tree”, often an Oak, can act as a focal point. A colony can cope with the loss of “master trees” as long as similar trees are available.

Threats – Major threats are large-scale woodland clearance and the loss of mixed-aged Sallow scrub, particularly where browsing prevents scrub regeneration. Also, although this species disperses well, it is still threatened by the fragmentation and isolation of breeding habitat.

Management – Large areas, or networks of mature broadleaved or mixed woodland need to be managed with open, sunny glades and rides. Maintain mixed-aged Sallow, especially fairly large trees. Also maintain prominent mature trees (especially Oaks) in positions such as on the edge of glades or wider areas of rides.

Many of the colonies in the Upper Thames Branch area are in protected woodland and the requirements of this species are considered.

Survey – This species is difficult to survey, as adults spend most of their time in the tree canopy. Even at sites with known colonies, adults may not be seen for several years at a time. Caterpillars can be found, but this is time-consuming.

Monitoring – This species is difficult to monitor for the reasons given above. This species is monitored on a transect at Tring Park (Herts) and at a southern Hertfordshire site (location confidential).

Present conservation action – None targeted at this species in the region.

Actions and targets

Targets - Maintain the present range of the species.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults and for habitat quality.	By 2005	EN, Wildlife Trusts, local volunteers, County Councils FC, WT.
2. Monitor a sample of known colonies, including identifying "master trees".	By 2001, then ongoing	EN, Wildlife Trusts, local volunteers, County Councils FC, WT.
3. Provide management advice. Encourage favourable management of all known sites and of associated potential areas, to encourage the formation of site networks.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT.
4. Continue to raise awareness of the need to maintain and develop networks of woodlands that include areas of mature deciduous habitat.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT.
5. Provide feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Wildlife Trusts, County Councils, FC, WT.

3.1f Silver-spotted Skipper – *Hesperia comma*

For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Barnett & Warren, 1995c), also to Wilson & Bourn (1998).

National distribution and status- This butterfly was formerly widespread on most of the limestone outcrops in the southern half of Britain. Its range has declined by more than 50% in the last 35-40 years and it is now confined to between eight and 14 centres of population in the UK.

The butterfly is UK BAP Priority Species and is protected under Schedule 5 of the WCA 1981 (in respect of sale only).

Distribution and abundance in the Thames Region- This species was found over most chalk downland in the region, but in recent years has been limited to sites on the Berkshire Downs and the Chilterns. However, on these sites, the situation seems hopeful and the species is increasing in numbers.

Hertfordshire vc 20 – No extant colonies. Last recorded in 1950s.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22, Oxfordshire vc 23 & Buckinghamshire vc 24 – About 11 colonies on the Chilterns and Berkshire Downs along the borders of the three counties.

Bedfordshire vc 30 – No extant colonies. Last recorded in 1950s.

Northamptonshire vc 32 - No extant colonies.

Habitat – A warmth-loving butterfly of short-turf chalk grassland. Larval foodplant is Sheep's Fescue *Festuca ovina* and eggs are usually laid on small tufts of *F. ovina* growing among patches of bare ground. It is only in such conditions that temperatures are high enough for the larvae to complete their development. The butterfly is rather sedentary and reluctant to cross unsuitable habitat, so although it has recovered from a national low point in the 1970s, there has been only limited recolonisation of former sites.

Threats – Mainly, loss of unimproved downland habitat, including loss through scrub invasion. Also, this species is very dependant on close-cropped turf. In the past reduced stock grazing on marginal land and the decline in Rabbit numbers led to a dramatic loss of butterfly colonies. However it is possible to overgraze sites, with high Rabbit densities becoming a problem on some sites. The fragmentation and isolation of its breeding habitat makes re-colonisation difficult.

Management – Maintain areas of 1-4 cm tall sward with bare ground patches, particularly on south-facing slopes. Future management should involve controlled grazing of sites with domestic animals, without over-reliance on rabbit grazing. A recent study of grazing options for this species has been published and concluded that winter grazing, particularly by cattle is preferable, while sheep grazing during egg-laying should be avoided (Warren *et al.*, 1999).

The National Trust has been carrying out scrub clearance at Watlington Hill (Oxon) for this species amongst others.

Survey – Survey of egg sites to take place at Watlington Hill, summer 2000 by volunteers from Upper Thames Branch.

Monitoring – Three sites are monitored for this species in the Chilterns, Aston Rowant South, Aston Rowant North and Aston Upthorpe Downs (Wilson & Bourn, 1998). The Upper Thames Branch has organised a new transect at one key site –Watlington Hill.

Present conservation action – Butterfly Conservation has produced an national action plan for this species (Barnett and Warren, 1995c), a review of monitoring (Wilson & Bourn, 1998) and a research report (Warren *et al.*, 1999). The Upper Thames Branch produced a conservation advice leaflet for this species.

Discussions and a habitat survey have taken place on proposals to re-introduce this species onto Whipsnade Down (Beds), but no action has yet been taken.

Actions and targets

Targets - Maintain the present range of the species and as a long-term target, restore distribution to the pre-1940 level.

- Reduce the reliance on rabbit grazing as habitat management.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, NT.
2. Establish transect at Watlington Hill and Swyncombe Downs (Oxon).	Ongoing, 2006	EN, Wildlife Trusts, local volunteers, NT.
3. Research and monitor the effects of grazing regimes on this species.	By 2005	EN, Wildlife Trusts, local volunteers, NT.
4. Provide management advice. Encourage favourable management of all known sites and of associated potential areas, to encourage the formation of site networks.	Ongoing	EN, Wildlife Trusts, County Councils, NT.
5. Provide feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Wildlife Trusts, County Councils, NT.
6. Continue to work with the Chiltern Downland Heritage Project, to assess the possibilities for habitat restoration to enable natural re-colonisation of this species by reducing habitat fragmentation.	Ongoing	EN, Wildlife Trusts, County Councils, NT, CDH

3.1g Silver-studded Blue – *Plebejus argus*

National distribution and status- The Silver-studded Blue has undergone a severe decline in range this century, estimated at 80%. It has become extinct in Scotland and northern England, and throughout most of central, eastern and south-eastern England. It remains widespread only on the heaths of Dorset and Hampshire, although strong populations also occur in North Wales.

The butterfly is a UK BAP Priority Species. The butterfly is protected under Schedule 5 of the WCA 1981 (in respect of sale only). For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Ravenscroft and Warren, 1996).

Distribution and abundance in the Thames Region- See notes for Berkshire, only isolated records outside of Berkshire.

Hertfordshire vc 20 – No extant colonies. Last records (unconfirmed) pre-1940.

Middlesex vc 21 - No extant colonies. Last records pre-1940.

Berkshire vc 22 – Restricted to the heathlands between Crowthorne/Sandhurst and Ascot in the south-east of the county, also a few colonies to the west on the Hampshire border.

Oxfordshire vc 23 – Almost certainly no extant colonies, but an odd record at Watlington and Pyrton Hills in 1984.

Buckinghamshire vc 24 – Probably no extant colonies, it did occur on a few site in the Chilterns. Last recorded 1960s.

Bedfordshire vc 30 – No extant colonies. Last possible records more than 150 years ago.

Northamptonshire vc 32 - No extant colonies.

Habitat – This butterfly occurs on lowland heathland, calcareous grassland and, in Wales, at a single peatland site. On heathland, the caterpillar feeds on heather species (*Calluna* and *Erica spp.*) and sometimes on other plants such as Gorse *Ulex spp.* The species requires the presence of *Lasius* ant species, open ground for breeding, and either bare soil or short vegetation. These conditions produce warm microclimates at ground level for the larvae, a factor that is especially important towards the north of the species' range. Early successional habitat stages are preferred and heathland colonies tend to exist on sites that have been either recently disturbed, or burnt. Conditions on heathlands usually become suitable after 2-5 years of re-growth and if succession is not delayed by management, then suitable habitat lasts only approximately 5-10 years.

In most situations, the Silver-studded Blue appears to exist in metapopulations, with patches of suitable habitat linked by the occasional dispersal of adults. However, adults appear to be short-lived with low dispersal.

Threats – Major threats are the loss of heathland to development and agriculture, also inappropriate heathland and grassland management. Extensive networks of habitat patches which permit re-colonisation are essential to their long term survival so isolation and fragmentation of the habitat is a great problem.

Management – Heathland habitats need careful management to encourage a rotation of disturbance and grazing. Traditional management such as the cutting of heather and

invasive scrub, grazing domestic animals, or burning to encourage young growth for livestock can be useful in producing the early successional heathland needed by this species.

The Berkshire Heathland Project has been involved in various projects to manage and restore habitat, including restoration management of the SSSI at Wellington College.

Survey – None recently in the region.

Monitoring – The Upper Thames Branch is involved in monitoring several sites including Wildmoor Heath, Wellington College and King’s Ride, Ascot, but full monitoring should be extended to more sites.

Present conservation action – Berkshire County Council, Crown Estates, EN and the Berkshire Heathland Project are all involved in heathland creation schemes, which should benefit this species.

Butterfly Conservation has produced a national action plan for this species (Ravenscroft and Warren, 1996). A conservation advice leaflet for this species in Berks, Bucks and Oxon is available from Butterfly Conservation (Upper Thames Branch).

EN published a booklet on the conservation of the Silver-studded Blue in lowland heathlands in 1995.

Actions and targets

Targets - Maintain the present range of the species.

- Investigate possibilities of re-introductions in south Buckinghamshire.

Action	BC’s Targets	Possible Partners
1. Survey previous sites and possible sites.	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils NT.
2. Monitor all known colonies.	By 2001, then ongoing	EN, Wildlife Trusts, local volunteers, County Councils NT.
3. Assess heathland in south Bucks for potential re-introduction. In particular examine Black Park & Stoke Common	By 2005	EN, Wildlife Trusts, local volunteers, County Councils NT, Crown Estates, Berkshire Heathland Project.
4. Provide management advice. Encourage favourable management of all known sites and of associated potential areas, to encourage the formation of site networks.	Ongoing	EN, Wildlife Trusts, County Councils, NT, Crown Estates, Berkshire Heathland Project.
5. Provide feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Wildlife Trusts, County Councils, NT, Crown Estates, Berkshire Heathland Project.

3.1h Wood White – *Leptidea sinapis*

National distribution and status- Within Britain, the Wood White is restricted to scattered colonies in the south of England. It has severely declined since 1950 especially in the north and east of England. The current rate of loss of colonies in southern England is estimated at 36% per decade.

It has been listed as a species of conservation concern in the Governments Steering Group report (UK Biodiversity Steering Group, 1995). The butterfly is protected under Schedule 5 of the WCA 1981 (in respect of sale only). For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Warren and Bourn, 1998).

Distribution and abundance in the Thames Region- Stronghold in Buckinghamshire and Northamptonshire with a few colonies in Bedfordshire and Oxfordshire.

Hertfordshire vc 20 – No extant colonies. Only a single breeding colony has ever been recorded and it was last recorded in the early 1980s. A recent record has been confirmed, but is a suspected captive release.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22 – Probably no extant colonies and only a handful of sighting since 1970. However, it is just possible a small colony could exist at Basildon Park as there are records from the early 1990s and one in 1980.

Oxfordshire vc 23 – Probably two to three colonies and about five sites. The largest at Whitecross Green Wood.

Buckinghamshire vc 24 – Fairly strong in the county, about 13 colonies. Recent records are from the Vale of Aylesbury, the Bucks/Northants Border, the Silverstone area, Salcey Forest, Rushbeds Wood and Bernwood Forest. Most numerous in the north of the county.

Bedfordshire vc 30 – One unconfirmed and one confirmed site (Maulden Wood). However, recent information suggested that it may now be extinct at Maulden Wood.

Northamptonshire vc 32 – 11 confirmed sites. Fairly strong in the county.

Habitat – This butterfly needs areas of tall (15 to 30+ cm high) grassy, vegetation, often within scrub, natural woodland regeneration, coppice or young woodland plantations. It will also use areas such as disused railway lines, and it often uses patches of tall vegetation such as can be found in ditches. The larval foodplant, Vetch species (mainly Meadow Vetchling *Lathyrus pratensis*) tends to only be used when growing in such a way that it protrudes above the surrounding tall vegetation. Breeding areas require shade levels of between 20 and 50%.

Threats – Within this region, the major threats are the loss of open clearings and open rides within modern high forest systems. Also, the increasingly fragmentation and isolation of breeding habitat.

Management – More research is needed on the practical management of woodlands for this species. A continuous supply of scrubby woodland or scrubby coppice re-growth is probably needed. In some parts of the county, the re-establishment of coppicing seems to have proved a successful management.

There is no specific management for this species at present in the region.

Survey – Some survey work has been carried out on the unconfirmed site in Bedfordshire.

Monitoring – None.

Present conservation action – Butterfly Conservation has produced an national action plan for this species (Warren and Bourn, 1998). A conservation advice leaflet on the Wood White is available from the Upper Thames Branch.

Actions and targets

Target - Maintain present range.
 - Consider possible future re-introductions.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2001, then ongoing	EN, Wildlife Trusts, local volunteers.
2. Survey for potential habitat and examine possibility of re-introductions.	By 2005	EN, Wildlife Trusts, local volunteers.
3. Establish monitoring at all major sites.	By 2005	EN, Wildlife Trusts, County Councils, FC, WT.
4. Continue to raise awareness of the need for mixed-aged woodlands. In particular for rotational creation of woodland clearing, including the use of coppicing.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT.
5. Encourage appropriate management of woodlands, via the Woodland Grant Scheme.	Ongoing	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.
6. Provide management advice and feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT.

3.2 Medium priority butterflies present in the Thames Region.

3.2a Dingy Skipper -*Erynnis tages*

National distribution and status- The Dingy Skipper is generally uncommon over Britain, but it can be locally common on the coast and on the southern downs. This species is declining throughout its range.

For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Bourn *et al.*, 2000).

Distribution and abundance in the Thames Region- It is fairly common on the chalk downlands, and is also recorded from some woodlands and on railway cuttings. It does appear to have declined recently.

Hertfordshire vc 20 – Declined greatly since the 1980s. Probably between five and ten sites.

Middlesex vc 21 - Probably no extant colonies.

Berkshire vc 22, Buckinghamshire vc 24 and Oxfordshire vc 23 – Mainly found along the Chiltern escarpment. Also in the Bernwood Forest complex of woodlands and some colonies along old railway tracks.

Bedfordshire vc 30 – Present, but declining.

Northamptonshire vc 32 – Present, but declining.

Habitat – The butterfly uses a variety of habitats. It likes sheltered, warm sites with patches of bare ground and generally, short grass. The larval foodplant is Bird's-foot Trefoil *Lotus corniculatus*, Greater Bird's-foot Trefoil *L. uliginosus* and Horseshoe Vetch *Hippocrepis comosa*.

Threats – Threats include the improvement of grassland, scrub encroachment of grassland and recent declines in grazing on downland.

Management – To provide breeding habitat maintain areas of sparse vegetation with patches of bare ground. Managements such as grazing and scrub control are likely to be beneficial.

Survey – None specifically for this species.

Monitoring – It occurs on various transects, including Bernwood Forest (Oxon/Bucks), Tring Park (Herts), Sharpenhoe Clappers, Barton Hills and Whipsnade Downs (Beds)

Present conservation action – None specifically for this species.

Actions and targets

Target - Maintain or increase present range.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
2. Monitor a sample of known sites.	Ongoing	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
3. Provide general management advice and feedback to landowners and site managers.	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils, FC, WT, NT.

3.2b Duke of Burgundy – *Hamearis lucina*

National distribution and status- Once locally common in woodlands and grasslands in southern England. It did breed in Wales and Scotland, but is now extinct in these regions. In southern England it has declined rapidly in recent decades, particularly in woodlands and the remaining colonies tend to be on chalk or limestone grasslands. Strongholds in central southern England, the Lake District and North Yorkshire.

It has been listed as a species of conservation concern in the Governments Steering Group report (UK Biodiversity Steering Group, 1995). The butterfly is protected under Schedule 5 of the WCA 1981 (in respect of sale only). For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Bourn and Warren, 1998d).

Distribution and abundance in the Thames Region- Most colonies now exist on chalk grassland, on the Berkshire Downs and the Chilterns. At present, this species falls just short of all three criteria (Section 2.2) for elevating to High Priority within the region. Therefore, close monitoring of this species is needed to predict any necessary future revision of priority.

Hertfordshire vc 20 – A few individuals are seen occasionally at Aldbury Nowers.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22 & Oxfordshire vc 23 – Most sites on the border between the counties (general VC 22). Only recorded from two or three tetrads away from the Downs. Strongest colony at Aston Upthorpe Down SSSI. About five or six other sites, mainly on the Downs.

Buckinghamshire vc 24 – Colonies scattered along the Chiltern escarpment. The strongest colony is at Ivinghoe Beacon.

Bedfordshire vc 30 – Two confirmed and four unconfirmed sites.

Northamptonshire vc 32 – One unconfirmed site only.

Habitat – The Duke of Burgundy is found in open woodland, or scrubby grassland. Larval foodplant is *Primula* spp. such as Primrose and Cowslip, preferably semi-shaded, strong growing plants in moderate to tall swards.

Threats – Within this region the major threats are the loss of open clearings and open rides within modern high forest systems. Grassland sites are very vulnerable to becoming too scrubby, or breeding habitat can be quickly lost if grazing management is unsuitable. In particular, many sites across the region were lost to heavy rabbit grazing, particularly when this coincided with dry summers. Another major threat is the increasing fragmentation and isolation of breeding habitat.

Management – (See Action Plan). In woodland, ride management should involve rotational cutting of grassy margins every 2-5 years or scrub margins every 5 –15 years. It is most important that not all the breeding habitat is cut in the same year. Coppice rotation is also recommended.

On grassland, management is complex and detailed advice should be sought for specific sites. In general, light winter grazing is preferable. Some scrub cover is important to this butterfly, and an uneven edged, patchy scrub is preferred. However, scrub control will be needed on most sites.

In Bedfordshire, Whipsnade Down is managed specifically for this species and there is general scrub clearance at the Totternhoe Quarry site, with much future management work

to be aimed specifically for the Duke of Burgundy. At Aston Upthorpe Down, the Upper Thames Branch carries out scrub clearance and coppicing to maintain and extend the colony. In Buckinghamshire, Duke of Burgundy management includes long-term scrub management at Dancersend and some management at Bradenham Woods. The Upper Thames Branch is also involved with management of the NT owned site at Coombe Hill, aimed particularly to produce Dark Green Fritillary and Duke of Burgundy habitat.

Survey – Very little at present in the region.

Monitoring – There are transects on Duke of Burgundy sites at Aldbury Nowers (Herts), Aston Upthorpe Downs (Berks), Totternhoe Quarry, Whipnade Down and Dunstable Downs (Beds).

Present conservation action – Butterfly Conservation has produced an national action plan for this species (Bourn and Warren, 1998d). A conservation advice leaflet on this species is available from the Upper Thames Branch.

Actions and targets

Target - Maintain present range.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, NT.
2. Establish monitoring at all major sites.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT, NT.
3. Investigate Pegsdon Hills and Barton Hills (Beds) as potential habitat or candidates for creation of habitat for possible re-introductions.	By 2005	EN, Wildlife Trusts, local volunteers, NT.
3. Continue to raise awareness of the need for mixed-aged woodlands. In particular for rotational creation of woodland clearing, including the use of coppicing.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT.
4. Provide management advice and feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT, NT.

3.2c Grayling – *Hipparchia semele*

National distribution and status- This species is locally common in many coastal areas and on southern lowland heaths. In other areas it is usually rare and is declining.

Distribution and abundance in the Thames Region- This species is now only found in south-east and south-central Berkshire. Previously known colonies on the Chilterns have no recent records. The species has a Medium Priority status because of a recent steep decline in sites, mainly due to the loss of the downland colonies.

Hertfordshire vc 20 – No extant colonies. Probably last record in 1940s.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22 – Local, but with a number of sites. All but one site (Lambourn Downs) are on heathland. Can be fairly common where it is found.

Buckinghamshire vc 24 – No extant colonies. Used to occur on the Chilterns.

Oxfordshire vc 23 – No extant colonies.

Bedfordshire vc 30 – No extant colonies. Probably last record in 1940s.

Northamptonshire vc 32 – No extant colonies.

Habitat – The larval foodplant in the Thames Region is usually various fine, wiry grasses such as *Festuca* spp. The butterfly likes well drained, sparsely vegetated terrain. It tends to be found on dry heaths and abandoned quarries where it likes broken and rutted ground. It also uses recently felled woodland and young plantations. This butterfly is fairly mobile.

Threats – The major threats are the improvement of grassland, the decline in grazing on downland, the encroachment of scrub on grassland and the loss of heathland.

Management – Maintain areas of sparse vegetation with patches of bare ground. Maintain and protect lowland heathland. Managements such as grazing and scrub control are likely to be beneficial.

The Berkshire Heathland Project has been involved in various projects to management and restore habitat, including restoration management of the SSSI at Wellington College.

Survey – None specifically for this species.

Monitoring – The Upper Thames Branch is involved in monitoring Wildmoor Heath and Wellington College.

Present conservation action – None specifically for this species.

Actions and targets

Target - Maintain or increase present range.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
2. Monitor between 3 to 6 sites.	By 2001, then ongoing	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
3. Provide management advice and feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils, FC, WT, NT.

3.2d Grizzled Skipper – *Pyrgus malvae*

National distribution and status- This species mainly occurred in southern England up to the Midlands, but has declined rapidly and is now mostly in southern central England. However, in some area it can be locally fairly common. For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Brereton *et al.*, 1998).

Distribution and abundance in the Thames Region- The species is doing fairly well in Berkshire, Buckinghamshire, Oxfordshire, Bedfordshire and Northamptonshire. In Hertfordshire a serious decline from 38 tetrads to none appeared to occur between 1987 and 1995. However, Shepperson (1998) states this may have been more due to lack of recording, even so, the decline was probably 38 to 14 tetrads.

Hertfordshire vc 20 – Approximately 10 to 19 sites known, nine tetrads in 1999.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22, Buckinghamshire vc 24 & Oxfordshire vc 23 – Strong numbers along the Chiltern escarpment. Also in the Bernwood Complex of woodlands and some other good colonies scattered in the three counties.

Bedfordshire vc 30 & Northamptonshire vc 32 – Good numbers of sites.

Habitat – Occurring in a variety of habitats including grassland, woodland and in habitats such as old railway tracks. It likes sunny, sheltered conditions with patches of bare ground. Eggs are laid on bushy growths of Wild Strawberry *Fragaria vesca*, Agrimony *Agrimonia eupatoria*, Creeping Cinquefoil *Potentilla repens*, Tormentil *P. erecta* and sometimes Blackberry *Rubus fruticosus* suckers.

Threats –The major threats are the loss of open areas and bare ground from many causes including shading of woodland rides, past low levels of Rabbit grazing, scrub invasion of grassland and probably fairly important, the reduction in the managed periodic burning of land alongside railway lines. Another large threat is the increasingly fragmentation and isolation of breeding habitat.

In the Thames Region a particular threat to several of the colonies is from proposed development at Didswell Railway cutting and Welwyn North Station (Herts), also at Elstow Storage Depot (Beds)

Management – The necessary management is varied, occurring to type of habitat. Generally, it is necessary to produce areas of bare ground and plenty of foodplant in sunny, sheltered conditions. Scrub growth may need to be controlled and woodland rides kept open and sunny.

Survey – Hertfordshire has been organising a Grizzled Skipper survey since 1998 (Shepperson, 1998, 1999). This attempts to search all past and present sites and to locate new colonies.

Monitoring – Transect on site at Aldbury Nowers and Waterford Pit (Herts).

Present conservation action – Butterfly Conservation has produced an national action plan for this species (Brereton *et al.*, 1998). The draft Biodiversity Action Plan for Hertfordshire (commissioned by the Hertfordshire Environmental Forum and the

Hertfordshire Countryside Forum) gives Grizzled Skipper as an action species with the objective to halt the decline by maintaining and increase existing colonies. Also, to restore the species to pre-1970 levels in 50 years.

Actions and targets

Target - Maintain or increase present range.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
2. Establish monitoring at Frogmore Hall Pit, Telegraph Hill and part of Broxbourne Woods (Herts).	By 2001, then ongoing	EN, Wildlife Trusts, County Councils.
3. Investigate development plans affecting the sites at Didswell Railway cutting and Welwyn North Station (Herts). Continue representation/consultation on development plans at Elstow Storage Depot (Beds)	By 2001	EN, Wildlife Trusts, local volunteers.
4. Explore conservation management with Railtrack in Hertfordshire.	By 2001	EN, Wildlife Trusts, local volunteers.
5. Provide management advice and feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT, NT.
6. Discuss with owners specific management options for Grizzled Skipper at Stubbings Wood, Frogmore Hall Pit, Aldbury Nowers and Telegraph Hill, (Herts)	By 2001	Dacorum DC, EN, Wildlife Trusts, local volunteers.

3.2e Small Blue – *Cupido minimus*

National distribution and status- This species is widely distributed across Britain, but is rare in most areas. Locally common only in its strongholds in Gloucestershire, Salisbury Plain and south Dorset.

The butterfly is protected under Schedule 5 of the WCA 1981 (in respect of sale only). For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Bourn & Warren, 2000a).

Distribution and abundance in the Thames Region- The species is doing fairly well over much of the region, but is poorly represented in Hertfordshire and Northamptonshire and is extinct in Middlesex. This species can exist in very small colonies, within small areas so tends to be under-recorded.

Hertfordshire vc 20 – Two recently discovered sites, one certainly a breeding colony.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22 – Fairly widespread on the Berkshire Downs.

Buckinghamshire vc 24 – Fairly widespread in the Chilterns.

Oxfordshire vc 23 – Fairly widespread on the Berkshire Downs and Chilterns. A few colonies in old quarries and disused railway lines.

Bedfordshire vc 30 – About 16 sites.

Northamptonshire vc 32 – One confirmed site.

Habitat – This species uses sunny, sheltered conditions with bare ground, commonly on banks and slopes with thin, disturbed ground. Larval foodplant is Kidney Vetch *Anthyllis vulneraria*, Bird's-foot Trefoil *Lotus corniculatus* and Horseshoe Vetch *Hippocrepis comosa*.

Threats – The major threats are the loss of unimproved grasslands and scrub encroachment. Another threat is the increasingly fragmentation and isolation of breeding habitat. Development of sites is a threat in some areas, e.g. Bucks.

Management – The necessary management is varied, occurring to type of habitat. Generally, the aim is to produce areas of bare ground, and plenty of foodplant in sunny, sheltered conditions. Scrub growth may need to be controlled. Habitat creation can be considered whenever new roads cut through chalk and limestone and here it is possible to provide rough, uneven roadside slopes with thin soil.

Survey – None specific for this species.

Monitoring – There are transects on sites at Totternhoe Knolls (Beds), College Lake (Bucks), Pitstone Fen (Bucks) and Tring Park (Herts). The species is also monitored as a target species in the South Bedfordshire Chalk Grassland Survey.

Present conservation action – Butterfly Conservation has produced a national action plan for this species (Bourn & Warren, 1998e). A conservation advice leaflet on this species is available from the Upper Thames Branch.

In Buckinghamshire consultation with Chiltern Railways over one site has been led to Kidney Vetch being translocated.

In Oxfordshire, at Headington a roadside verge site is being managed by Upper Thames Branch for Oxfordshire CC. At this site, scrub and turf have been removed and Kidney Vetch seedlings grown for replanting to extend the small area of foodplant.

Actions and targets

Target - Maintain or increase present range.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, NT.
2. Provide management advice and feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils, Chiltern Railways, NT.
3. Continue management of Headington roadside verge.	Ongoing	Oxfordshire CC, local volunteers.
4. Consider creation of habitat along any new roads or developments at suitable locations.	Ongoing	EN, Wildlife Trusts, local volunteers, Chiltern Railways.

3.2f Wall Brown – *Lasiommata megera*

National distribution and status- This species is fairly common over lowland England and Wales, but recently has been declining, particularly on inland and on southern sites.

Distribution and abundance in the Thames Region- This butterfly earns its Medium Priority status because of its recent rapid decline in the region. In 1970–82 the species was present in 125 10km squares, in 1995-99 it was recorded in only 88 10km squares. However, the species is known for its cyclic nature, there appeared to be a partial recovery in 1999 and its status is likely to change to Low Priority in the future. Probably most common, at present, in north Buckinghamshire.

Hertfordshire vc 20 – Present, but declining.

Middlesex vc 21 - A few colonies.

Berkshire vc 22 – Present, but declining.

Buckinghamshire vc 24 – Present, but rapid decline recently. However, seems to be surviving well around the Milton Keynes area.

Oxfordshire vc 23 – Present, but declining.

Bedfordshire vc 30 – Present, but declining.

Northamptonshire vc 32 – Present, but in serious decline.

Habitat – The butterfly tends to breeds in dry, sparse, unimproved or semi-improved grasslands but its exact habitat requirements are poorly known.. It likes broken, uneven terrain with patches of bare ground and does not cope well with shade. It will use a wide variety of habitat types including downland, heathland, open woodland rides and derelict land.

Threats –Threats include the improvement of grassland, scrub encroachment of grassland and recent declines in grazing on downland. However, the reasons for this species rapid decline are unknown, but suggestions include a link to recent warmer summers.

Management – Maintain areas of sparse vegetation with patches of bare ground. Managements such as grazing and scrub control are likely to be beneficial.

Survey – None specifically for this species.

Monitoring – The Wall Brown is recorded on various transects, including Highdown, Stevenage and Aldbury Nowers (Herts), Sharpenhoe Clappers, Barton Hills and Whipnade Downs (Beds)

Present conservation action – None specifically for this species.

Actions and targets

Target - Maintain or increase present range.
-Find out the reasons for this species decline.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
2. Monitor between 3 and 6 main sites.	By 2001, then ongoing	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
3. Support research into reasons for the decline of this species.	By 2005	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
4. Provide general management advice and feedback to landowners and site managers.	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils, FC, WT, NT.

3.2g White-letter Hairstreak – *Satyrrium w-album*

Distribution and abundance in the Thames Region- Over the last decade, this species has recovered slightly from the large scale decline caused by the loss of Elms due to Dutch Elm Disease. This is illustrated in Berkshire, Buckinghamshire and Oxfordshire, where 71 tetrads were recorded in 1987 –93 period, and 99 tetrads in the period 1995-99, although there has been an increase in recorder effort.

Hertfordshire vc 20 – In some years, fairly abundant over much of the southern half of the county.

Middlesex vc 21 - Fairly abundant in some years, mainly in the north of the county.

Berkshire vc 22 – Between 10 and 20 main sites. One of the key sites, Maidenhead Thicket was extremely affected by the widening of the A404, destroying some of the known breeding areas. However, the colony appears to be surviving.

Buckinghamshire vc 24 – Between 10 and 20 main sites.

Oxfordshire vc 23 – Between 10 and 20 main sites, including a colony on Otmoor.

Bedfordshire vc 30 – Fairly widespread across the county. Recorded in approximately 40 tetrads at present.

Northamptonshire vc 32 – Fairly widespread across the county. Recorded in approximately 33 tetrads at present.

Habitat – Colonies tend to remain close to a small clump, or single tree which is the breeding site, although this may be changing now the foodplant is rarer. Dutch elm disease reduced numbers drastically in the late 1970s and early 1980s as the larval foodplant, Elm *Ulmus* spp. became less common. Recently, the butterfly seems to be recovering and now uses sucker growth, rather than mature trees. Sucker growth appears less affected by the disease than do older trees as the diameter is too small to be attractive to the bark beetle which spreads the disease.

Threats –The major threat is the loss of the foodplant and this could also lead to increasingly fragmentation and isolation of breeding habitat.

Management – There has been some success with a policy of trimming Elm growth to retain a continuity of new sucker growth.

Survey – There has been some surveying for new sites in Hertfordshire and Middlesex.

Monitoring – This species occurs on a large number of transects across the region.

Present conservation action – None.

Actions and targets

Target - Maintain or increase present range.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
2. Monitor main sites.	By 2001, then ongoing	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
3. Provide management advice and feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils, FC, WT, NT.

3.3 Recently extinct butterflies in the Thames Region

3.3a Pearl-bordered Fritillary – *Boloria euphrosyne*

For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Barnett & Warren, 1995b).

National distribution and status- This butterfly was formerly widespread and locally abundant through much of Britain, but has declined very rapidly over the last 50 years in the south of England, and is now extinct over large parts of its former range. Its main centres of distribution are in parts of Wales and southern England, although it is still widespread and abundant at localities in north-west England and in the Highlands of Scotland. It is absent from Northern Ireland. In southern England few large colonies are known, many are small and highly vulnerable to extinction, and the rate of loss of sites is estimated at 39% per decade in central southern England.

The butterfly is a UK BAP Priority Species. It is also protected under Schedule 5 of the WCA 1981 (in respect of sale only).

Distribution and abundance in the Thames Region- This species is probably now extinct in the region. However, it is included because it is still possible that colonies may be found, particularly in private or poorly surveyed woodland.

Hertfordshire vc 20 – No extant colonies. Last confirmed record probably 1978. Records in 1996 are presumed releases.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22 – No extant colonies. Last record probably 1978.

Oxfordshire vc 23 – See below.

Buckinghamshire vc 24 – A single colony survived until about 1996 at Bernwood Forest on the Bucks/Oxon border, as it has not been seen for five seasons this species is now considered extinct in the region. If the colony is extinct, then there is almost no hope of a natural recolonisation in the foreseeable future.

Bedfordshire vc 30 – No extant colonies. Last seen in 1950s.

Northamptonshire vc 32 - No extant colonies.

Habitat – The butterfly breeds either in woodland clearings or unimproved grassland habitats with scattered scrub or abundant bracken. In the Thames Region, the habitat has been mostly woodland clearing. Here the butterfly needs Violet *Viola* spp., partly surrounded by bare ground or leaf litter, where at least 60% of direct sunlight reaches the plant. The correct habitat conditions usually only remain for a maximum of 5 years (usually less) after woodland clearance/ coppice cut. This species can survive for some years on the margins of broad, open rides in woodland or wayleaves, but usually at low population densities.

Threats – Within this region the major threats are the loss of open clearings and canopy gaps within modern high forest systems. Also the increasingly fragmentation and isolation of breeding habitat.

Management – A continuous supply of open, recently cleared woodland must be provided. There have been attempts to create woodland clearing for this species, particularly at Bernwood Forest where a series of ‘box junctions’ were created beginning

in the early 1980s. While these produced successful breeding habitat in the short-term, the necessary early successional habitat could not be maintain without rotational clearance.

In some parts of the country, the re-establishment of coppicing has proved a successful management.

Survey – A recent national survey of Pearl-bordered Fritillary has been carried out by Butterfly Conservation.

Monitoring – The colony at Bernwood Forest was monitored under the ongoing transect.

Present conservation action – Butterfly Conservation has produced an national action plan for this species (Barnett & Warren, 1995b). Conservation progress nationally is summarised in a new report by Butterfly Conservation (Brereton *et al.*, 1999). Much survey, publicity, liaison and advisory work aimed at this species is being carried out by Butterfly Conservation, nationally.

English Nature has produced a species action plan for the Pearl-bordered Fritillary in Berkshire, Buckinghamshire and Oxfordshire (Greves, 1997b) in which were identified potential re-introduction sites in Oxfordshire and Buckinghamshire, but none were found to be suitable in Berkshire.

Actions and targets

Target - Following feasibility assessments and habitat restoration, where necessary, seek to restore populations to at least three sites per previously occupied county.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	Ongoing	EN, Wildlife Trusts, local volunteers.
2. Following consultation with BC nationally, consider re-introductions. Considered using the Stanton St John complex of woods (Oxon) and the Bernwood Forest + Grendon Underwood areas (Bucks) as identify by (Greves, 1997b) if habitat conditions are right.	By 2010	EN, Wildlife Trusts, local volunteers.
3. Examine other possible re-introduction sites.	By 2005	EN, Wildlife Trusts, local volunteers.
4. Continue to raise awareness of the need for mixed-aged woodlands. In particular for rotational creation of woodland clearing, including the use of coppicing.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT.
5. Encourage appropriate management of woodlands via the Woodland Grant Scheme.	Ongoing	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.
6. If colonies are found in the region, then Provide feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT.

3.3b Small Pearl-bordered Fritillary – *Boloria selene*

National distribution and status- The Small Pearl-bordered Fritillary was once widespread in woodlands and also in moorland, damp grassland/Bracken habitat over much of England, Scotland and Wales. Since the 1950s it has severely declined in many areas, especially the woodlands of central and eastern England, where it is now almost absent. Recently, it has also been declining rapidly in southern England (estimated decline of 41% per decade), with the exception of the coastal valleys of Cornwall and Devon.

It has been listed as a species of conservation concern in the Governments Steering Group report (UK Biodiversity Steering Group, 1995). The butterfly is protected under Schedule 5 of the WCA 1981 (in respect of sale only). For full information on the status, ecology and conservation of this species refer to the Species Action Plan (Barnett and Warren, 1995d).

Distribution and abundance in the Thames Region- The species is probably extinct in the region, but like the Pearl-bordered Fritillary it is included because of the possibility that the species remains in low numbers in poorly surveyed woodland.

Hertfordshire vc 20 – No extant colonies. Last confirmed records in 1960s

Middlesex vc 21 - No extant colonies.

Berkshire vc 22 – No extant colonies. Last records in 1980s.

Oxfordshire vc 23 – No extant colonies. See below for Bernwood Forest.

Buckinghamshire vc 24 – No extant colonies. Last recorded on the Oxon/ Bucks border at Bernwood Forest in 1995, but was only occasionally record at this site and at least some records were probably mis-identifications. Other sites did include Horton Wood (1979 – 82) and The Heights, Marlow, last seen in 1987.

Bedfordshire vc 30 – No extant colonies. Last records in 1950s.

Northamptonshire vc 32 - No extant colonies.

Habitat – In the south of England, the butterfly breeds in damp woodland clearings. Here the butterfly needs Violet *Viola* spp., growing with some surrounding vegetation, in open woodland or grassland and with at least 50% of direct sunlight reaching the plant. Such conditions generally only exist for a maximum of 10 years after woodland clearance/coppice cut. This species can survive for some years on the margins of broad, open rides in woodland or wayleaves, but usually at low population densities.

Threats – Within this region, the major threats are the loss of open clearings and canopy gaps within modern high forest systems. Also the increasingly fragmentation and isolation of breeding habitat.

Management – A continuous supply of open, recently cleared woodland must be provided. There have been attempts to create woodland clearings at Bernwood Forest, where ride ‘box junctions’ were created in the early 1980s, primarily as Pearl-bordered Fritillary habitat. While these produced successful breeding habitat in the short-term, the necessary early successional habitat could not be maintain without rotational clearance.

In some parts of the country, the re-establishment of coppicing has proved a successful management.

Survey – None recently in the region.

Monitoring – None.

Present conservation action – Butterfly Conservation has produced an national action plan for this species (Barnett and Warren, 1995d).

Actions and targets

Target - Fully investigate possible survival of this species in the region.
- Examine re-introduction possibilities.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2001 and then ongoing	EN, Wildlife Trusts, local volunteers.
2. Survey for potential habitat and examine possibility of re-introductions.	By 2005	EN, Wildlife Trusts, local volunteers.
3. Continue to raise awareness of the need for mixed-aged woodlands. In particular for rotational creation of woodland clearing, including the use of coppicing.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT.
4. Encourage appropriate management of woodlands, via the Woodland Grant Scheme.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.
5. If colonies are found in the region, then Provide feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	Ongoing	EN, Wildlife Trusts, County Councils, FC, WT.

3.4 Low Priority butterflies in the Thames Region.

While the following species are classified as “Low Priority” in this region, it does not imply that they are not worth conserving. It does mean that these species are not currently rare within Britain, or within the region (when taken as a whole) and that they are not currently undergoing significant declines.

Details are only given if there are specific comments to be made or for species that while not rare within the Thames Region as a whole, are extinct or rare within part of the region.

3.4a Chalkhill Blue - *Lysandra coridon*

National distribution and status- This species is found on calcareous downland in southern England with a northern limit along the Cotswolds in the west and Cambridge in the east. Local in distribution, but can be abundant where it does occur.

It has been listed as a species of conservation concern in the Governments Steering Group report (UK Biodiversity Steering Group, 1995). The butterfly is protected under Schedule 5 of the WCA 1981 (in respect of sale only).

Distribution and abundance in the Thames Region- The Thames Region is close to the northern range of this species. The butterfly is confined to unimproved calcareous downland with the main stronghold along the Berkshire Downs and the Chilterns. The range of this species has declined within the region, although there has been some recent recovery.

Hertfordshire vc 20 – Severe decline until the 1980s, but a substantial recovery throughout the 1990s. Three strong colonies with very high numbers at present, and wanderers or weak colonies at half a dozen other sites.

Middlesex vc 21 - Probably no extant colonies at present, one record (vagrant) in 1997.

Berkshire vc 22, Buckinghamshire vc 24 and Oxfordshire vc 23 – Scattered colonies along the Chiltern and Berkshire Downs. The number of colonies has probably been fairly stable since 1980.

Bedfordshire vc 30 – Declined from levels in past decades, but scattered colonies exist along the Chilterns. Eleven confirmed and seven unconfirmed sites.

Northamptonshire vc 32 – Probably no extant colonies, but some scattered records which are likely to be vagrants.

Habitat – It is usually found on warm, south-facing downland slopes with unimproved grassland where the caterpillars feed on Horseshoe Vetch *Hippocrepis comosa*. This species has an association with ants and the habitat requirements of the ants probably greatly dictates the butterfly habitat.

Individuals are regularly found far from the nearest known colony and often in unsuitable habitat, so it is assumed that this species is very mobile. It is therefore likely to be fairly capable of re-colonising suitable habitat.

Threats – Threats include the improvement of grassland, scrub encroachment of grassland and recent declines in grazing on downland.

Management – Managements such as grazing and scrub control are likely to be beneficial, although, patches of scrub can provide good shelter for this species.

Survey – A PhD research student (Deborah Sazer, Leeds University) is currently investigating the Chalkhill Blue, including investigating the Hertfordshire sites.

Monitoring – The Chalkhill Blue occurs on various transects, including Therfield Heath (Herts) which is monitored mainly for this species, Ivinghoe Beacon (Bucks) Sharpenhoe Clappers, Dunstable Downs and Whipsnade Downs (Beds)

Present conservation action – A conservation advice leaflet for this species has been produced by the Upper Thames Branch. The draft Biodiversity Action Plan for Hertfordshire (commissioned by the Hertfordshire Environmental Forum and the Hertfordshire Countryside Forum) gives Chalkhill Blue as an action species with the objective to maintain and increase existing colonies through appropriate management . Also, to restore at least 6 self-sustaining colonies in 50 years.

Actions and targets

Target - Maintain or increase present range.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, NT.
2. Monitor major known sites.	By 2001, then ongoing	EN, Wildlife Trusts, local volunteers, NT.
3. Provide management advice and feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils, NT.

3.4b Dark Green Fritillary- *Argynnis aglaja*

National distribution and status- The Dark Green Fritillary is widely distributed over Britain, but very local.

Distribution and abundance in the Thames Region- The only strong colonies are in Berkshire, Buckinghamshire and Oxfordshire, in the rest of the region it is very rare.

Hertfordshire vc 20 – One possible colony at Tring Park, another possible at Aldbury Nowers, occasional sightings elsewhere.

Middlesex vc 21 - Probably no extant colonies.

Berkshire vc 22, Buckinghamshire vc 24 and Oxfordshire vc 23 – Widely distributed, most commonly seen on unimproved downland, but also in some woodlands. There was a strong decline in the early 1990s, but generally this species has now recovered.

Bedfordshire vc 30 – Uncertain, possible breeding colonies at Barton Springs and Sharpenhoe Clappers.

Northamptonshire vc 32 – No extant colonies, occasional vagrant.

Habitat – This species can be found in open, sunny woodland glades, but most often it is on unimproved downland. Eggs are laid on Violet *Viola* spp. usually on large-leaved plants growing in patches of fairly tall grass.

Threats – Major threats include the rapid loss of unimproved calcareous grassland, including loss to scrub encroachment. Both over and under grazing can also threaten the survival of a colony.

Management – Grazing must be strictly controlled to produce a mosaic of sward heights which include patches of long grass (8 to 15 cm high). Retaining some scrub patches is beneficial and the regular disturbance of the ground is likely to be important in maintaining conditions for Violet growth.

The Upper Thames Branch is involved with management of the NT owned site at Coombe Hill, particularly for Dark Green Fritillary and Duke of Burgundy.

Survey – None specifically in the region.

Monitoring – It occurs on various transects, including Tring Park (Herts), Holtspur Bank and Dancersend (Bucks) and Sharpenhoe Clappers (Beds).

Present conservation action – None specifically in the region.

Actions and targets

Target - Maintain or increase present range.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, NT.
2. Monitor a sample of major known sites.	By 2001, then ongoing	EN, Wildlife Trusts, local volunteers, NT.
3. Provide management advice and feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils, NT.

3.4c Essex Skipper – *Thymelicus lineola*

National distribution and status- This species is mainly found across south east England where it is usually common. Because of the difficulty in separating this species from the Small Skipper, the butterfly is probably under-recorded. It does appear to be spreading westward, but at least some of the perceived increase in abundance and range over recent decades could be due to the increased efforts in separating Small and Essex Skipper records since 1980.

Distribution and abundance in the Thames Region- The species is common over the region. It becomes a border-line Low/Medium Priority species because the Thames Region holds just over 20% of the national resource, but was judged appropriate to remain a Low Priority species, particularly as it is expanding in Britain. As noted above, some of the perceived increase in abundance and range over recent decades in the region, could be due to the increased efforts in separating Small and Essex Skipper records. However, most recording across the region has been routinely separating the two species for at least the last 10 years.

Hertfordshire vc 20 – Common and widespread.

Middlesex vc 21 - Common and widespread.

Berkshire vc 22 – Common and widespread.

Buckinghamshire vc 24 – Common and widespread.

Oxfordshire vc 23 – Common and widespread.

Bedfordshire vc 30 – Common and widespread.

Northamptonshire vc 32 – Common and widespread.

Habitat – The larval foodplant is various grasses. Habitat details are poorly known, but the butterfly tends to breeds in dry, tall sward, unimproved or semi-improved grasslands. Often it prefers rather sparse vegetation growth. Road verges, especially steep embankments are well used.

Threats –The major threats are the improvement of grassland, scrub encroachment and frequent grass cutting which removes habitat.

Management – This species must have tall grass sward that is left uncut throughout the butterfly life cycle. Avoid cutting or heavy grazing all verges/ grassy areas in a single year. A rotation of two or more years is best. Various schemes nationally have been set-up to sympathetically seed and manage new road verges, embankments and cuttings.

Although not specifically for this species, the M40 Compensation Area in Oxon shows the type of meadow, scrub and rough grass management that produces Essex Skipper habitat.

Survey – Increasing efforts have been made in recent years to distinguish between Small and Essex Skipper when recording.

Monitoring – This species occurs on many of the transects in the region and increasing efforts have been made in recent years to distinguish between Small and Essex Skipper when recording.

Present conservation action – None specifically for this species.

Actions and targets

Target - Maintain or increase present range.

Action	BC's Targets	Possible Partners
1. Continue efforts to distinguish between this species and the Small Skipper.	Ongoing	EN, Wildlife Trusts, local volunteers.
2. Continue efforts to research the ecology of this species.	Ongoing	EN, Wildlife Trusts, local volunteers.
3. Provide general grassland management advice to landowners and site managers. Particularly encourage councils to consider long rotations of road verge cutting.	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils.
4. Advise on suitable seeding and management of new road verges and embankments.	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils.

3.4d Green Hairstreak – *Callophrys rubi*

National distribution and status- This species is widely distributed, but localised and fairly rare over Britain.

Distribution and abundance in the Thames Region- The Green Hairstreak is inconspicuous and tends to be under-recorded. Even so, this species is not common in the Thames Region as a whole and is rare in Hertfordshire.

Hertfordshire vc 20 – Severe decline over the last 20 year. Only a few sites remain in the north-west of the county.

Middlesex vc 21 - Probably extinct, last records around 1986.

Berkshire vc 22, Buckinghamshire vc 24 and Oxfordshire vc 23 – Present and may be slightly increasing.

Bedfordshire vc 30 – Present at scattered sites, but has declined in the past. It is probably fairly stable at present.

Northamptonshire vc 32 – Present at scattered sites, but has declined in the past. It is probably fairly stable at present.

Habitat – This species uses many different habitats including woodland, moorland, and chalk downland, but always where there is scrub. It needs warmth, shelter and like many Lycaenidae has a strong relationship with ants. Its larvae feed on a variety of plants including Gorse *Ulex* spp., Broom *Cytisus scoparius*, Bird's-foot Trefoil *Lotus corniculatus*, Rock-rose *Helianthemum chamaecistus* and vetches *Vicia* spp.

Threats –The main threats include the improvement of grassland, over zealous scrub control on downlands and the increasing shading of woodland rides due to changes in forestry management. Also the increasingly fragmentation and isolation of breeding habitat.

In Bedfordshire one of its site could be threatened by the development of the Elstow Storage Depot.

Management – To provide habitat, maintain some areas of scrub, particularly in sheltered, warm locations. Produce an uneven, broken scrub-line with sheltered scallops. Allow scrubby margins to woodland verges and manage for open, sunny woodland rides.

Survey – The possible site in Middlesex was surveyed for this species in 1999 and none were recorded.

Monitoring – It occurs on various transects, including Tring Park and Aldbury Nowers (Herts), Sharpenhoe Clappers, Barton Hills and Whipsnade Downs (Beds)

Present conservation action – None specifically for this species.

Actions and targets

Target - Maintain or increase present range.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
2. Monitor a sample of main sites.	By 2001, then ongoing	EN, Wildlife Trusts, local volunteers, FC, WT, NT.
3. Provide general management advice and feedback to landowners and site managers.	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils, FC, WT, NT.
4. Continue to represent and consult over development plans at the Elstow Storage Depot (Beds)	Ongoing	EN, Wildlife Trusts, local volunteers, County Councils.

3.4e Silver-washed Fritillary - *Argynnis paphia*

National distribution and status- This fritillary is locally common south of a line between the Mersey and the Thames.

Distribution and abundance in the Thames Region- The species is fairly widely distributed in Berkshire, Buckinghamshire and Oxfordshire. In the rest of the region there are occasional sightings and may be one or two small colonies.

Hertfordshire vc 20 – Occasional sightings, possible one or two colonies still in existence.

Middlesex vc 21 - No extant colonies.

Berkshire vc 22, Buckinghamshire vc 24 and Oxfordshire vc 23 – Fairly widely distributed. There was a large decline in the late 1980s and early 1990s, but this species is now increasing. A stronghold is the Chiltern woodlands.

Bedfordshire vc 30 – Occasional sightings only.

Northamptonshire vc 32 – Occasional sightings only.

Habitat – This fritillary uses sunny, deciduous woodlands, but can cope with a greater amount of shade than the Pearl-bordered or Small Pearl-bordered Fritillary. Eggs are laid close, but not on Violet *Viola* spp. usually in the crevices of tree trunks. In coppice conditions the eggs are usually laid in the shady edge of young coppice coupes. The adult is fairly mobile.

Threats – Within this region, the major threats are the loss of open clearings, sunny rides and canopy gaps within modern high forest systems.

Management – Woodland needs to be managed to produce sunny glades and rides with banks of nectar sources such as Bramble. Regular thinning of woodland is beneficial and in some parts of the country, the re-establishment of coppicing has proved a successful management.

Survey – None specifically in the region.

Monitoring – None on any major colony.

Present conservation action – None specifically in the region.

Actions and targets

Target - Maintain or increase present range.

Action	BC's Targets	Possible Partners
1. Survey previous sites and possible sites for adults.	By 2005	EN, Wildlife Trusts, local volunteers, NT, WT, FC.
2. Monitor major known sites.	By 2005	EN, Wildlife Trusts, local volunteers, NT, WT, FC.
3. Encourage appropriate management of woodlands, particularly via the Woodland Grant Scheme.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.
4. Provide management advice and feedback to all landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Wildlife Trusts, local volunteers, County Councils, NT, WT, FC.

3.4f Other Low Priority butterfly species recorded in the Thames Region

Species	Current Status in the Thames Region
Small Skipper <i>Thymelicus sylvestris</i>	Widespread and common
Large Skipper <i>Ochlodes venata</i>	Widespread and common
Clouded Yellow <i>Colias croceus</i>	Migrant
Brimstone <i>Gonepteryx rhamni</i>	Widespread and common
Large White <i>Pieris brassicae</i>	Widespread and common
Small White <i>Pieris rapae</i>	Widespread and common
Green-veined White <i>Pieris napi</i>	Widespread and common
Orange Tip <i>Anthocharis cardamines</i>	Widespread and common
Purple Hairstreak <i>Quercusia quercus</i>	Widespread and fairly common
Small Copper <i>Lycaena phlaeas</i>	Widespread and fairly common
Brown Argus <i>Aricia agestis</i>	Local and fairly common where there is suitable downland. In the mid to late 1990's some areas have seen a rapid expansion of this species.
Common Blue <i>Polyommatus icarus</i>	Widespread and common
Holly Blue <i>Celastrina argiolus</i>	Widespread, but very variable in numbers.
White Admiral <i>Limenitis camilla</i>	Fairly widespread and stable in Berks, Bucks and Oxon. It is much less widespread in the rest of the region, but may be increasing.
Red Admiral <i>Vanessa atalanta</i>	Widespread and common. Resident and migrant
Painted Lady <i>Cynthia cardui</i>	Migrant
Small Tortoiseshell <i>Aglais urticae</i>	Widespread and common
Camberwell Beauty <i>Nymphalis antiopa</i>	Rare migrant
Peacock <i>Inachis io</i>	Widespread and common
Comma <i>Polytonia c-album</i>	Widespread and common
Speckled Wood <i>Pararge aegeria</i>	Widespread and common. Spread westward across all of Herts & Middlesex between 1985 and 1999.
Marbled White <i>Melanargia galathea</i>	Localised and fairly common in Berks, Bucks and Oxon. Fairly uncommon in the rest of the region, but appears to be spreading westwards into Herts and Middlesex
Gatekeeper <i>Pyronia tithonus</i>	Widespread and common
Meadow Brown <i>Maniola jurtina</i>	Widespread and common
Ringlet <i>Aphantopus hyperantus</i>	Widespread and common in much of the region, but very rare in Middlesex.
Small Heath <i>Coenonympha pamphilus</i>	Common and widespread in Berks, Bucks and Oxon. Declined in the early 1990s in the rest of the region and disappeared from some sites. A recovery in the late 1990's but the species may now be in decline again.

Note that migrants are detailed in Appendix 3.

3.5 High Priority Macro-moths in the Thames Region

The following information is largely taken from Waring *et al.* (1999) ‘UK Biodiversity Action Plans. Priority moth species. Species accounts and species action plans’ and Waring (in press) ‘review of nationally scarce and threatened macro-moths of Great Britain’. Information is also from published county atlases and Branch newsletters/reports. See Appendix 6 for full references.

3.5a Argent and Sable - *Rheumaptera hastata*

National distribution and status – The nominate race *R. hastata hastata* (Linnaeus) extends throughout most of England, except East Anglia, to the southern uplands of Scotland. However, there appears to have been a considerable decline in England as the moth is now only thinly scattered. The moth is a striking diurnal species, unlikely to be overlooked, which further implies this decline is real. (**Notable B, UK BAP Priority Species**)

Distribution and abundance in the Thames Region – There are scattered records in the early to mid 1980s, but the moth appears to have declined greatly since then. In Berkshire, Oxfordshire and Buckinghamshire it has not been recorded for about 12 years.

Habitat – This species breeds in woodlands with birch regrowth, also open moorland and bogs. The larva feeds on Birch *Betula pendula* (and probably *B. pubescens*) and Bog Myrtle *Myrica gale*.

Threats – One of the major threats is neglect or management of woodland such that the early stages of birch succession and regrowth are no longer represented.

Management – Rotational coppice management provides ideal breeding conditions. Where this is impractical, rideside management of birch to simulate coppiced conditions and creation of box junctions which are cut on a rotation of several years will enable the moth to survive.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey and monitor to determine current status. Particularly target under-recorded areas.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.
3. Encourage appropriate management of woodlands, particularly via the Woodland Grant Scheme.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.

3.5b Autumnal Snout - *Schrankia intermedialis*

National distribution and status – Very few records exist of this moth and it has only been recorded in Hertfordshire and Kent. It is possible that this “species” is a hybrid between *S. taenialis* and *S. costaestrigalis* (Skinner, 1998). (RDBK)

Distribution and abundance in the Thames Region - The moth has been found only in Hertfordshire where it has been recorded at Broxbourne Woods and at Bayfordbury.

Habitat – The habitat is probably damp woodland, but almost nothing is known about this moth.

Threats – Unknown.

Management – Unknown.

Actions and targets

Action	BC's Targets	Possible Partners
1. General survey to determine current status.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Specific survey of Broxbourne Woods. (Colin Plant will investigate this site in 2000 on behalf of the owners, the local Wildlife Trust.) Locate larvae and establish foodplant. Also trap to locate adults. Prepare appropriate management plan.	By 2005	Local volunteers, Hertfordshire Wildlife Trust.
3. Support investigation into possible hybrid origins. Deep-freeze new specimens to allow genetic study.	By 2005	EN, Local volunteers.

3.5c Barberry Carpet - *Pareulype berberata*

National distribution and status – Formerly widespread in southern Britain, extending at least to Yorkshire and from Somerset to Sussex. Wild breeding colonies are currently known in Suffolk, Gloucestershire, Dorset, Hampshire and several in Wiltshire. Adults are occasionally reported in light-traps elsewhere, suggesting undiscovered colonies. **(RDB1, UK BAP Priority Species)**

Distribution and abundance in the Thames Region - In the Thames Region, adults were recorded in Oxfordshire at Pucketty Farm, near Faringdon on single occasions in 1979 & 1981. Also, at Kidlington, near Oxford in 1979 (Waring, 2000a), but there are no recent records. There are establishment trials underway which include two sites in Northamptonshire (Parsons *et al.*, 2000).

Habitat – Most former colonies are in hedgerows of Barberry *Berberis vulgaris* but the larvae have been found on a cultivar (probably *B. turcomanica* var. *integerrima* growing with *B. vulgaris*). There are no records from *Berberis* growing within large blocks of woodland or from recent plantings in urban situations. For the Oxfordshire sites, there is probably no Barberry remaining at the Pucketty Farm location and none was ever found near to the Kidlington site.

Threats – Ever since the 19th century colonies have been lost due to widespread grubbing out of Barberry because it is a host of Wheat-rust fungus, *Puccinia graminis*. General hedgerow removal and effects of mechanised trimming since 1940s have probably resulted in further losses. The scorching of hedgerows by uncontrolled stubble-burning has also been known to damage colonies.

Management – At present, it seems that rotational winter pruning of hedgerows appears to encourage vigorous Barberry growth and keep it free of competition from other hedgerow species. Certainly, it would be best not to cut or prune all Barberry at a site in the same year. Planting of new bushes should be considered.

The leaf litter and ground underneath the bushes should not be disturbed and the bushes, should not be sprayed with any fungicides, insecticides or other chemicals. Any pruning should be carried out only in winter after all the leaves have fallen and any mowing of grass under the pruned area should be delayed until after the adults have emerged (i.e. late June). Any bonfires should be sited away from the bushes and downwind.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey foodplant (Barberry).	By 2005	EN, Local volunteers, Wildlife Trusts, Plantlife.
2. Survey moth to determine current status. Particularly target areas with known Barberry.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
3. Provide feedback to landowners and site managers wherever this species or its foodplant is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, FRCA, FWAG.

3.5d Barred Tooth-striped - *Trichopteryx polycommata*

National distribution and status – A widespread but local species in Britain. Current strongholds are Sussex, the North Hampshire/Wiltshire area, the breckland on the Norfolk/Suffolk border, and south Cumbria, with scattered colonies elsewhere in central southern England. The moths are sometimes numerous where they occur. (**Notable A, UK BAP Priority Species**)

Distribution and abundance in the Thames Region - Scattered records, but could be declining in the region.

Habitat – The larvae feed on Wild Privet *Ligustrum vulgare* and possibly Ash *Fraxinus excelsior* in the wild. They are also reported eating Honeysuckle *Lonicera periclymenon* and Lilac *Syringa vulgaris* in captivity. Many of the colonies are on Privet in open parts of woodland and ride-edges on chalk or limestone but colonies in the Thames Region are also known from Privet in woodland on clay soils, possibly with small pockets of lime.

Threats – The main threat is probably from clearance of the foodplant(s) during road works, ride-widening and other forestry operations in and around woodland. Scrub clearance, ploughing or development on downland and other rough bushy places have also damaged or destroyed known colonies. Shading and crowding out of Privet by natural succession to woodland may also be a threat.

Management – Wild Privet in sunny locations is a valuable nectar source for many insects and should be conserved wherever it occurs, even if this moth is not known from the site. Widening of rides and roads should take place by widening on the south edge, leaving the northern margin of bushes intact wherever possible. Downland and other rough bushy open places are now at a premium in the countryside and should be protected for the wild range of wildlife they support. Where the open areas in such places have become encroached by scrub, care should be taken to leave representative stands of all shrub species and not to stock so heavily with grazing animals that there is no regeneration of low scrub (see Fry and Lonsdale, 1991 and Kirby, 1992).

Actions and targets

Action	BC's Targets	Possible Partners
1. Assist with survey to determine current status.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.

3.5e Bordered Gothic *Heliophobus reticulata marginosa*

National distribution and status – *H. reticulata marginosa* (Haworth) is the subspecies over most of mainland Britain and is paler and strikingly different in appearance from *H. reticulata hibernica* (Cockayne) which occurs in the extreme south of Ireland. The moth does not appear to have been recorded in Scotland. The brecklands of Norfolk, Suffolk and Cambridge have always been the best localities for this moth, which has now either disappeared or is in sharp decline everywhere else. (**Notable A, UK BAP Priority Species**)

Distribution and abundance in the Thames Region - There are records from the early 1980's for Berkshire and Oxfordshire, but the moth may have now disappeared.

Habitat – This species is mainly associated with open, usually calcareous sites, also sea cliffs and quarries. However, its larval ecology is largely unknown. Suggested larval foodplants include Bladder Campion *Silene vulgaris*, Catchfly *Silene* spp., Knotgrass *Polygonum aviculare* and Soapwort *Saponaria officinalis*. The larva may eat the seed pods.

Threats – The causes of decline of this species are not immediately obvious. While many potential breeding grounds may have been destroyed or reduced, the mechanism of the decline is not adequately explained. The moth may have lost micro-climatic hot-spots due to the decline of rabbit grazing from the 1950s onwards, resulting from myxomatosis, or the run of poor summers in the 1960s could be a factor.

Management – Without a better understanding of this species ecology, no management policies can be suggested, other than to conserved present conditions on current breeding sites. The agricultural policy of "Set-aside" could offer the potential to recreate breeding grounds for this moth, but as yet this is uncertain.

Actions and targets

Action	BC's Targets	Possible Partners
1. General survey to determine current status.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Examine colonies to determine the range of larval foodplants and habitats used in the wild.	By 2005	EN, Local volunteers, Wildlife Trusts.
3. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.

3.5f Brighton Wainscot *Oria musculosa*

National distribution and status – Since 1980 this species has been recorded in Wiltshire, north Hampshire, Berkshire and Oxfordshire. There are more extensive records from 1960-80 east of these areas but the moth has always been confined to central southern England. (Notable A, UK BAP Priority Species)

Distribution and abundance in the Thames Region - Within the Thames Region the moth is probably breeding in south Berkshire, but there are very few records. Some of the records from Oxfordshire and Buckinghamshire are of singletons which likely represent vagrants.

Habitat – It is primarily associated with cereal field margins. The larva starts development on various grasses on or near which the eggs are laid and later will move onto winter wheat, summer rye, oats or barley. The larva feeds internally in the stem, entering by a small round hole it makes near the ground. The larva moves from shoot to shoot and may attack all those on the plant. The rootstocks survive but the infected shoots wither and brown off above the damage. The older larvae move to the ears and eats the unripe grains still within the sheathing leaf, filling it with white frass.

Threats – Stubble burning has been a major cause of destruction but was outlawed from 1993 onwards. A widespread switch from cereals farming to other crops within the limited range of this moth could be a large threat to its survival as could the use of insecticides.

Management – Appropriate habitat is probably becoming rare, so special conservations measures could be considered, such as special cereal planting, perhaps combined with game rearing or rough shooting. Plantlife has already established similar schemes to preserve rare arable “weeds”.

Actions and targets

Action	BC's Targets	Possible Partners
1. A systematic survey is urgently needed to establish whether the species has really declined to the extent indicated by the current information.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, FRCA, FWAG, MAFF.
3. Encourage the development of cereal field margins management that will produce suitable habitat (Conservation Headlands, “Beetle Banks”, set-aside margins).	By 2005	EN, Wildlife Trusts, County Councils, FRCA, FWAG, MAFF, Game Conservancy, Plantlife.

3.5g Buttoned Snout *Hypena rostralis*

National distribution and status – This moth was formerly widely recorded in Britain south of a line between south Wales and Lincolnshire. A widespread decline has taken place, probably from the late 1950s onwards. Post-1980 records appear to be strongly influenced by the courses of the rivers Thames and Waveney/Little Ouse, with only a scattering of records elsewhere. (**Notable B, UK BAP Priority Species**)

Distribution and abundance in the Thames Region – Post-1980 records clearly follow a line south in the Staines-Guildford area, then northwards to Marlow, reflect the southward course of the Thames at Reading and then head northwards again to form a cluster in the Oxford area. The species is also recorded in the Hertfordshire/ Middlesex area. The Thames Region is a national stronghold for this species.

Habitat – The larva feeds on Hop *Humulus lupulus*. Possibly preferring places where Hop forms a mat across the ground. Hop is a plant of hedgerows and thickets rather than dense woodland. Care must be taken when looking for the presence of this larva as the Currant Pug *Eupithecia assimolata* larva also feeds on Hop (as well as *Ribes spp.*) and produces a similar pattern of feeding damage. The moth overwinters roosting in places such as churches, outbuildings, lofts and presumably in natural refuges such as hollow trees or caves.

Post-1980 records suggest the moth is associated with major rivers or the coast, but the key factor is not known and records are usually some distance from the water itself.

Threats – Commercial Hop production has decreased, although this is not relevant as a reason for decline in the Thames Region. Hop is sometimes removed when considered a nuisance “weed”, but there is no evidence that shortage of foodplant or overwintering roosting sites are the direct causes of the decline. It is possible that climatic factors are the main threat to this species.

Management – The importance of Hop in areas where this moth occurs needs promotion, particularly in places near to outbuildings and other sites that are likely to be used as overwintering sites. Hedgerows around churches, allotments and in suburbs are obvious places where Hop should be protected rather than removed. Hibernation sites once located need to be protected.

Actions and targets

Action	BC's Targets	Possible Partners
1. Assist with survey to determine current status. Consider examining possible roosting sites and if discovered, see if they are used every year.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, local Bat Groups.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
3. Promote the importance of retaining Hop in gardens, churchyards, allotments and such like.	By 2005	EN, Wildlife Trusts, Local volunteers, County Councils, Living Churchyards Project.

3.5h Chalk Carpet *Scotopteryx bipunctaria*

National distribution and status – This moth has been recorded from many calcareous sites in southern England and along the south coast of Wales. Post-1980 records indicate that it survives in at least some sites in each main calcareous formation. It becomes local in the Midlands and north Wales, with the range extending north to include Yorkshire and Co. Durham. The moth is sometimes noted away from chalk and limestone, usually as singletons. The moth can be numerous where it occurs and the adults are readily disturbed from the ground by day. Consequently their presence is unlikely to be overlooked.
(Notable B, UK BAP Priority Species)

Distribution and abundance in the Thames Region – This species can be found in good numbers on many calcareous sites in the region. Good colonies occur at Aston Rowant, NNR, Oxfordshire and Whipsnade Downs SSSI, Bedfordshire.

Habitat – The larvae feed on Bird's-foot Trefoil *Lotus corniculatus*, other trefoils and clovers. The main habitats are bare or short-grazed chalk embankments and downland, chalk cliffs, quarries, limestone grassland and lime quarries. Patches of bare chalk and perhaps bare soil seem to be very important components of the habitat.

Threats – Much suitable habitat has been lost or damaged due to ploughing or development. The moth is also at risk if sites become rank or scrubby through neglect.

Management – Sites must not be allowed to become rank and grazing, together with scrub control, may be necessary. Bird's-foot Trefoil can be encouraged by heavy grazing one year followed by a release from grazing for a year or two on a rotational basis. Banks and landslips are likely to be focuses for this species and should not all be fenced off or they will be invaded with scrub.

Actions and targets

Action	BC's Targets	Possible Partners
1. Assist with survey to determine current status.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.

3.5i Common Fan-foot *Pechipogo strigilata*

National distribution and status – Post-1980 records are from a few woodlands scattered through its former range which included most of central and southern England south of the Humber and parts of Wales. (**Notable A, UK BAP Priority Species**)

Distribution and abundance in the Thames Region – The region holds some important populations. Colonies presently survive in Bernwood Forest (Oxon./Bucks) and some of the woods in the Northamptonshire/Huntingdonshire/Cambridgeshire area, suggesting the clay soils between Oxford and Huntingdon may have an influence on distribution.

Habitat – A moth of broadleaved woodland. The larvae begin development on fresh or wilting foliage of Oak, *Quercus* spp, and probably other trees and shrubs. They later prefer withered and decaying leaves either on the tree or on the ground. Some observations in the wild indicate that the moth is most numerous in fairly open woodland with low cover provided by patches of shrubs, undergrowth and the low branches of scattered trees. Young to mid-age coppice plots are used but the species seems to avoid grassy rides. The lifecycle suggests that shelter and leaf litter of woody plants are needed. Adults will often fly by day when disturbed from the vegetation.

Threats – The major threats are likely to be the cessation of coppicing and other traditional management of broadleaved woodland, also the coniferisation of woodland.

Management – Management which recreates the features of rotationally coppiced woodland is probably what is required, salient features being plentiful leaf-litter, mature trees and/or scrub/coppice of Oak.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey to determine current status.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.
3. Examine colonies to determine the range of larval foodplants used in the wild.	By 2005	EN, Local volunteers, Wildlife Trusts.
4. Encourage appropriate management of woodlands, particularly via the Woodland Grant Scheme.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC

3.5j The Concolorous *Photedes extrema*

National distribution and status – Very localised, but recent light-trapping work has shown this species to be slightly more widespread than previously thought. It is still present in two woods in Lincolnshire, there are good numbers at sites in Huntingdonshire and since 1990 the moth has been recorded regularly in Leicestershire. There are scattered records from other parts of England, some of which could be immigrants. **(RDB3)**

Distribution and abundance in the Thames Region- The moth is rare within the region. It does inhabit several marshy woodlands in Northamptonshire, but, there does appear to have been a serious decline here in recent years. There are also post-1980 records for certain ancient woodland sites just over the county boundary in Buckinghamshire.

Habitat – Usually fenland or clearings in marshy woodland. The larva feeds on *Calamagrostis* spp. (often *C. canescens* and *C. epigejos*).

Threats – The drainage of wetlands, also scrub encroachment and fires are potential threats.

Management – Keep breeding areas free of scrub encroachment.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey to determine current status.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, FC, County Councils, WT, FC.

3.5k Double Line *Mythimna turca*

National distribution and status – This moth is now virtually confined to western Wales and south-west England, from Somerset westwards into Devon and Cornwall, and it would seem to have declined even in these counties. Apart from an outlying colony in Surrey most records from other parts of the country are of singletons and may, in some cases be immigrants. (**Notable B, UK BAP Priority Species**)

Distribution and abundance in the Thames Region- In the Thames Region, there is only a single confirmed post-1980 record from Berkshire, where the moth was noted at Eaton Wood in 1983, although the moth has a long history in the county.

Habitat – Little is known of its ecology. The larvae are reported to feed on various grasses, Common Bent-grass *Agrostis tenuis*, Creeping Soft-grass *Holcus mollis*, Wood Meadow-grass *Poa nemoralis*, Cock's-foot Grass *Dactylis glomerata* have been recorded, also, possibly, some *Luzula* spp.. It inhabits wet grasslands, woodland clearings and woodland rides. In the south west of England, the moth is able to survive in exposed situations such as open moorland and coastal grassland.

Threats – Major threats are likely to be the destruction and neglect of permanent unimproved pasture. Also, changes in modern woodland management resulting in the shading out of rides and glades.

Management – Damp meadows can become unsuitable unless cut or lightly grazed. It is probably best to cut on rotation and to leave corners or edges uncut. In woodland, it is likely that permanently, grassy open areas are needed to maintain strong populations of the moth.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey to determine current status.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, FC, County Councils, WT, FC.

3.51 Drab Looper *Minoa murinata*

National distribution and status – A species of southern Britain, unrecorded north of the Wash. There are now two main centres of distribution for this moth: the woods of central southern England and those on the border of England and Wales. In addition there are colonies surviving in one or two woods in Somerset and Kent. The larval foodplant is restricted to the south of Britain, hardly occurring north of the Wash and rather sparsely distributed in East Anglia, Cornwall and South Wales. (**Notable B, UK BAP Priority Species**)

Distribution and abundance in the Thames Region - In the Thames Region the moth has declined. It used to occur in Oxfordshire, Berkshire and Buckinghamshire, but now only occurs in Berkshire, with the latest record in 1996.

Habitat – The larva feeds on Wood Spurge *Euphorbia amygdaloides*, preferring the flowers and floral leaves, in captivity at least. It is probable, but not proven, that the moth only breeds on Wood Spurge growing in the initial sunny open conditions created by coppicing and other woodland clearance. Most, if not all, the breeding grounds are ancient woodland sites and the moth seldom seems to have been reported outside of woodland habitat.

Threats – Lack of continuity of abundant larval foodplant in sunny open woodland conditions as a result of cessation of traditional woodland management and subsequent neglect is the major threat. The effects of conifers and conifer litter on the soil may alter the extent to which Wood Spurge returns after clearance of such plantations on many of the formerly coppiced woodlands.

Management – Wood Spurge is a perennial which often grows abundantly following coppicing and other clearance of woodland. It will persist in dwindling numbers for some years after the initial clearance. If coppicing itself is not viable then rotational clearance of ride margins, box junctions and also larger areas is recommended. It is important that woody plants are allowed to grow up long enough to shade out grasses underneath before the next cycle of cutting returns, rather than trying to maintain permanently open sites which are likely to turn into grassland.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey to determine current status.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, FC, County Councils, WT, FC.
3. Encourage appropriate management of woodlands, particularly via the Woodland Grant Scheme.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.

3.5m Four-spotted Moth *Tyta luctuosa*

National distribution and status – Formerly a widespread and fairly common moth in England south of the Wash. There are post-1980 records of one or two colonies from Portland, Dorset, Cambridgeshire, Lincolnshire and Nottinghamshire, and also from the Thames Region. All these areas are associated with or are near limestone formations (oolites). There are outlying colonies on the Norfolk/Suffolk border, Surrey and singletons from four sites in Somerset, at one of which a colony is suspected. There are several records from the London area, but possibly only one remaining colony and the moth was recorded at Durham in 1994. The species is apparently unrecorded from Wales or Scotland. **(RDB3, UK BAP Priority Species)**

Distribution and abundance in the Thames Region - The moth is recorded regularly in the region with post-1980 records from the Oxfordshire/Berkshire area, Bedfordshire and Northamptonshire. There is one particularly strong colony near Werrington (vc 32).

Habitat – The larva feeds on Field Bindweed *Convolvulus arvensis*. The moth and its larva seem to occur only in the hottest driest locations - typically on south-facing banks of well-drained soils with sparse vegetation and bare earth. The moth has been recorded from downland, heathland, field corners and marginal land of low fertility. Most colonies are now confined to south-facing banks and unshaded open verges of railways, roads, ditches, quarries and other disturbed ground where soils are thin and vegetation sparse.

Threats – This species is vulnerable to successional changes in vegetation at its breeding sites, to loss of habitat through agricultural change and to more general development. Infilling of disused railway lines and quarries is a major threat and the practice of ploughing right to the field boundary has undoubtedly removed some sites. Encroachment by coarse grasses and scrub can also rapidly render sites unsuitable. The decline in rabbit grazing on surviving sites, as a result of myxomatosis, from the 1950s, and series of cool wet summers have been suggested as additional causes of decline. Certainly, all would contribute to a reduction in the number of suitable hot-spots for breeding.

Management – In order to maintain a continuous supply of bare ground and sparse vegetation, sites are likely to need some rotational scraping, particularly if the activity (such as quarrying) that originally produced the bare ground ceases. The encroachment of scrub must also be prevented.

Actions and targets

Action	BC's Targets	Possible Partners
1. General survey to determine current status.	By 2005	EN, Wildlife Trusts, Local volunteers, County Councils.
2. Monitor known colonies annually.	By 2005	EN, Wildlife Trusts, Local volunteers, County Councils.
3. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Wildlife Trusts, Local volunteers, County Councils.

3.5n Heart Moth *Dicycla oo*

National distribution and status – This moth now only occurs in numbers in Surrey. (RDB3, UK BAP Priority Species)

Distribution and abundance in the Thames Region - In the Thames Region, there is a series of recent records from Berkshire, indicating at least one colony present in the county. The moth has at least one post-1980 record from Salcey Forest, Northamptonshire. There are no recent records from Middlesex/Hertfordshire localities in which it was frequent in the 1950s. It has not been seen at its famous locality in the Hell Coppice/Bernwood Forest complex on the Oxfordshire/Buckinghamshire border since the 1930s.

Habitat – The larvae feed on the foliage of Pendunculate Oak *Quercus robur*. The species is associated with over-mature oaks in parkland or commons and with widely-spaced trees on woodland rides or edges.

Threats – The main threat is loss of the key Oak trees and planting or natural regeneration around them, as is taking place at Salcey Forest. At Hell Coppice, nearly all Oaks were felled and replaced with conifers during the 1940s and early 1950s.

Management – Protection of mature and old Oaks, pollarding selected trees, where necessary, to prolong their lives. Avoid underplanting with conifers or other trees and maintain lightly wooded or open conditions around the Oaks. The moth can be extremely localised within a larger wood and particular trees may be important. It is possible that this species has a low dispersal tendency.

English Nature have a series of free leaflets and other publications advising on issues connected with management of over-mature trees, Read (2000), Davis *et al.* (2000), Hall (2000) and Robinson (2000).

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey to determine current status.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.
3. Promote the importance of retaining over-mature Oaks and techniques of managing over-mature trees.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.

3.5o Light Crimson Underwing *Catocala promissa*

National distribution and status – This moth is now almost confined to a few large woods in the New Forest, Hampshire. There are records from other woods in Hampshire and also in Wiltshire. (RDB3, UK BAP Priority Species)

Distribution and abundance in the Thames Region - The moth formerly extended north as far as the Oxfordshire/Buckinghamshire border but was last seen there in the Hell Coppice/Bernwood Forest complex in 1947, shortly after which the last of the remaining stands of mature Oaks were felled and replanted with conifers. The only post-1980 record for the Thames Region is a singleton reported in the early 1990's at Windsor (VC 22) with an unconfirmed sighting at Windsor Forest in 1999.

Habitat – The larva is dependent on Oak *Quercus* spp.. From the range of the moth the Pedunculate Oak *Q. robur* will be the main, if not only, species of Oak exploited. The moth is associated with large stands of mature Oak trees and very large blocks of woodland seem to be needed. It has been suggested that young scrub or saplings are unsuitable because they lack bark crevices in which the large larvae can hide.

Threats – The known threats are the felling of large stands of mature Oaks, fragmentation of large blocks of woodland and most commonly by replanting with species other than Oak.

Management – Large stands, in excess of 10 hectares, of mature oaks with extensive canopy must be maintained for this species. The integrity of all existing large blocks of woodland in the south of England should be preserved for this moth, where present, and for canopy dependent invertebrates and other wildlife generally. Mature high forest oak woodland should not be sacrificed and wherever possible should be allowed to run to overmaturity, with natural regeneration.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey to determine current status.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
3. Promote the importance of retaining over-mature Oaks and techniques of managing over-mature trees.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.

3.5p Lunar Yellow Underwing *Noctua orbona*

National distribution and status – This species was formerly widespread in Britain but it was noted to be in decline by the 1970s and since 1980 most of the records have come from the Breckland area of Norfolk and Suffolk. There is a scattering of surviving colonies elsewhere. (**Notable B, UK BAP Priority Species**)

Distribution and abundance in the Thames Region - The moth is found in the chalk areas of Bedfordshire and there is a recent record for Oxfordshire.

Habitat – The larvae feed on a range of both fine grasses and small herbaceous plants. The moth is now mainly associated with open sandy, heathy or calcareous sites and open grassy areas within woodland. In the past it is thought that most sites were in open woodland.

Threats – The cause of the widespread decline of this species has not been established. Intensification of agricultural methods have undoubtedly removed numerous potential breeding but climatic change may also be a factor. A further consideration is the deposition of large amounts of atmospheric pollutants such as nitrates and sulphates which, in raising the fertility of "waste" ground, encourage ranker forms of vegetation than the sparse swards of small herbs which this species prefers.

Management – Until the causes of decline of this species are fully understood it is unlikely that the decline will be arrested, even on nature reserves. The best that can be done is to conserve the open spaces where this species still occurs and those from which it has been lost and prevent them from becoming rank, encroached by scrub or shaded.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey to determine current status.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
3. Support research into the ecology of this moth and the causes of its decline.	By 2005	EN, Local volunteers, Wildlife Trusts.

3.5q Olive Crescent *Trisateles emortualis*

National distribution and status –The moth is mainly found in the Chilterns and in two woods in north Essex near the coast. There are a few other records from along the south coast and elsewhere in the south-east, most of which suggest migration from continental Europe, but the existence of other undiscovered colonies cannot be ruled out. **(RDB3, UK BAP Priority Species)**

Distribution and abundance in the Thames Region- The Thames Region holds a significant proportion of the national population of this species. The moth is currently known to be breeding in at least one wood and probably in several other places within about 8km in the Chilterns area, Bucks There is a single post-1980 record from near Reading (vice county Oxfordshire), which could easily have been a vagrant from the resident Chilterns population some 15km distant.

Habitat – The larva has been found in the wild in bunches of withering Oak *Quercus* spp. leaves still attached to twigs. It has also been found on dead Beech *Fagus sylvatica* leaves. It is not clear if other plants such as Sweet Chestnut *Sativa castanea* or Hazel *Corylus avellana* are suitable hosts or whether the species is critically dependent on Oak. The adults have been seldom seen except at light traps placed in clearings in mixed Oak and Beech woodland.

Threats – Changes in woodland structure and management are likely to be largely responsible for the decline of this species. At present, recorders of the moth consider that over-collecting could be a threat in view of the small numbers seen and very local distribution and have consequently not published specific site details.

Management – It is not clear how the species may be affected by changes in its woodland habitats. Without more detailed knowledge of the ecology of this moth it is not possible to suggest specific managements.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey to determine current status. Liase with the Essex Lepidoptera Panel who are working on this species.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, FC, WT, County Councils.
3. Support research into the ecology of this moth and the causes of its decline. Liase with the Essex Lepidoptera Panel who are working on this species.	By 2005	EN, Local volunteers, Wildlife Trusts.

3.5r Orange Upperwing *Jodia croceago*

National distribution and status – This species has been a national rarity since the 1960s, declining and disappearing throughout its range in Britain and no colonies are currently known. There are post-1980 reports of this moth from seven areas: Cornwall, Devon, Somerset, Hampshire, Surrey, East Sussex, Shropshire and Ceredigion/Cardiganshire, yet between them they represent the corners of the historical range of the moth. **(RDB1, UK BAP Priority Species)**

Distribution and abundance in the Thames Region - There is single record (unconfirmed) from Berkshire, close to the Hampshire border, in 1992.

Habitat – The larva feeds on Oak *Quercus* spp. and the moth may be dependent on saplings or coppiced Oak. This could indicate a possible cause of the species decline as linked with the decrease in coppicing and other traditional management of broadleaves. There is some indication that shelter and climate are also critical.

Threats – The lack of extensive Oak coppice could be the major threat facing this species as coppicing and other traditional woodland management practices have declined drastically. However, the decline in Britain may be part of a more widespread decline in Europe, the causes of which have not yet been established.

Management – Coppicing of Oak and Oak mixtures should be maintained and extended.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey to determine current status and voucher specimens or photographs must be retained as there is a strong possibility of confusion with other species.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, FC, WT, County Councils.
3. Support research into the ecology of this moth and the causes of its decline.	By 2005	EN, Local volunteers, Wildlife Trusts.
4. Encourage appropriate management of woodlands, particularly via the Woodland Grant Scheme.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.

3.5s Pale Shining Brown *Polia bombycina*

National distribution and status – Formerly the moth was well represented in the south-east of England and has seldom been reported north of a line between the Severn and the Wash since 1960. There are only a few scattered post-1980 records of this species. Some colonies remain in Wiltshire and the moth has been seen Gloucestershire, Norfolk, Leicestershire, Kent and Cambridgeshire. A number of southern counties have records up to the mid-1980s but not since. (**Notable B, UK BAP Priority Species**)

Distribution and abundance in the Thames Region - In recent years there are only scattered records from the across the region. It has been recorded at Castor Hanglands, Northamptonshire. In Oxfordshire, it was recorded almost annually at Kidlington, near Oxford from 1976, until 1986 when the recorder moved away, though it was rarely seen elsewhere in the county in the 1980s (P. Waring). There are a few post-1980 records from Buckinghamshire and Bedfordshire but none from Berkshire. The moth has only been seen twice in Middlesex since 1976, as singletons at Kingsland in 1980 and 1981 and once in Hertfordshire at Marshalls Heath in 1996.

Habitat –The larva feeds on various herbaceous plants, and in the wild the larva almost certainly overwinters and it may possibly complete its spring growth on the buds and leaves of deciduous trees and shrubs. The moth usually occurs on light calcareous soils, both chalk and limestone, and the largest numbers are on scrubby downland. It frequently turns up as scattered singletons, which may reflect breeding at low density but suggests it is prone to wander.

Threats – The reasons for the rapid decline of this species are unknown but are possibly related to a change in climate or in the average height of the sward, both factors would affecting the micro-climate within the sward. Although some sites have been lost to development and agricultural intensification, the decline is not simply the result of destruction of individual sites, many of which remain intact but no longer support the moth.

Management – Unknown.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey to determine current status. Specifically searched for amongst limestone and chalk grassland and scrub.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils.
3. Support research into the ecology of this moth and the causes of its decline.	By 2005	EN, Local volunteers, Wildlife Trusts.

3.5t Square-spotted Clay *Xestia rhomboidea*

National distribution and status – This species was found throughout England, into western Wales, north to the southern uplands and as far as Morayshire, with post-1980 records from the west coast of Scotland. Since 1980, this species is now best represented in Norfolk extending into the Breckland of Suffolk. Other centres include the heaths around Guildford and Reading and the North York Moors. Elsewhere, since 1980, the species has been recorded from a few widely scattered locations throughout its former range. Generally, the moth is easy to find where it occurs and a national decline appears to be genuine. (**Notable B, UK BAP Priority Species**)

Distribution and abundance in the Thames Region - The area in and around the Chiltern beechwoods of Oxfordshire, Buckinghamshire and Berkshire is a national stronghold. Since 1992 it has been recorded from several scattered sites in Northamptonshire. In Hertfordshire and Middlesex the species seems to be expanding.

Habitat – The larva probably feeds on a variety of herbaceous plants, scrub and tree species. The moth generally occurs in broadleaved woodland and scrub, but there seems a considerable range of different habitats. A number of the known sites are on chalk but the moth also occurs on gravel and heavy clay soils. There could be an association with woodland in which the undergrowth is sparse. The moth may also be associated with scrub or the edges of woodland and scrub, largely unshaded by taller trees.

Threats – These are difficult to assess in view of the scant knowledge of the ecological requirements of this species. The patchy decline might be due to the cessation of coppicing and neglect of broadleaved woodlands but the potential habitats of this species are still extensive and the causes of decline need further investigation.

Management – There is an obvious need for work on the larval habits of this species to give an indication of the likely impact of potential managements. Traditional coppicing might provide the edge habitat conditions this species may need.

Actions and targets

Action	BC's Targets	Possible Partners
1. General survey to determine current status.	By 2005	EN, Wildlife Trusts, Local volunteers, County Councils.
2. Support existing survey to map current expansion of this species in Herts & Middlesex.	By 2005	HNHS
3. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Local volunteers, Wildlife Trusts, FC, WT, County Councils.
4. Encourage appropriate management of woodlands, particularly via the Woodland Grant Scheme.	By 2005	EN, Local volunteers, Wildlife Trusts, County Councils, WT, FC.
5. Support research into the ecology of this moth and the causes of its decline.	By 2005	EN, Wildlife Trusts, Local volunteers.

3.5u Striped Lychnis *Shargacucullia lychnitis*

National distribution and status – Recorded from twenty three 10km squares in Britain between 1980-96. There were national surveys of the species in 1991 (Waring 1992) which suggested that this moth has disappeared from many of its former sites. It is presently found in Hampshire, West Sussex and in the south-west of the Thames Region. (**Notable A, UK BAP Priority Species**)

Distribution and abundance in the Thames Region - The region is a national stronghold for this moth where it is breeding in Oxfordshire, Berkshire and in small scattered sites over a wide area in south Buckinghamshire. In Buckinghamshire, a survey of this species has been carried since 1996 (Halls (1996), Albertini *et al.* (1997), Bucks Invertebrate Group (1999), Hall (1999)).

Habitat – The main larval food-plant is Dark Mullein *Verbascum nigrum* and the larvae feed on the flowering parts (occasionally, also the leaves). Larvae are occasionally found on other *Verbascum* and also on *Scrophularia* species. Dark Mullein grows on disturbed calcareous soil, but once established it can persist for some years. Within the range of the moth it is most frequently on roadside verges and railway embankments, in fields that have recently been left fallow and in woodland rides and clearings. The larvae occur mainly on open sites where the plants receive full sun. They often occur in high densities, on isolated clumps of plants but are thinly distributed in large stands. This suggests the females, which must be wide-ranging, may lay more eggs on plants if they have not encountered others for some while.

Threats – The principal threat is loss of foodplant. Ground disturbance from mowing and other activities is essential for establishment of new foodplants but should be planned so that it does not affect the whole of any colony in any one year. There has been concern over the timing of mowing of roadside verges where the larvae occur because this often cuts down plants when the larvae are feeding. The plants often recover from cutting or grazing and send up a second growth of flowering spikes which may be used by late larvae but much harm can be done. Some colonies of the plant and moth have declined considerably since 1991 due to swards becoming rank or colonised by scrub, while others have been created by set-aside, woodland management and other disturbance. The overall situation is dynamic but does not appear to have deteriorated in this time. The reasons for the loss of the moth from the eastern and western parts of its former range are unclear and the possibility of climatic change cannot be ruled out as a cause.

Management – Management requires rotational management and ground disturbance. Cutting or grazing in July and August should be avoided where, in the case of verges, this does not conflict with road safety, but cutting should be undertaken at least biennially in September-October to prevent sites becoming too rank, and to scatter seeds. Any cutting in the spring should be before the first flower spikes appear, i.e. before mid May. The agricultural policy of "set-aside" has recreated some breeding grounds in fallow fields. Even the smallest sites and small numbers of foodplants can be useful breeding sites and should be valued.

After a series of reports on the status of the moth in the county, Buckingham County Council verge cutting contractors are now attempting to avoid cutting Dark Mullein during mid summer.

Actions and targets

Action	BC's Targets	Possible Partners
1. General survey to determine current status.	By 2005	EN, Wildlife Trusts, Local volunteers, FWAG, County Councils.
2. Assist the Buckinghamshire Invertebrate Group, Striped Lychnis survey.	By 2005	EN, Wildlife Trusts, Local volunteers, FWAG, County Councils.
3. Monitor known sites every year.	By 2001, then ongoing	EN, Wildlife Trusts, Local volunteers, FWAG, County Councils.
4. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected and managed.	By 2005	EN, Local volunteers, FWAG, Wildlife Trusts, County Councils.

3.5v Triangle *Heterogenea asella*

National distribution and status – A very local moth which is seldom seen. There are post-1980 records from Essex, Kent, Devon, East Sussex, Hampshire and south Wiltshire, with a singleton recorded in Surrey recently and in Lincolnshire in 1995. (RDB3)

Distribution and abundance in the Thames Region - Beech woods in the Marlow district of Buckinghamshire were a former stronghold and there are pre-1980 records from Oxfordshire, but no post-1980 records have been found for the region.

Habitat – The larva feeds on the foliage of Oak *Quercus* spp. and Beech *Fagus sylvatica*. Probably most of the records refer to Pedunculate Oak *Q. robur*, in view of the localities involved. It is possible other tree species may also be used. It is not clear whether stands of mature trees managed as high forest, coppiced Oak or young plantations of Beech are the preferred habitats. Possibly the small numbers recorded today are the result of changes in woodland structure and management. The males are stated to fly swiftly in hot sunshine, chiefly in the afternoon, along woodland rides, but recent records are generally of adults at light. The moths cannot feed (having rudimentary mouthparts), so it is possible that the whole life-cycle can be completed in the canopy.

Threats – Other than large-scale clearance of the broadleaved trees on which it breeds, any threats are presently unknown due to our poor knowledge of its ecology.

Management – Unknown.

Actions and targets

Action	BC's Targets	Possible Partners
1. General survey to determine current status.	By 2005	EN, Wildlife Trusts, Local volunteers, County Councils.
2. Support research into the ecology of this moth and the causes of its decline.	By 2005	EN, Wildlife Trusts, Local volunteers.
3. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Wildlife Trusts, Local volunteers, County Councils, FC, WT.

3.5w White-line Snout *Schrankia taenialis*

National distribution and status – Between 1960 and 1983 this species was recorded locally in Britain south of the Wash, from Cornwall to Kent, as far north as Cambridgeshire in the east and Gloucestershire in the west and from south Wales. Since 1980 the moth has been recorded at further sites in south Wales but only at a scattering of about thirty sites throughout the rest of its former range. It is difficult to know whether this reflects a genuine decline or simply lack of systematic recording. If the decline is genuine the causes are not clear because the ecology of the species is so poorly known. (**Notable B, UK BAP Priority Species**)

Distribution and abundance in the Thames Region - There is a single post-1980 record in Hertfordshire at Broxbourne Woods and scattered, early 1980's records for Berkshire, Oxfordshire and Buckinghamshire. There do not appear to be any very recent records for the region.

Habitat – The larval foodplant is completely unknown, but in captivity they have fed on the fresh flowers of Ling Heather *Calluna vulgaris*, Bell Heaths *Erica* spp., Cow Parsley *Anthriscus sylvestris*, Hogweed *Heracleum sphondylium* and Thyme *Thymus* spp.. In Britain the moth occurs on open moorland and also in plantations with Ling Heather ground cover. However, it can also occur in sunken lanes with shady hedgerows and damp broadleaved woodland. The moth has been found both on acid and calcareous sites.

Threats – Any threats are presently unknown due to our poor knowledge of its ecology.

Management – Unknown.

Actions and targets

Action	BC's Targets	Possible Partners
1. General survey to determine current status.	By 2005	EN, Wildlife Trusts, Local volunteers, County Councils.
2. Support research into the ecology of this moth and the causes of its decline.	By 2005	EN, Wildlife Trusts, Local volunteers.
3. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Wildlife Trusts, Local volunteers, County Councils, FC, WT.

3.5x White-spotted Pinion *Cosmia diffinis*

National distribution and status – Until the 1970s this species was widespread and well represented in central and southern England and parts of Wales. There are post-1980 reports sparsely scattered throughout its former range, including Cornwall and Cumbria, but mostly south of the Wash. Current strongholds are in Cambridgeshire/Huntingdonshire. The moth has not been recorded from Scotland. (Notable A, UK BAP Priority Species)

Distribution and abundance in the Thames Region - There are scattered records from the early to mid 1980s from Berkshire, Oxfordshire (probably), Buckinghamshire and in Coppice Wood, Bedfordshire. There seem to be no very recent records for this region.

Habitat – The larvae feed on the foliage of English Elm *Ulmus procera* and Wych Elm *U. glabra*. The moth has been found in hedgerows, parks, woodland and riversides.

Threats – Dutch Elm disease is the biggest threat, but Wych Elm has proved less susceptible than English Elm to Dutch Elm disease. Also, there is some evidence that the moth could be persisting among young trees and regrowth that is not yet large enough to become attractive to the bark beetle which spreads the disease.

Management – Surviving English Elm and Wych Elm should be conserved and protected. There has been some success with a policy of trimming Elm growth to retain a continuity of new sucker growth.

Actions and targets

Action	BC's Targets	Possible Partners
1. Survey to determine current status. Search mature English and Wych Elm, young trees and regrowth. (Search details given in Waring, 2000b)	By 2005	EN, Wildlife Trusts, Local volunteers, County Councils.
2. Provide feedback to landowners and site managers wherever this species is found so that its habitat can be protected.	By 2005	EN, Wildlife Trusts, Local volunteers, County Councils, FC, WT.

4. Key Lepidoptera habitats in the Thames Region

These are **Woodlands, Grasslands, Lowland Heaths, Urban or Abandoned Industrial Sites** and **Wetlands**. The key habitat accounts include i) a summary table of all associated High and Medium Priority macro-lepidoptera recorded post-1980 in the Thames Region and ii) areas of the region where these habitats are known to be important for Lepidoptera. Associated Lepidoptera are not likely to be present whenever these habitats occur, nor at all the areas listed in the summary.

4.1 Woodlands – A wide range of woodland types and woodland sizes occur in the region. There have been huge changes in the management and composition of woodland in the region in the last 50 to 100 years. The management of coppicing-with-standards that was common over much of the region has almost disappeared in the last 100 years. Likewise, pasture woodland practices died out. In the 1950s to 1970s in particular, large areas of broadleaved woodland were removed and replanted with conifers. Much of the woodland in the region is now mature and shady, the loss of traditional managements have greatly reduced the age-range and therefore the variety of habitat structure, within most woodlands. Development has also fragmented many of the ancient woodlands.

Within the region, particular woodland types are worth a specific mention. Of particular interest are the woods on the low-lying clay basin between Peterborough and Oxford which contain the national population of the Black Hairstreak (see Map 1). Over the Chilterns there are extensive beechwoods, originally planted in the nineteenth century to supply the furniture trade. The remains of various ancient woodlands, including “Royal” or hunting forests exist over the regions, often as a complex of interconnecting small woods. Some are still largely deciduous and the species mix varies according to the area and soil type, but many have large areas of conifer plantation. New, usually conifer woods have been planted in the last 100 years, often on former heathland.

The richest woodland for Lepidoptera are those with a varied age structure, diverse flora and wide, sunny rides and glades.

i) High and Medium Priority Lepidoptera recorded in woodlands in the Thames Region. - All these species are associated with broadleaved woodland and/or hedgerows.

Butterflies

Species	Priority in the Thames Region
Black Hairstreak	H
Brown Hairstreak	H
Pearl-bordered Fritillary	H
Purple Emperor	H
Small Pearl-bordered Fritillary	H
Wood White	H
Dingy Skipper	M
Duke of Burgundy	M
Grizzled Skipper	M
Wall Brown	M
White-letter Hairstreak *1	M

*1 = mainly hedgerows

Moths

Species	Priority in the Thames Region
Argent & Sable	H
Autumnal Snout	H
Barberry Carpet *1	H
Barred Tooth-striped	H
Buttoned Snout *1	H
Common Fan-foot	H
Concolorous	H
Double Line *2	H
Drab Looper	H
Heart Moth	H
Light Crimson Underwing	H
Lunar Yellow Underwing	H
Olive Crescent	H
Orange Upperwing	H
Square-spotted Clay	H
Triangle	H
White-line Snout	H
White-spotted Pinion	H
Angle-striped Sallow	M
Bleached Pug	M
Blomer's Rivulet	M
Broad-bordered Bee Hawk	M
Campanula Pug	M
Cloaked Carpet	M
Cream-bordered Green Pea *2	M
Dentated Pug *2	M
Dotted Chestnut	M
Festoon	M
Goat Moth	M
Grass Wave	M
Great Oak Beauty	M
Hornet Moth *3	M
Kent Black Arches	M
Large Red-belted Clearwing	M
Large Thorn	M
Lead-coloured Pug	M
Least Carpet *1	M
Light Orange Underwing *2	M
Little Thorn	M
Marbled Pug	M
Mere Wainscot *2	M
Mocha	M
Orange Footman	M

Continued

Moths Continued

Species	Priority in the Thames Region
Orange-tailed Clearwing *4	M
Pinion-spotted Pug *1	M
Plumed Prominent	M
Red-belted Clearwing	M
Red-necked Footman	M
Ringed Carpet *5	M
Rosy Marbled	M
Ruddy Carpet *1	M
Sallow Clearwing *2	M
Silvery Arches *5	M
Sloe Carpet *1	M
Small Black Arches	M
Small Chocolate-tip *2	M
Small Eggar *1	M
Sword-grass	M
Waved Black	M
White-banded Carpet	M
White-marked	M
Yellow-legged Clearwing	M

*1 = mainly hedgerows, *2 = wet woodland, *3 = on Poplars, *4 = scrubby woodland edge, *5 = lightly woodland heathland.

ii) Key Thames Region woodlands detailed in Section 5.

Site	Vice-county	Report Section
Chicksands Wood	Beds	5.7.2a
Flitwick Moor	Beds	5.7.2c
King's Wood/ Baker's Wood Complex	Beds	5.7.1c
Marston Thrift	Beds	5.7.1d
Maulden Wood	Beds	5.7.1e
Potton Wood	Beds	5.7.1f
Sandy Warren	Beds	5.7.2e
Baynes Reserve	Berks	5.4.2a
Crowthorne Woods/Swinley Park Complex	Berks	5.4.1a
Little Wittenham Wood	Berks	5.4.2b
Windsor Forest/Great Park	Berks	5.4.1e
Wytham Wood	Berks	5.4.1f
Bernwood Forest (Shabbington Wood) Complex	Bucks	5.6.1a
Black Park	Bucks	5.6.2a
Bradenham Woods/ Park Wood	Bucks	5.6.2b
Claydon Wood complex including Finemere Wood, Grendon and Diddershall Woods	Bucks	5.6.1b

Continued

Table 4.1c continued

Site	Vice-county	Report Section
Dancersend	Bucks	5.6.2d
Homefield Wood (part)	Bucks	5.6.1f
Leckhampstead & Wicken Wood	Bucks	5.6.1g
Pulpit Wood	Bucks	5.6.1e
Shenley Wood and Howe Park Wood	Bucks	5.6.2i
Tittershall, Kingswood (Ham cum Home) and Rushbeds Wood Complex	Bucks	5.6.1h
Aldbury Nowers (part)	Herts	5.2.1a
Bricket Wood	Herts	5.2.1b
Broxbourne Woods/ Balls Wood / Bayfordbury/Hertford Heath complex	Herts	5.2.1c
Rothamsted Estate	Herts	5.2.2d
Whippendell Wood	Herts	5.2.2h
Gutteridge Wood	Middlesex	5.3.2b
Harefield Complex (Bayhurst Wood/Park & Ruislip Common)	Middlesex	5.3.2a
Hardwick Wood/ Sywell Wood	Northants	5.8.1a
Rockingham Forest Complex (including Brigstock County Park, Fermyn Woods, Glapthorn Cow Pasture, Titchmarsh Wood and Castor Hanglands)	Northants	5.8.1b
Salcey Forest/ Yardley Chase	Northants	5.8.1c
Silverstone Woods (Whistley Wood, Hazelborough Forest & Bucknell Wood)	Northants	5.8.2c
Wakerley Great Wood	Northants	5.8.2f
Warburg Reserve, Bix	Oxon	5.5.1e
Whitecross Green Wood	Oxon	5.5.1g
Wychwood Forest	Oxon	5.5.1h

Much of the woodland in the region is mixed broadleaved and conifer, and no attempt is made to separate the woodland types.

4.2 Grasslands

4.2.1 Calcareous Grassland. This is the most important grassland habitat for Lepidoptera in the Thames Region.

Calcareous grasslands are confined to the Berkshire Downs and the Chilterns (see Map1). Even in these areas, unimproved grassland habitat is increasingly rare and fragmented. The drive to intensify agricultural land during the Second World War led to all but the most unsuitable areas being ploughed or improved. Since that time development has fragmented the habitat further and a reduction in grazing on unimproved grasslands has caused downland to become increasingly scrubby.

i) High and Medium Priority Lepidoptera recorded on calcareous grasslands in the Thames Region

Butterflies

Species	Priority in the Thames Region
Adonis Blue	H
Marsh Fritillary	H
Silver-spotted Skipper	H
Silver-studded Blue	H
Dingy Skipper	
Duke of Burgundy	M
Grayling	M
Grizzled Skipper	M
Small Blue	M
Wall Brown	M

Moths

Species	Priority in the Thames Region
Barred Tooth-striped	H
Bordered Gothic	H
Chalk Carpet	H
Four-spotted	H
Lunar Yellow Underwing	H
Pale Shining Brown	H
Broom-tip	M
Campanula Pug	M
Cistus Forester	M
Cream-bordered Green Pea	M
Juniper Carpet	M
Least Carpet	M
Light Feathered Rustic	M
Marbled Clover	M
Orange-tailed Clearwing	M
Pimpinel Pug	M
Ruddy Carpet	M
Six-belted Clearwing	M

ii) Key Thames Region calcareous grasslands detailed in Section 5.

Site	Vice-county	Report Section
Barton Hills	Beds	5.7.1a
Dunstable and Whipsnade Downs	Beds	5.7.1b
Pegsdon Hills	Beds	5.7.2d
Sharpenhoe Clappers and Sundon Hills	Beds	5.7.1g
Totternhoe Knolls	Beds	5.7.1h
Aston Upthorpe Downs	Berks	5.4.1b
Lardon Chase and The Holies	Berks	5.4.1d
Coombe Hill	Bucks	5.6.1d
Dancersend (check)	Bucks	5.6.2d
Holtspur Bank and Valley	Bucks	5.6.2e
Homefield Wood (part)	Bucks	5.6.1f
Ivinghoe Beacon	Bucks	5.6.2f
Prestwood Picnic Site	Bucks	5.6.2h
Pulpit Hill and Grangelands	Bucks	5.6.1e
Telegraph Hill	Herts	5.2.2e
Aldbury Nowers (Duchies Piece)	Herts	5.2.1a
Hexton chalk pit	Herts	5.2.2a
Highdown	Herts	5.2.2b
Jacott's Hill	Herts	5.2.2h
Therfield Heath	Herts	5.2.2f
Tring Park	Herts	5.2.1e
Barnack Hills and Holes	Northants	5.8.2a
Aston Rowant	Oxon	5.5.1a
Hartslock Nature Reserve	Oxon	5.5.1b
Swyncombe Down	Oxon	5.5.1d
Warburg Reserve, Bix. (part)	Oxon	5.5.1e
Watlington Hill	Oxon	5.5.1f

4.2.2 Other Grasslands. There are two main unimproved grassland habitats present in this region that are important for Lepidoptera. The first is wet grassland as represented by Otmoor and the second is unimproved grassland managed as hay meadow. Both are very rare within the region. The M40 compensation area is an example of former farmland, now being designed as a wildlife habitat and there are schemes across the region to encourage similar habitat recreation.

i) High and Medium Priority Lepidoptera recorded on other grasslands in the Thames Region

Butterflies

Species	Priority in the Thames Region
Marsh Fritillary	H(Extinct?)
Dingy Skipper	M
Duke of Burgundy	M
Grayling	M
Grizzled Skipper	M
Small Blue	M
Wall Brown	M

Moths

Species	Priority in the Thames Region
Double Line	H
Striped Lychnis	H
Dotted Fan-foot	M
Dentated Pug	M
Pale-lemon Sallow	M
Pimpinel Pug	M

ii) Key Thames Region other grasslands detailed in Section 5.

Site	Vice-county	Report Section
Marshalls Heath	Herts	5.2.1d
Millhoppers	Herts	5.2.2c
Otmoor (wet grassland)	Oxon	5.5.1c
M40 compensation area (scrub / grassland)	Bucks	5.6.2g
BBOWT meadow, Bernwood Forest (hay meadow)	Bucks	5.6.1a
Poors Field	Middlesex	5.3.2c
Pixey and Oxey Meads (hay meadow)	Oxon	5.5.2c

4.3 Lowland Heaths – Including heathy acid grassland and heathy areas within woodland. A rare habitat, generally only heathland fragments remain. Much heathland has been lost to coniferisation and other areas have become increasingly scrubby due to a reduction in grazing pressure.

i) High and Medium Priority Lepidoptera recorded on lowland heaths in the Thames Region

Butterflies

Species	Priority in the Thames Region
Marsh Fritillary	H (Extinct?)
Silver-studded Blue	H
Grayling	M
Wall Brown	M

Moths

Species	Priority in the Thames Region
Argent & Sable	H
Four-spotted	H
White-line Snout	H
Broom-tip	M
Dotted Chestnut	M
Dotted Border Wave	M
Grass Wave	M
Horse Chestnut	M
Large Red-belted Clearwing	M
Marsh Oblique-barred	M
Purple-bordered Gold	M
Ringed Carpet	M
Sallow Clearwing	M
Silvery Arches	M
Sword-grass	M
Waved Black	M
White-barred Clearwing	M

ii) Key Thames Region lowland heaths detailed in Section 5.

Site	Vice-county	Report Section
Cooper's Hill, Ampthill	Beds	5.7.2b
Maulden Wood (part of)	Beds	5.7.1e
The Lodge, Sandy	Beds	5.7.2e
Snelsmore Common	Berks	5.4.2c
Wildmoor Heath	Berks	5.4.1a
Crowthorne Bypass/ Caesars Camp	Berks	5.4.1a
Decoy Heath	Berks	5.4.1c
Edgbarrow Heath/ Sandhurst/Owlsmoor Bog/ Broadmoor Bottom*	Berks	5.4.1a
Wellington College	Berks	5.4.1a
Black Park (part)	Bucks	5.6.2a
Bricket Wood Common (part)	Herts	5.2.1b
Hertford Heath	Herts	5.2.1c

* wet heath/bog

4.4 Urban or disused industrial sites. – This category includes dis-used quarries and railway lines together with road verges and “wasteland”. Such sites often have thin soil cover and/or are regularly disturbed. This can create a rich flora and make sites particularly attractive to insects which need a very warm micro-habitat, often with patches of bare ground. Increasingly the value of such sites is being recognised, and many, including road verges are now being managed for wildlife. Some new road verges are even being designed to provide wildlife habitats. Urban areas also include gardens, churchyards, cemeteries and parklands. Some of the important parklands have been categorized under woodland, heathland and grassland habitats and are listed above. Gardens and often

churchyards/ cemeteries can not be categorized into dominate habitat types and listed as sites, yet within urban areas they can be extremely important Lepidoptera habitat.

i) High and Medium Priority Lepidoptera typically recorded on urban or disused industrial sites in the Thames Region –Garden and parkland habitats are too varied for typical species to be categorized.

Butterflies

Species	Priority in the Thames Region
Silver-studded Blue	H
Dingy Skipper	M
Grayling	M
Grizzled Skipper	M
Small Blue	M
Wall Brown	M

Moths

Species	Priority in the Thames Region
Bordered Gothic	H
Chalk Carpet	H
Common Fan-foot	H
Four-spotted	H
Lunar Yellow Underwing	H
Striped Lychnis	H
Currant Clearwing	M
Light Feathered Rustic	M
Marbled Clover	M
Pale-lemon Sallow	M
Pimpinel Pug	M
Six-belted Clearwing	M
Wormwood	M

ii) Key Thames Region urban or disused industrial sites detailed in Section 5.

Site	Vice-county	Report Section
Totternhoe old chalk quarry (SSSI) and new quarry	Beds	5.7.1h
Calvert Junction/ Jubilee	Bucks	5.6.2c
College Lake	Bucks	5.6.1c
Tytenhanger gravel pit	Herts	5.2.2g
Dewes Farm Sandpits	Middlesex	5.3.2a
Hampstead Heath	Middlesex	5.3.1a
Stanmore Common/Country Park	Middlesex	5.3.1b
Farthinghoe Reserve	Northants	5.8.2b
Turweston railway embankment	Northants	5.8.2d
Twywell Hills and Dales	Northants	5.8.2e
Weekley Hall Wood quarry	Northants	5.8.2g
Brigstock County Park	Northants	5.8.1b
Headington Small Blue Site	Oxon	5.5.2b

4.5 Wetlands – This habitat is rare within the region. The category includes fenland, but also over-laps with other habitat categories to include wet woodland, heathland and grassland.

i) High and Medium Priority Lepidoptera typically recorded on wetlands

Butterflies

Species	Priority in the Thames Region
Marsh Fritillary	H (extinct?)

Moths

Species	Priority in the Thames Region
Double Line	H
Balsam Carpet	M
Cream-bordered Green Pea	M
Dentated Pug	M
Dotted Fan-foot	M
Light Orange Underwing	M
Mere Wainscot	M
Sallow Clearwing	M
Scare Burnished Brass	M
Silky Wainscot	M
Small Chocolate-tip	M
Waved Black	M

ii) Key Thames Region wetlands sites detailed in Section 5.

Site	Vice-county	Report Section
Edgbarrow Heath/ Sandhurst/Owlsmoor Bog/ Broadmoor Bottom*	Berks	5.4.1a
Pixey and Oxe Meads (hay meadow)	Oxon	5.5.2c
Otmoor (wet grassland)	Oxon	5.5.1c
Cothill Fen	Oxon	5.5.2a

5. Key Areas and Sites and for Butterflies and Moths in the Thames Region

This section gives details of the key butterfly and moth areas in the Thames Region. **Key Areas** are defined as those containing the highest concentrations of high and medium priority species. **Key Sites** which either do not fall in Key Areas, or are important in their own right, are also listed and these contain a variable number of high and medium priority species. The approximate locations of Key Areas and Key Sites in the Thames Region are shown on Map 1 (on the next page).

Details on other **Locally Significant Areas** or **Sites** which fall into one or more of the following three categories have also been included:

- a) They have been important Lepidoptera areas or sites in the past but have now lost key species.
- b) They are not considered Key Areas or Key Sites at present but future survey work may well reveal significant species.
- c) They are areas or sites which contain good numbers of common species and/or one or two rarities and they may be monitored.

Locally Significant Areas or Sites have not been plotted on Map 1, but grid references are given for all areas and sites in this section.

Listings for Key Area, Key Site and Locally Significant Area/Sites include all high and medium priority butterflies and moths, as far as they are known, that have post-1980 records.

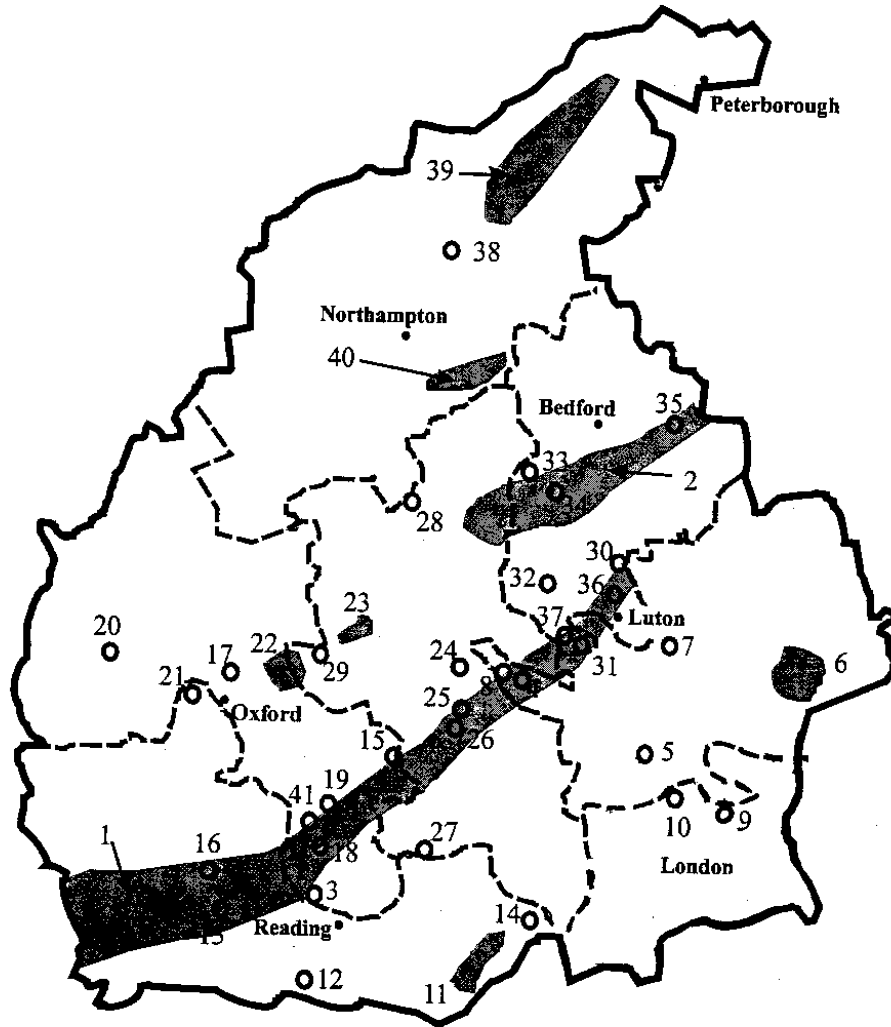
Areas and Sites are given in the following order:

- 5.1 Regional Key Areas (covering more than one county)
- 5.2 Hertfordshire vc 20
- 5.2 Middlesex vc 21
- 5.3 Berkshire vc 22
- 5.4 Oxfordshire vc 23
- 5.5 Buckinghamshire vc 24
- 5.6 Bedfordshire vc 30
- 5.7 Northamptonshire vc 32

Thames Region vice-counties are shown on Map 2.

Note: The inclusion of an area or site in these listings does not imply that they have open access. Many of the sites are privately owned or managed as nature reserves where permits are needed.

Map 1. Key Areas and Key Sites within the Thames Region



Key to Map 1.

No.	Report section	Key Site / Area
1	5.1a	The Chilterns and Berkshire Downs
2	5.1c	Bedfordshire Greensand Ridge
3	5.5.1b	Hartslock Nature Reserve
4	5.2.1a	Aldbury Nowers /(Duchies Piece)
5	5.2.1b	Bricket Wood + Common
6	5.2.1c	Broxbourne Woods/Balls Wood /Bayfordbury/Hertford Heath complex
7	5.2.1d	Marshalls Heath
8	5.2.1e	Tring Park
9	5.3.1a	Hampstead Heath
10	5.3.1b	Stanmore Common/Country Park
11	5.4.1a	Thames Basin Heaths Natural Area
12	5.4.1c	Decoy Heath
13	5.4.1d	Lardon Chase & The Holies/Basildon Park
14	5.4.1e	Windsor Forest/Great Park
15	5.5.1a	Aston Rowant
16	5.4.1b	Aston Upthorpe Downs
17	5.5.1c	Otmoor
18	5.5.1e	Warburg Reserve, Bix
19	5.5.1f	Watlington Hill
20	5.5.1h	Wychwood Forest
21	5.4.1f	Wytham Wood
22	5.6.1a, 5.5.1f	Bernwood Forest (Shabbington Wood) Complex. Including Whitecross Green Wood.
23	5.6.1b	Claydon Wood complex, including Finemere Wood, Grendon and Doddershall Woods.
24	5.6.1c	College Lake
25	5.6.1d	Coombe Hill
26	5.6.1e	Pulpit Hill + Wood and Grangelands
27	5.6.1f	Homefield Wood
28	5.6.1g	Leckhampstead & Wicken Wood
29	5.6.1h	Tittershall, Kingswood (Ham cum Home) & Rushbeds Wood Complex
30	5.7.1a	Barton Hills
31	5.7.1b	Dunstable and Whipsnade Downs
32	5.7.1c	King's Wood/Baker's Wood Complex
33	5.7.1d	Marston Thrift
34	5.7.1e	Maulden Wood
35	5.7.1f	Potton Wood
36	5.7.1g	Sharpenhoe Clappers and Sundon Hills Country Park
37	5.7.1h	Totternhoe Knolls/Totternhoe old chalk quarry (SSSI) and new quarry
38	5.8.1a	Hardwick Wood/Sywell Wood
39	5.8.1b	Rockingham Forest Complex (incl. Brigstock County Park, Fermyn Woods, Glapthorn Cow Pasture, Titchmarsh Wood and Castor Hanglands)
40	5.8.1c	Salcey Forest/ Yardley Chase
41	5.5.1d	Swyncombe Down

5.1 Regional Key Areas (covering more than one county)

Many of the Key Areas in the Thames region cover more than one vice-county. Such areas are detailed here with a list of the important sites contained within the Key Area as given in Sections 5.2 to 5.8.

5.1a The Chilterns and Berkshire Downs (see Map 1)

This is a major feature of the Thames Region. The Chilterns stretch from the Thames in Oxfordshire across Buckinghamshire and Hertfordshire to Bedfordshire, rising to about 900 feet. The Berkshire and Marlborough Downs form the western boundary to the Chilterns and only part is within the Thames Region.

The area is a ridge of chalk usually with a prominent escarpment, extensive dip slope and many dry valleys. There are remnants of chalk downland and some semi-open common land along the length of the Chilterns, many of which are excellent habitat for Lepidoptera. However, extensive areas of downland are now invaded by scrub as stock grazing pressure was reduced due to changes in farming practices, and the decline of Rabbits since the 1950's.

The area also includes large areas woodland, often of Beech, but also Oak, Hazel Birch and Holly on the plateau and Ash, Field Maple, Wych Elm and Cherry on the escarpment. Another feature which enhances the habitat for Lepidoptera is the network of green lanes and tracks (including the Ridgeway) which often link the remnants of downland and the woodlands.

As with most of the Thames Region the area is under great pressure from development (new roads and housing), from recreational needs as well as farm intensification.

Key sites	County
Barton Hills	Beds
Dunstable and Whipsnade Downs	Beds
Sharpenhoe Clappers and Sundon Hills Country Park	Beds
Totternhoe Knolls /Totternhoe old chalk quarry (SSSI) and new quarry	Beds
Aston Upthorpe Downs	Berks
Lardon Chase & The Holies/Basildon Park	Berks
Coombe Hill	Bucks
Pulpit Hill + Wood and Grangelands	Bucks
Aldbury Nowers /(Duchies Piece)	Herts
Tring Park	Herts
Aston Rowant	Oxon
Warburg Reserve, Bix	Oxon
Watlington Hill	Oxon

5.1b Black Hairstreak habitat (Individual sites shown on Map 1)

This area marks the position of a band of ancient Royal Forests that once provided inter-linked woodland across the whole area. The remnants of these forests can be seen in the Rockingham Forest complex, Salcey/Yardley Chase, Bernwood Forest complex and many small woodland groups between. Within the remnant of this once forested area is a band of Blackthorn *Prunus spinosa* growing on the various clay soils between roughly Oxford and Peterborough. The Black Hairstreak is restricted to this one area in the UK.

While of high important for this one species, many of these woods are highly important for other woodland Lepidoptera for, despite the extreme fragmentation of the original forest, the areas still provides clusters of inter-linked woodland sites.

The table below lists the Black Hairstreak woods that are detailed in Sections 5.2 to 5.8. However, this Key Area also contains many Black Hairstreak sites, often small in size and with few additional Priority Species, but nevertheless important in the context of Black Hairstreak habitat. Examples in the northern end of the species range include Ashton Wold and Barnwell Wold, south of Peterborough. There are no post-1980 records at Barnwell Wold, but recent survey (Roberts *et al.*, 1999) suggests there is a reasonable quality of breeding habitat. Black Hairstreak was seen at Ashton Wold in summer 2000, the first time for some years.

Key sites	County
Marston Thrift	Beds
Maulden Wood	Beds
Wytham Wood	Berks
Bernwood Forest (Shabbington Wood) Complex	Bucks
Claydon Wood complex, including Finemere Wood, Grendon and Doddershall Woods.	Bucks
Leckhampstead & Wicken Wood	Bucks
Tittershall, Kingswood (Ham cum Home) and Rushbeds Wood Complex	Bucks
Hardwick Wood/ Sywell Wood	Northants
Rockingham Forest Complex (including Brigstock County Park, Fermyn Woods, Glaphorn Cow Pasture, Titchmarsh Wood and Castor Hanglands)	Northants
Salcey Forest/ Yardley Chase	Northants
Otmoor	Oxon

5.1c Bedfordshire Greensand Ridge (See Map1)

This area in Bedfordshire and Buckinghamshire is a narrow escarpment of Lower Greensand, with a scarp slope to north-west and a dip slope to south-east. It is surrounded by Bedfordshire and Cambridgeshire Claylands. The area is important as butterfly and moth habitat because it retains a network of woodland, heath, parkland and some mire habitats.

The scarp and upper ridge are of poor acidic soils which is why some important heathland and woodland habitats have survived agricultural intensification. However, the once extensive heathland here has been extremely fragmented by the planting of conifer woodlands. Some ancient woodlands still exist within this area, although many are now mixed broadleaved and conifer. Adding to the habitat variety of the area, spring-fed wetlands and mires also occur and some pasture/woodland parklands.

Key sites	County
Maulden Wood	Beds
Potton Wood	Beds

5.2 Hertfordshire vc 20

Key Areas and Sites	Locally Significant Areas and Sites
Aldbury Nowers /(Duchies Piece)	Hexton chalk pit
Bricket Wood + Common	Highdown and Tingley Wood
Broxbourne Woods/ Balls Wood / Bayfordbury/Hertford Heath complex	Millhoppers
Marshalls Heath	Rothamsted Estate
Tring Park	Telegraph Hill
	Therfield Heath
	Tyttenhanger gravel pit
	Whippendell Wood/ Jacott's Hill

5.2.1 Hertfordshire Key Areas and Sites

5.2.1a Aldbury Nowers /(Duchies Piece) SP952129– Aldbury Nowers/ Duchies Piece is owned by the HMWT and this nature reserve is a chalk downland sites on the edge of Beech woodland. This Key Area contains the last colony of Duke of Burgundy and one of the last sites for Dingy Skipper, Grizzled Skipper and Green Hairstreak in Hertfordshire.

Key Lepidoptera present on site	Priority rating
Duke of Burgundy	M
Dingy Skipper	M
Grizzled Skipper	M
Wall Brown	M

5.2.1b Bricket Wood + Common TL131009 – A woodland and heathland site, part SSSI. Recent management work has been carried out here to encourage the spread of the heathland habitat. This site has one of only a few colonies of White Admiral in the county and Purple Hairstreak is present. It is also the last known site in the county for Brown Hairstreak.

Key Lepidoptera present on site	Priority rating
Brown Hairstreak	H
Light Orange Underwing	M

5.2.1c Broxbourne Woods/ Balls Wood /Bayfordbury/Hertford Heath complex TL330070 – The largest woodland complex in Hertfordshire, also includes Wormley Wood, and Northaw Great Wood. The site is part SSSI and includes a NNR and a HMWT Nature Reserve. As well as the priority species, this site has one of only a few colonies of White Admiral in the county.

Key Lepidoptera present on site	Priority rating
Purple Emperor	H
Grizzled Skipper	M
Autumnal Snout	H
Broad-bordered Bee Hawk-moth	M
Great Oak Beauty	M
Large red-belted Clearwing	M
Lead-coloured Pug	M

Light Orange Underwing	M
Marbled Pug	M
Orange-tailed Clearwing	M
Red-belted Clearwing	M
Silvery Arches	M
Waved Black	M
White-line Snout	H
Yellow-legged Clearwing	M

5.2.1d Marshalls Heath TL165153 – Now owned by Wheathampstead PC (was a former HMWT reserve). The site was heathland until the 1950's. It is now acid grassland with much scrub and woodland. It has strong colonies of Purple Hairstreak and common Lepidoptera.

Key Lepidoptera present on site	Priority rating
Wall Brown (until 1995)	M
White-letter Hairstreak	M
Pale Shining Brown	H
<i>Eucosma conterminana</i>	M
Juniper Carpet	M
Least Carpet	M
<i>Sitochroa palealis</i>	M
Waved Black	M

5.2.1e Tring Park SP930105 – There are a high number of butterfly species at this site (25 species recorded in 1998). This is a chalk downland site with Chalkhill Blue, Green Hairstreak, Marbled White and Dark Green Fritillary present as well as the priority species.

Key Lepidoptera present on site	Priority rating
Purple Emperor	H
Dingy Skipper	M
Grizzled Skipper	M
Small Blue	M
Wall Brown	M

5.2.2 Hertfordshire Locally Significant Areas and Sites

5.2.2a Hexton chalk pit TL1029 – HMWT reserve grazed by sheep. A fragment of chalk downland with some scrub. It has strong colonies of Chalkhill Blue.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Small Blue	M
Wall Brown	M

5.2.2b Highdown/ Pirton and Tingley Wood TL140310 – A chalk downland, scrub and hedgerow habitat, next to Tingley Wood which is small mixed woodland. The site also has Chalkhill Blue and Green Hairstreak present also a large number of common Lepidoptera.

Key Lepidoptera present on site	Priority rating
Wall Brown	M
White-letter Hairstreak	M

5.2.2c Millhoppers SP900149 – Hertfordshire and Middlesex Branch’s first butterfly reserve. Much is ancient grassland, with scrub and with small streams. A good number of common species.

5.2.2d Rothamsted Estate TL117135 – A farmland and woodland site with a long history of monitoring moths.

Key Lepidoptera present on site	Priority rating
Pale Shining Brown	H
Juniper Carpet	M
Lead-coloured Pug	M
Least Carpet	M
Light Feathered Rustic	M
Silky Wainscot	M

5.2.2e Telegraph Hill TL117288 – A HMWT reserve of chalk grassland and scrub habitat. In addition to the priority species, there is a Chalkhill Blue colony present and Green Hairstreak.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Grizzled Skipper	M

5.2.2f Therfield Heath TL349399 – A large area of chalk downland, unimproved calcareous grassland, scrub and Beech wood. It is a SSSI and a LNR (HMWT). Historically important as a site for Lepidoptera and one of the few sites in the county for Chalkhill Blue.

Key Lepidoptera present on site	Priority rating
Grizzled Skipper (was present until recently, may now be extinct at this site)	M
Square-spotted Clay	H

5.2.2.g Tyttenhanger gravel pit TL1905 – An abandoned gravel pit owned by Redlands Ltd.

Key Lepidoptera present on site	Priority rating
Grizzled Skipper	M
Wall Brown	M
White-letter Hairstreak	M

5.2.2h Whippendell Wood/ Jacott’s Hill TQ077977 – A mixed woodland and downland, SSSI. The site did have Grizzled Skipper in 1980’s, at present it has Purple Hairstreak. The Buttoned Snout record is disputed.

Key Lepidoptera present on site	Priority rating
White-letter Hairstreak	M

Buttoned Snout?	H
White-marked	M

5.3 Middlesex vc 21

Key Areas and Sites	Locally Significant Areas and Sites
Hampstead Heath	Harefield Complex (Bayhurst Wood/Park, Dewes Farm Sandpits & Ruislip Common)
Stanmore Common/Country Park	Gutteridge Wood
	Poors Field

5.3.1 Middlesex Key Areas and Sites

5.3.1a Hampstead Heath TQ264870 – A parkland habitat with good populations of many common Lepidoptera. White Admiral has been seen here in recent years. This is one of the longest studied sites in the London area.

Key Lepidoptera present on site	Priority rating
White-letter Hairstreak	M
Hornet Moth	M

5.3.1b Stanmore Common/Country Park TQ160935/170930 –

Key Lepidoptera present on site	Priority rating
Buttoned Snout	H
Light Orange Underwing	M
Least Carpet	M

5.3.2 Middlesex Locally Significant Areas and Sites

5.3.2a Harefield Complex (Bayhurst Wood/Park Wood, Dewes Farm Sandpits & Ruislip Common) TQ065895 – A woodland, sandy grassland and parkland habitat. Bayhurst Wood and Park Wood together with Poors Field (see below) are part of the Ruislip Woods Complex. This complex also includes Mad Bess Wood and Copse Wood. Ruislip Woods is a NNR and SSSI. Bayhurst Wood is managed as a Country Park by the London Borough of Hillingdon. White Admiral is found in this woodland complex.

Key Lepidoptera present on site	Priority rating
Buttoned Snout	H
Great Oak Beauty	M

5.3.2b Gutteridge Wood TQ0984 – White Admiral has been recorded here during the Millennium Atlas Survey.

Key Lepidoptera present on site	Priority rating
White-letter Hairstreak	M

5.3.2c Poors Field TQ087894 – A neutral grassland habitat grading into grassy heath and acid grassland. It was used as commonland pasture in the past.

Key Lepidoptera present on site	Priority rating
Kent Black Arches	M

5.4 Berkshire vc 22

Key Areas and Sites	Locally Significant Areas and Sites
Thames Basin Heaths Natural Area	Baynes Reserve
Aston Upthorpe Downs	Little Wittenham Wood
Decoy Heath	Snelsmore Common
Lardon Chase & The Holies/Basildon Park	
Windsor Forest/Great Park	
Wytham Wood	

5.4.1 Berkshire Key Areas and sites

5.4.1a Thames Basin Heaths Natural Area - (See Map 1) Only the northern section of this area enters the Thames Region, covering part of south-east Berkshire. The Thames Basin Heaths are fragmented, often unenclosed heathland and coniferous forests on the acidic soils in the west of the Thames Basin. The area is under much pressure from the rapidly growing towns in this region and is becoming increasingly scrubby as stock grazing is reduced.

The main site of importance to Lepidoptera is the **Crowthorne Woods/Sandhurst/Swinley Park Complex SU87-64-** - FC, Crown Estate, BBOWT and MoD owned. A woodland, heathland and bog site, covering a large area. It includes Caesar's Camp, Crowthorne Bypass, Broadmoor Bottom, Edgbarrow Heath, Olddean Common (Saddleback Hill) Wildmoor Heath, Owlsmoor (BBOWT reserve), Wellington College heath (owned by Wellington College) and Wishmoor. Sections of this area have been part of the Berkshire Heathland Project for heathland creation. This is the main area for Silver-studded Blue in the Region and White Admiral is present. Good numbers of moth species are also present.

Key Lepidoptera present on site	Priority rating
Silver-studded Blue	H
Grayling	M

5.4.1b Aston Upthorpe Downs SU550844 – A privately owned site, SSSI. An isolated remnant of the once extensive sheep-grazed downland, with areas of scrub and some Hazel coppice. Despite being in private ownership the Upper Thames Branch is allowed to carry out some management here. Adonis Blue has been recorded, but it is assumed to be a vagrant and the nearest known colony is several miles away. The site contains strong populations of common butterflies, moths and also Brown Argus and Chalkhill Blue.

Key Lepidoptera present on site	Priority rating
Silver-spotted Skipper	H
Dingy Skipper	M
Duke of Burgundy	M
Grizzled Skipper	M
Small Blue	M
Juniper Carpet	M
Light Feathered Rustic	M
Ruddy Carpet	M
White-marked	M

Orange Footman	M
<i>Sitochroa palealis</i>	M

5.4.1c Decoy Heath SU615635 – A heathland site and BBOWT reserve.

Key Lepidoptera present on site	Priority rating
Silver-studded Blue	H
Grayling	M
Large Red-belted Clearwing	M

5.4.1d Lardon Chase & The Holies /Basildon Park SU588809, SU596797, SU612786-

Owned by NT, these are chalk downland sites managed with regard to the important Lepidoptera present. Chalkhill Blue and Dark Green Fritillary occur and there is a good moth fauna. There have been occasional records for Silver-spotted Skipper here, the last in 1986.

Key Lepidoptera present on site	Priority rating
Adonis Blue	H
Grizzled Skipper	M
Small Blue	M
Striped Lychnis	H
Six-belted Clearwing	M
<i>Thisanotia chrysonuchella</i>	M
<i>Sitochroa palealis</i>	M

5.4.1e Windsor Forest/Great Park SU95-70- - A deciduous woodland and parkland owned by the Crown Estate and FC. A SSSI and FNR. The site also has White Admiral, Silver-washed Fritillary and Purple Hairstreak present.

Key Lepidoptera present on site	Priority rating
Light Crimson Underwing	H
Heart Moth	H
Juniper Carpet	M
Festoon	M
Orange Footman	M
Rosy Marbled	M
Waved Black	M

5.4.1f Wytham Wood SP460080 – A deciduous woodland with grassland and scrub owned by Oxford University, SSSI. The woods are well monitored. The site also has Silver-washed Fritillary, Purple Hairstreak, White Admiral and Dark Green Fritillary.

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Brown Hairstreak	H
Purple Emperor	H
Wood White?	H
Dingy Skipper	M
Grizzled Skipper	M

Wall Brown	M
White-letter Hairstreak	M
Barred Tooth-striped	H
Buttoned Snout	H
Square-spotted Clay	H
Pale Shining Brown	H
Campanula Pug	M
Currant Clearwing	M
Hornet Moth	M
Mere Wainscot	M
Orange-tailed Clearwing	M
Pinion-spotted Pug	M
Sallow Clearwing	M
Red-necked Footman	M
White-marked	M
Wormwood	M

5.4.2 Berkshire Locally Significant Areas and Sites

5.4.2a Baynes Reserve SU512652 - A deciduous woodland BBOWT reserve and SSSI with White Admiral present.

Key Lepidoptera present on site	Priority rating
Purple Emperor	H

5.4.2b Little Wittenham Wood SU575929 – A mixed woodland with grassland. Managed by the Northmoor Trust as a nature reserve. The site also has Brown Argus, White Admiral and Purple Hairstreak.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Grizzled Skipper	M
White-letter Hairstreak	M

5.4.2c Snelsmore Common SU460710 – A heath and bog site with an area of deciduous woodland. The sites is run by Newbury District Council. The Upper Thames Branch and English Nature have helped with management here. Purple Hairstreak and Silver-washed Fritillary are present and Silver-studded Blue has been recorded here on one occasion, although this could be a release.

Key Lepidoptera present on site	Priority rating
White-barred Clearwing	M
Pinion-spotted Pug	M

5.5 Oxfordshire vc 23

Key Areas and Sites	Locally Significant Areas and Sites
Aston Rowant	Cothill Fen
Hartslock Nature Reserve	Headington Small Blue Site
Bernwood Forest Complex Oxon/Bucks border (see Bucks for details)	Pixey and Oxeys Meads
Otmoor	
Swyncombe Down	
Warburg Reserve, Bix	
Watlington Hill	
Whitecross Green Wood	
Wychwood Forest	

5.5.1 Oxfordshire Key Areas and sites

5.5.1a Aston Rowant SU7297 – An English Nature reserve, NNR. A chalk downland site with areas of scrub and woodland. ITE is currently involved in long-term research investigating grazing regimes at this site.

Key Lepidoptera present on site	Priority rating
Silver-spotted Skipper	H
Duke of Burgundy	M
Grizzled Skipper	M
Small Blue	M
Chalk Carpet	H
Square-spotted Clay	H
Light Feathered Rustic	M
White-marked	M

5.5.1b Hartslock Nature Reserve SU618795 – A chalk grassland site and BBOWT reserve, part of a larger SSSI. It is a Key site for moths and is also an important orchid site.

Key Lepidoptera present on site	Priority rating
Adonis Blue	H
Chalk Carpet	H
Square-spotted clay	H
Light Feathered Rustic	M
<i>Pancalia leuwenhoekella</i>	M
<i>Sitochroa palealis</i>	M
<i>Cochylis flaviciliana</i>	M

5.5.1c Otmoor / Otmoor Rifle Range SP575126 – Owned by MoD and part of a SSSI. A large area of damp grassland with strong botanical interest. The area was a site for Marsh Fritillary, but this colony may now be extinct.

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Brown Hairstreak	H

Marsh Fritillary	H (extinct?)
White-letter Hairstreak	M
Marbled Pug	M

5.5.1d Swyncombe Down SU675911 – SSSI. A chalk downland site near Watlington Hill. As well as the priority species the site also has Dark Green Fritillary, Wood Tiger and Ruddy Carpet.

Key Lepidoptera present on site	Priority rating
Silver-spotted Skipper	H
Small Blue	M
Striped Lychnis	H
Orange-tailed Clearwing	M
Cistus Forester	M

5.5.1e Warburg Reserve, Bix SU720879 – A BBOWT reserve of woodland, scrub and chalk grassland, SSSI. The reserve also has Silver-washed Fritillary, Dark Green Fritillary and White Admiral present.

Key Lepidoptera present on site	Priority rating
Purple Emperor	H
Dingy Skipper	M
White-letter Hairstreak	M
Square-spotted Clay	H
Striped Lychnis	H
Campanula Pug	M
Waved Black	M
a micro-moth <i>Pancalia leuwenhoekella</i>	M

5.5.1f Watlington Hill SU702935 – A National Trust site and SSSI with chalk grassland habitat. The site also has Brown Argus, Dark Green Fritillary and Chalkhill Blue. There is an odd record of a Silver-studded Blue on this site and there have been occasional records of Adonis Blue and Small Blue.

Key Lepidoptera present on site	Priority rating
Adonis Blue?	H
Silver-spotted Skipper	H
Small Blue?	M
White-letter Hairstreak	M
Chalk Carpet	H
Striped Lychnis	H
a micro-moth <i>Pancalia leuwenhoekella</i>	M
Cistus Forester	M
Juniper Carpet	M

5.5.1g Whitecross Green Wood SP600150 – A BBOWT reserve and SSSI. A mixed woodland with wide rides. Part of the Bernwood Forest Complex of woodlands (see Map1 and Section 5.6.1a). The wood also has White Admiral and Purple Hairstreak present.

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Brown Hairstreak	H
Purple Emperor	H
Wood White	H
Dingy Skipper	M
Grizzled Skipper	M

5.5.1h Wychwood Forest SP335165 – A large, privately owned deciduous woodland with wide grassy rides and a series of marl lakes. NNR and SSSI. The site also has Silver-washed Fritillary.

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Purple Emperor	H
Dingy Skipper	M
White-letter Hairstreak	M
Mere Wainscot	M
Sword-grass	M

5.5.2 Oxfordshire Locally Significant Areas and Sites

5.5.2a Cothill Fen SU4599 – SSSI. Fenland habitat grading into wet woodland.

Key Lepidoptera present on site	Priority rating
Marsh Oblique-barred	M
Scare Burnished Brass	M

5.5.2b Headington Small Blue Site SP561091 – A roadside verge owned by Oxfordshire CC and managed by the Upper Thames Branch. The site also has Common Blue and Marbled Whites in good numbers.

Key Lepidoptera present on site	Priority rating
Small Blue	M

5.5.2c Pixey and Oxey Meads SP4810

Unimproved grassland/ hay meadows with good numbers of common Lepidoptera.

5.6 Buckinghamshire vc 24

Key Areas and Sites	Locally Significant Areas and Sites
Bernwood Forest (Shabbington Wood) Complex	Black Park
Claydon Wood complex, including Finemere Wood, Grendon and Doddershall Woods.	Bradenham Woods/ Park Wood
College Lake	Calvert Junction/ Jubilee
Coombe Hill	Dancersend
Pulpit Hill + Wood and Grangelands	Holtspur Bank and Valley
Homefield Wood	Ivinghoe Beacon
Leckhampstead & Wicken Wood	M40 compensation area
Tittershall, Kingswood (Ham cum Home) and Rushbeds Wood Complex	Prestwood Picnic Site
	Shenley Wood and Howe Park Wood

5.6.1 Buckinghamshire Key Areas and sites

5.6.1a Bernwood Forest (Shabbington Wood) Complex SP615115 – This complex straddles the border between Oxfordshire and Buckinghamshire and includes Whitecross Green Wood (Oxon) which as an important site is detailed separately above under Oxfordshire (5.4.1f).

The woodland complex around the Bernwood Forest also includes Waterperry Wood, Bernwood meadow, Boarstall Wood, Studley Wood, Holly Wood, Stanton Great Wood and Holton Wood. The main site at Bernwood and Waterperry is of mixed woodland, but some of the smaller woods are largely deciduous. Part of the complex is FNR and SSSI. Ownership is FC, private and the hay meadow at Bernwood is owned by BBOWT. Within Bernwood there are also several small reserves managed by BBOWT (The Goddard Reserves and the Burrows Reserve) which were set up to protect the Black Hairstreak.

Much conservation effort has gone into this woodland complex and it received large numbers of visitors for both its amenity and entomological interest. The woodland also has White Admiral, Purple Hairstreak

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Brown Hairstreak	H
Purple Emperor	H
Wood White	H
Dingy Skipper	M
Grizzled Skipper	M
Wall Brown	M
White-letter Hairstreak	M
Common Fan-foot	H
Hornet Moth	M
Mere Wainscot	M
Silky Wainscot	M

5.6.1b Claydon Wood complex. Including Finemere Wood, Grendon and Doddershall Woods. SP7122 – A deciduous, mainly Oak woodland with an area of meadow. Finemere is a BBOWT reserve, Grendon and Doddershall Woods are privately owned but are managed sympathetically for wildlife. There are also a series of woodlands to the north of Finemere, including Home Wood and Sheephouse Wood. Finemere Wood, Grendon and Doddershall Woods are all excellent Lepidoptera sites. These sites also have White Admiral, Dark Green Fritillary and Purple Hairstreak.

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Brown Hairstreak	H
Purple Emperor	H
Wood White	H
Dingy Skipper	M
Grizzled Skipper	M
Wall Brown?	M
White-letter Hairstreak	M
Marbled Pug	M
Mere Wainscot	M

5.6.1c College Lake SP935139 – A disused chalk quarry owned by Castle Cement and managed by BBOWT, part is SSSI. The site has scrub, meadow, marsh, lake and deciduous woodland. Over the last 12 years, much work has gone into creating this nature reserve and habitat creation is ongoing. The meadow area is part of the Arable Weed Project to cultivate cornfield wild flora. The site also fulfils a strong education role. Other butterfly species found on the site include Chalkhill Blue, Green Hairstreak and Dark Green Fritillary.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Duke of Burgundy	M
Grizzled Skipper	M
Small Blue	M
White-letter Hairstreak	M

5.6.1d Coombe Hill SP848065 – A chalk grassland and scrub site owned by NT. Upper Thames Branch is involved in the management of this site. Chalkhill Blue, Purple Hairstreak and Dark Green Fritillary are also present here.

Key Lepidoptera present on site	Priority rating
Marsh Fritillary, Pearl-bordered Fritillary, Adonis Blue and Silver-spotted Skipper have been recorded since 1980, but are either occasional records or are now extinct at the site.	H
Dingy Skipper	M
Duke of Burgundy	M
Grizzled Skipper	M
Wall Brown	M
Chalk Carpet	H

Cistus Forester	M
Light Feathered Rustic	M

5.6.1e Pulpit Hill + Wood and Grangelands SP830048 – these are chalk grassland, scrub and woodland sites, SSSI. Grangelands is owned by Buckinghamshire CC and part managed by BBOWT. Pulpit Hill is owned by NT. Other species recorded here include Dark Green Fritillary, Silver-washed Fritillary and Chalkhill Blue. Recently Silver-spotted Skipper has been seen suggesting that there might be a breeding colony and this will be investigated in summer 2000 by the Upper Thames Branch.

Key Lepidoptera present on site	Priority rating
Silver-spotted Skipper	H
Dingy Skipper	M
Duke of Burgundy	M
Grizzled Skipper	M
Small Blue	M
Wall Brown	M
White-letter Hairstreak	M

5.6.1f Homefield Wood SU815868 – A deciduous woodland on the Chilterns, with chalk grassland areas. A BBOWT reserve and SSSI. Other species recorded here include Dark Green Fritillary.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Grizzled Skipper	M
White-letter Hairstreak	M
Striped Lychnis	H
Square-spotted Clay	H
Balsam Carpet	M
Blomer's Rivulet	M
Mocha	M
Plumed Prominent	M
Waved Black	M
White-marked	M

5.6.1g Leckhampstead & Wicken Wood SP73-40- - A mixed woodland, Leckhampstead is privately owned (but currently for sale) and Wicken Wood is owned by FC. Other species seen here include Purple Hairstreak and White Admiral. The last record of Black Hairstreak here was 1986 and a recent assessment of the habitat suggested that the Blackthorn was of "medium" quality.

Key Lepidoptera present on site	Priority rating
Black Hairstreak?	H
Wood White	H

5.6.1h Tittershall, Kingswood (Ham cum Home) and Rushbeds Wood Complex

SP695180 – A series of woodlands just south of the Claydon woodland complex. Tittershall Wood is probably privately owned and is a mixed woodland with scrub. The rides are at present rather over-grown and shady. Rushbeds Wood is a BBOWT reserve

and Kingswood, while in private ownership has a management input from BBOWT. Other species recorded at these sites are Purple Hairstreak, White Admiral, Dark Green Fritillary and Silver-washed Fritillary.

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Purple Emperor	H
Wood White	H
Grizzled Skipper	M
White-letter Hairstreak	M

5.6.2 Buckinghamshire Locally Significant Areas and Sites

5.6.2a Black Park TQ012843 – A country park of mixed woodland with reclaimed heathland, owned by Buckinghamshire CC. The reclaimed heathland area might be a suitable site for a future Silver-studded Blue reintroduction. Species here include Purple Hairstreak and the occasional White Admiral.

5.6.2b Bradenham Woods/ Park Wood SU8298 – A NT owned deciduous woodland, SSSI. The woods also have Dark Green Fritillary.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Duke of Burgundy	M
Grizzled Skipper	M
Small Blue	M

5.6.2c Calvert Junction/Jubilee SP682253 – A disused railway track and disused claypit partly owned by BBOWT and partly leased by them from the Hanson Trust. Good numbers of Marbled Whites are here and there is also Green Hairstreak.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Grizzled Skipper	M

5.6.2d Dancersend SP900095 – A grassland, woodland and scrub BBOWT reserve in the Chilterns, mainly known for its flora. Other species found here include Dark Green Fritillary.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Duke of Burgundy	M

5.6.2e Holtspur Bank and Valley SP919906 – Old chalk pasture, scrub and woodland habitats are present. Holtspur Bank LNR is owned by Buckinghamshire CC and Holtspur Valley is in private ownership. Upper Thames Branch has been involved with management at Holtspur Bank. A good number of common butterflies are found over the site including Purple Hairstreak, Green Hairstreak and Dark Green Fritillary. The occasional Small Blue is recorded, but it is not certain that the species is breeding here.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Wall Brown	M

Striped Lychnis	H
Wormwood	M

5.6.2f Ivinghoe Beacon SP960167 – A chalk grassland site owned by NT, the site includes Steps Hill. It is the best Buckinghamshire site for Duke of Burgundy and Cistus Forester. Grizzled Skipper and Small Blue seem to have been recently lost from the site, Silver-spotted Skipper and Adonis Blue disappeared in the last 15 years. Species still on the sites include Chalkhill Blue and Dark Green Fritillary.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Duke of Burgundy	M
Wall Brown	M
Cistus Forester	M

5.6.2g M40 compensation area SP629110 – Former farmland that has been designed as a butterfly reserve by Dr J. Thomas. Although still developing, the reserve now has irregularly shaped ridges with areas of scalloped scrub and rough grassland.

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Brown Hairstreak	M
White-letter Hairstreak	M

5.6.2h Prestwood Picnic Site LNR SU866991 – This is unimproved grassland on a steep slope. It is owned by Wycombe District Council, but is included in this list as it is managed as a BC reserve by the Upper Thames Branch. Also has Dark Green Fritillary present on the site.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Grizzled Skipper	M
<i>Cochylis flaviciliana</i>	M

5.6.2i Shenley Wood and Howe Park Wood SP 820360 & 830340 – Two small areas of ancient woodland on the edge of Milton Keynes, managed by Milton Keynes Parks Trust.

Key Lepidoptera present on site	Priority rating
Light Orange Underwing	M
Mere Wainscot	M
White-marked (Shenley Wood only)	M

5.7 Bedfordshire vc 30

Key Areas and Sites	Locally Significant Areas and Sites
Barton Hills	Chicksands Wood
Dunstable and Whipsnade Downs	Cooper's Hill, Ampthill
King's Wood/ Baker's Wood Complex	Flitwick Moor
Marston Thrift	Pegsdon Hills
Maulden Wood	
Potton Wood	
Sharpenhoe Clappers and Sundon Hills Country Park	
Totternhoe Knolls /Totternhoe old chalk quarry (SSSI) and new quarry	

5.7.1 Bedfordshire Key Areas and sites

5.7.1a Barton Hills TL0930 – A chalk grassland site and NNR. Good numbers of butterfly species occur here, including Marbled White, Chalkhill Blue and the occasional Dark Green Fritillary. Silver-spotted Skipper and Adonis Blue are extinct at the site.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Wall Brown	M
White-letter Hairstreak	M

5.7.1b Dunstable and Whipsnade Downs TL0020 – These are Chiltern chalk downland sites with scrub, deciduous woodland and a chalk spring. Part is owned by NT, who also have an input into the management of the whole site. A section is part of the Whipsnade Animal Park and is grazed by exotics. An important recreational area for the county. Scrub control has been a problem here in the past, with either scrub encroachment of the downland or unsympathetic scrub removal. Other species recorded here include Chalkhill Blue and Dark Green Fritillary.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Duke of Burgundy	M
Grizzled Skipper	M
Small Blue	M
Wall Brown	M
Chalk Carpet	H
Cistus Forester	M
Light Feathered Rustic	M
Pinion-spotted Pug	M

5.7.1c King's Wood/ Baker's Wood Complex SP927297 – The complex includes Stockgrove County Park. Part of the site is NNR and SSSI, and ownership is divided between the Wildlife Trust, Bedfordshire CC and private landowners. A mixed woodland site with heathy areas. It was an excellent Lepidoptera site in the past, but by the 1960's the rides were becoming narrow and shady. Recently management, widening rides and re-

establishing coppice has begun. There are a few records of Purple Emperor in recent years and Wood White probably died out in the 1980's, but White Admiral and Purple Hairstreak are still found.

Key Lepidoptera present on site	Priority rating
Purple Emperor?	H
Grizzled Skipper	M
White-letter Hairstreak	M
Chalk Carpet	H
Large Red-belted Clearwing	M
Small Black Arches	M

5.7.1d Marston Thrift SP972415 – A lowland, mainly deciduous woodland with some conifers. Owned by Bedfordshire CC the site is LNR and part is SSSI and has an important Black Hairstreak colony. This is one of the richest butterfly sites in the county. Wood White is recorded occasionally and the wood also has Purple Hairstreak and a strong colony of White Admiral. Coppice management was re-introduced to the site in the 1970's and there has been ride widening to produce butterfly habitat. However, much of the Blackthorn in the wood is shady and active management is underway (Taylor 1996).

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Wood White?	H
Dingy Skipper	M
Grizzled Skipper	M
White-letter Hairstreak	M
Wall Brown	M
Chalk Carpet?	H
Light Orange Underwing	M

5.7.1e Maulden Wood TL070390 – A mainly deciduous wood owned by FC, a SSSI. Wood White has not been seen since 1995 and should be considered extinct here. White Admiral and Purple Hairstreak is present, but White-letter Hairstreak has not been seen since the 1970's.

Key Lepidoptera present on site	Priority rating
Lunar Yellow Underwing	H
Broom-tip	M
Light Orange Underwing	M
Mere Wainscot	M
Pale-lemon Sallow	M
Yellow-legged Clearwing	M

5.7.1f Potton Wood TL250500 – The wood is managed by FE, an SSSI. A mixed woodland included in this section because of its long-running butterfly transect (started in 1974). Wood White was recorded once in 1985, but has not been seen since. As well as the Key Species on the site there is also Purple Hairstreak and White Admiral.

Key Lepidoptera present on site	Priority rating
White-letter Hairstreak	M
Wall Brown	M

Light Orange Underwing	M

5.7.1g Sharpenhoe Clappers (SSSI) and Sundon Hills Country Park TL0630 and TL0428 – These are chalk grassland sites with areas of scrub, arable set-aside and woodland. Sharpenhoe (NT owned) is a good Chalkhill Blue site. There is also Dark Green Fritillary on the sites.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Small Blue	M
Wall Brown	M
Six-belted Clearwing	M

5.7.1h Totternhoe Knolls /Totternhoe old chalk quarry (SSSI) and new quarry SP9722 – A chalk downland, scrub and woodland site with quarry areas. Management to clear scrub and control grazing has been introduced. Species other than Key Species include Chalkhill Blue

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Duke of Burgundy	M
Grizzled Skipper	M
Small Blue	M
Wall Brown	M
Chalk Carpet	H
Light Feathered Rustic	M

5.7.2 Bedfordshire Locally Significant Areas and Sites

5.7.2a Chicksands Wood TL100400 – A mainly coniferous woodland owned by FC, but the wide rides support a good butterfly fauna of, mainly common species. The site is the major site in the county for White-letter Hairstreak and also has a large population of White Admiral.

Key Lepidoptera present on site	Priority rating
White-letter Hairstreak	M

5.7.2b Cooper's Hill, Ampthill TL025377 – The largest remnant of heathland in the county. A Wildlife Trust reserve with few butterflies and no key species, but included here because of the rarity of this habitat in the county and the typical heathland moth fauna. Moths include True Lover's knot, Narrow-winged Pug and Beautiful Yellow Underwing.

5.7.2c Flitwick Moor TL046354 – A valley acid mire with fen, open water, Alder carr and Birch/ Oak woodland owned by the Wildlife Trust. SSSI. This site is the largest valley mire in the county and the only surviving example along the River Flit. The butterfly fauna is fairly poor, although there are Purple Hairstreak and the occasional White Admiral.

Key Lepidoptera present on site	Priority rating
Little Thorn	M
Mocha	M
Silky Wainscot	M

5.7.2d Pegsdon Hills TL120295 - A SSSI and Wildlife Trust reserve of chalk downland, scrub, woodland and former arable. The site also includes Deacon Hill. In the past the site had Adonis Blue, Marsh Fritillary and Silver-spotted Skipper, but all these species are now absent from the site. At present, there is Chalkhill Blue and the occasionally Dark Green Fritillary is seen.

Key Lepidoptera present on site	Priority rating
Dingy Skipper	M
Grizzled Skipper	M

5.8 Northamptonshire vc 32

Key Areas and Sites	Locally Significant Areas and Sites
Hardwick Wood/ Sywell Wood	Barnack Hills and Holes
Rockingham Forest Complex (including Brigstock County Park, Fermyn Woods, Glapthorn Cow Pasture, Titchmarsh Wood and Castor Hanglands)	Farthinghoe Reserve
Salcey Forest/ Yardley Chase	Silverstone Woods (Whistley Wood, Hazelborough Forest & Bucknell Wood)
	Turweston railway embankment
	Twywell Hills and Dales
	Wakerley Great Wood
	Weekley Hall Wood Quarry

5.8.1 Northamptonshire Key Areas and sites

5.8.1a Hardwick Wood/ Sywell Wood SP825705 – The sites are mixed woodland habitat.

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Wood White	H

5.8.1b Rockingham Forest Complex approximately SP91-80- to TF12-03- - Once part of a continuous woodland between Oxford and Stamford and a royal hunting forest that existed from the 11th to 19th centuries, now a complex of woodlands centred between Kettering and Stamford.

The areas main sites of importance for Lepidoptera are **Brigstock County Park, Fermyn Woods, Glapthorn Cow Pasture, Titchmarsh Wood and Castor Hanglands**. Many of its woodlands, such as Glapthorn Cow Pasture, Fermyn Woods, Castor Hanglands and Brigstone are important Black Hairstreak sites. Glapthorn Cow Pasture is managed specifically for this species. At Castor Hanglands (NNR) ITE is currently investigating woodland succession. The site here is a mixture of woodland, grassland, scrub and wetland. Castor Hanglands is an excellent moth site, with all but one of the Key moth species as listed below for the entire Rockingham Forest Complex.

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Purple Emperor	H
Grizzled Skipper	M
Barred Tooth-striped	H
Concolorous	H
Pale Shining Brown	H
Square-spotted Clay	H
Cream-bordered Green Pea	M
Festoon	M
Large Thorn	M

Mere Wainscot	M
Orange Footman	M
Six-belted Clearwing	M
White-marked	M

5.8.1c Salcey Forest/ Yardley Chase area SP8151 to SP8857 – A low ridge on the Northamptonshire/ Buckinghamshire border with some fairly large woodlands such as Salcey Forest and also a complex of smaller woodlands along the ridge.

The habitat is mostly mixed woodland habitat, with large areas of conifer, but also some old deciduous trees. The woods are mainly owned by FC but with some areas under BBOWT and NWT reserves and some areas owned by MoD. Part SSSI. White Admiral is also present here. The Concolorous was fairly common in this area, but there seem to be no records in recent years.

Key Lepidoptera present on site	Priority rating
Black Hairstreak	H
Wood White	H
Dingy Skipper	M
Grizzled Skipper	M
White-letter Hairstreak	M
Concolorous?	H
Common Fan-foot	H
Heart Moth	H
Goat Moth	M
Great Oak Beauty	M
Marbled Pug	M
Mere Wainscot	M
White-marked	M

5.8.2 Northamptonshire Locally Significant Areas and Sites

5.8.2a Barnack Hills and Holes TF076047 – NNR. A site of calcareous grassland over a disused Roman stone quarry. It has a good colony of Marbled White, a species at the northern edge of its range here and Chalkhill Blue is also present.

Key Lepidoptera present on site	Priority rating
Mere Wainscot	M
Six-belted Clearwing	M

5.8.2b Farthinghoe Reserve SP518404 – The site is owned by Northamptonshire CC and part was used as a landfill site. It is managed by the local Wildlife Trust and is a LNR. The habitat is now patchy woodland with grassland, meadow and scrub. While only one key species is present, the site has many common butterflies and moth, including a strong colony of Marbled White and Purple Hairstreak is also present.

Key Lepidoptera present on site	Priority rating
Grizzled Skipper	M

5.8.2c Silverstone Woods (Whistley Wood, Hazelborough Forest & Bucknell Wood)

SP6542 – A mixed woodland habitat, partly SSSI, owned by FC. Other species present include White Admiral and Purple Hairstreak.

Key Lepidoptera present on site	Priority rating
Wood White	H
White-letter Hairstreak	M
Marbled Pug	M
Mere Wainscot	M

5.8.2d Turweston railway embankment SP594375 – A railway embankment. A good colony of Marbled White also exists here.

Key Lepidoptera present on site	Priority rating
Small Blue	H

5.8.2e Twywell Hills and Dales SP939773 –

Key Lepidoptera present on site	Priority rating
Wall Brown	M

5.8.2 f Wakerley Great Wood and Wakerley Railway Cutting SP9597 – A mixed woodland with a nearby dis-used airfield and a dis-used railway cutting which is on the border of this vice-county. The wood is owned by FC. Purple Hairstreak and White Admiral are also present at this site.

Key Lepidoptera present on site	Priority rating
Duke of Burgundy	M
Grizzled Skipper	M
Wall Brown	M
Four-spotted	H
Grass Wave	M

5.8.2g Weekley Hall Wood Quarry SP880825 -

Key Lepidoptera present on site	Priority rating
Grizzled Skipper	M

6. Records

In 1995 Butterfly Conservation launched the 'Butterflies for the New Millennium' project which will use records obtained over the 1995 to 1999 period to produce a new national atlas which will provide up-to-date information on all species. As a results of this project, all branches in the region undertook surveys to attempt to provide further information on all species and in particular to cover poorly recorded tetrads.

Butterfly Conservation branches in the Thames Region vary in the amount of butterfly and moth records held on computer. At present, Hertfordshire and Middlesex, also Bedfordshire and Northamptonshire Branches have computerized all butterfly records between 1995 and 1999. The Bedfordshire recorder has much of the transect data and also casual records from 1991-99 for the county in RECORDER, including all the transect summary counts and much of the weekly counts. The Upper Thames Branch (Oxfordshire, Berkshire and Buckinghamshire) have computerized all butterfly records between 1984 and 1999.

Although most time-consuming, the computerization of historical data and improved co-ordination of records is necessary if full use is to be made of collected information. A priority for Butterfly Conservation in the Thames Region must be to collaborate with other individuals and groups in the area who either hold data or are in a position to computerize records.

Consideration must also be given to the software used to hold records and its compatibility with that used by other groups. Consideration must also be given to the routine used to “back-up” records, so that a chance mishap will not destroy all copies. With rapid changes in the medium used to store computer data, action must also be taken to make sure records are re-copied onto new media (For example: floppy discs are known to have a limited, reliable life span and old style floppy discs can't be read by many modern computers).

It is also important that clearly defined and well advertised routes are in existence to aid the collection, storage and dissemination of all records.

Actions and targets

Actions	BC's Targets
1. Computerize historical records.	On-going
2. Collaborate with individuals and other groups who hold Lepidoptera records.	On-going
3. Examine compatibility of software used.	On-going
4. Continue to up-date stored computer-held records to new media	On-going
5. Continue to examine “back-up” routines	On-going
6. Continue to advertise the routes used to collect, store and disseminate records.	On-going

7. Survey

This is a list of all known recent, or on-going surveys in the Thames Region.

Species	Recent Thames Region Surveys
Black Hairstreak	A habitat assessment was recently carried out by BC and ITE (see Section 3.2b)
Brown Hairstreak	The Upper Thames Branch organises surveys of eggs on a number of sites.
Chalkhill Blue	A PhD research student (Deborah Sazer, Leeds University) is currently investigating the species, including at sites within the Thames Region.
Grizzled Skipper	Hertfordshire surveys (Shepperson, 1998 & 99)
Marsh Fritillary	A national survey by BC to take place in 2000.
Pearl-bordered Fritillary	Recent national survey by BC.
Silver-spotted Skipper	Survey of eggs to take place at Watlington Hill (Oxon) in 2000.
White-letter Hairstreak	Some recent surveys in Hertfordshire & Middlesex
Wood White	Some survey work on unconfirmed sites in Bedfordshire
Autumnal Snout	Colin Plant to survey in 2000 in Broxbourne Woods (Herts)
Heart Moth	Surveys at Windsor Forest by BC/Berks Network for Invertebrate Conservation
Striped Lychnis	Surveys since 1996 in Buckinghamshire, by Buckinghamshire Invertebrate Group

8. Monitoring

8.1 Butterfly transects – Only transects walked as “Pollard” walks are given here. Many other sites are walked at irregularly time intervals along a fairly set route and results are presented in a transect like-manner, but only transects that follow the methodology as described in Hall (1981) are listed below. Butterfly Conservation is currently developing software to aid the co-ordination of all transects walked by this standard method.

Site	County	Organisation/s involved & year started (if known)	Butterfly Monitoring Scheme, CEH*
Abney Park	Herts		
Aldbury Nowers	Herts	Started 1992	
Astonbury Woods	Herts	Started 1997	
Balls Wood	Herts	Started 1994	
Bayfordbury	Herts	Started 1994	
Beane Hill	Herts	Started 1988	
Bedfont Lakes	Herts	Started 1998	
Blackbridge	Herts	Started 1998	
Bricket Wood	Herts	Started 1997	
Chestnut Avenue	Herts	Started 1997	
Clay Lane	Herts	Started 1998	
Clifford Road Allotments	Herts	Started 1995	
Colney Heath Common	Herts	Started 1992	
Commons Nature Reserve	Herts	Started 1997	
Covert Way	Herts	Started 1998	
Cranford Park	Herts	Started 1997	
Danesbury Park	Herts	Started 1996	
Forty Hill	Herts	Started 1996	
Fryent Country Park	Herts	Started 1996	
Gobions Woodland	Herts	Started 1990	
Gutteridge Wood	Herts	Started 1990	
Hampstead Heath	Herts	Started 1978	
Highdown	Herts	Started 1996	
Holcroft Springs	Herts	Started 1998	
Kings Langley	Herts	Started 1997	
Knebworth Park	Herts	Started 1996	
Long Green	Herts	Started 1996	
Markyate	Herts	Started 1995	
Marshalls Heath	Herts	Started 1989	
Millhoppers	Herts	Started 1998	
New House Park	Herts	Started 1996	
Nicky Lane	Herts	Started 1994	

Continued

Site	County	Organisation/s involved & year started (if known)	Butterfly Monitoring Scheme, CEH*
North Enfield	Herts	Started 1993	
Patmore Heath	Herts	Started 1996	
Railway Fields	Herts	Started 1997	
Riverside Road	Herts	Started 1997	
Rothamsted Farm	Herts	Started 1991	yes
Smallford	Herts	Started 1995	
South Mimms	Herts	Started 1990	
Standalone Farm	Herts	Started 1996	
Stevenage	Herts	Started 1993	
Stockers Lane	Herts	Started 1995	
The Warren	Herts	Started 1991	
Tottenham Marsh	Herts	Started 1997	
Trent Country Park	Herts	Started 1998	
Tring Park	Herts	Started 1996	
Ware Park	Herts	Started 1996	
Waterford Pit	Herts	Started 1999	
Barton Hills NNR	Beds	EN? Started 1987/89	
Blows Downs- North SSSI	Beds	Lapsed? Started by bypass protestors in 1994, may restart.	
Blows Downs- West SSSI	Beds	Lapsed? Started by bypass protestors in 1994, may restart.	
Bradgers Hill, Luton	Beds	Luton Bough Council. Started 1995	
Coronation Pit, Stewartby	Beds	Lapsed? No organisation involved.	
Dunstable Downs SSSI	Beds	NT. Started 1989	
Hill Rise LNR, Bedford	Beds	No organisation involved. Started 1994	
Potton Wood	Beds	Started 1974/76	yes
Priory County Park	Beds	Bedford Bough Council.	
Sharpenhoe Clappers SSSI	Beds	Beds & Northants BC Branch. Started 1996	
Totternhoe Old Chalk Quarry SSSI	Beds	Beds & Northants BC Branch. Started 1993	
Warden & Galley Hills SSSI, Luton	Beds	Luton Bough Council. Started 1995	
Whipsnade Downs (Bison Hill) SSSI	Beds	Beds & Northants BC Branch. Started 1987	
Lardon Chase	Berks	Upper Thames Branch for NT; started 1997	
College Lake Wildlife Centre	Bucks	Upper Thames Branch	
Dancersend	Bucks	Upper Thames Branch. Started 1996	

Continued

Site	County	Organisation/s involved & year started (if known)	Butterfly Monitoring Scheme, CEH*
Finemere Wood	Bucks		
Gomm Valley	Bucks	BBOWT. Started 1977	yes
Grendon & Doddershall Woods	Bucks		
Holtspur Bank LNR	Bucks	Started 1995	
Homefield Wood	Bucks	BBOWT	
Ivinghoe Beacon	Bucks		
Shabbington Wood	Bucks	Started 1984, new route in 1996	yes
Stoke Common LNR	Bucks	Transect planned.	
Aston Upthorpe Downs SSSI	Berks		
Wytham Wood	Berks	Oxford University	
Aston Rowant (2 transects)	Oxon	EN. Started 1976.	yes
Foxholes	Oxon	BBOWT. Started 1976	yes
Hartslock Nature Reserve	Oxon		
M40 Compensation Area	Oxon	Upper Thames Branch. Started 1991	
Oakley Woods	Oxon	Started 1985	yes
Otmoor Rifle Range	Oxon	Transect only during Marsh Fritillary flight period. Upper Thames Branch. Started 1996. Lapsed?	
Waterperry Wood	Oxon	Started 1976	yes
Watlington Hill	Oxon	Just started?	
Whitecross Green Wood	Oxon	BBOWT. Started 1986	yes
Barnack Hills & Holes	vc Northants	EN. Started 1981	
Castor Hanglands	vc Northants	EN. Started 1974	yes

* These transects are fed into the Butterfly Monitoring Scheme, CEH Monks Wood.

8.2 Other forms of monitoring

Species	Monitoring programme
Mainly butterflies	The Upper Thames Branch runs a strong churchyard survey and monitoring scheme.
Black Hairstreak	The Upper Thames Branch has set up a Black Hairstreak recording group. In Northamptonshire all FC sites are monitored for this species. See Section 3.2b for further details.
Chalkhill Blue	At Therfield Heath (Herts) a transect during the flight period of this species. Transect was started 1988 and since 1998 has recorded other butterfly species as well.
All moths at Castor Hanglands	A programme of light-trapping has been conducted by EN staff and members of the Peterborough Recording Group at this site since the mid 1980s.
Striped Lychnis	Monitoring and surveys since 1996 in Buckinghamshire, by Buckinghamshire Invertebrate Group

In the region, the following sites are at present in the Rothamsted Insect Survey (RIS 1999).

No.	Site	County
336	Cockayne Hatley	Beds
559	Eaton Bray II	Beds
578	Farmoor	Berks
540	Wytham	Berks
475	Harpenden II	Herts
1, 22, 34, 99,	Rothamsted *- Barnfield (no 1), Geescroft I & II (no 22 & 99) and Allotments (no 34)	Herts
541	Fineshade	Northants

* Up until 1999, there were also 22 traps at Rothamsted as part of the Farmland Ecology Project.

9. Management

All the branches in this region are strongly involved with the management of a large number of sites. The degree of involvement varies between sites and also from year to year. The type of involvement can be categorized as follows:

- i) Giving advice to site managers, consultants or landowners on a formally or informally.
- ii) Providing work parties on a regular or occasional basis.
- iii) Managing an area either owned or leased by BC.

Details are given under individual sites (Section 5) and also mentioned under species details (Section 3), but the region does contain two BC reserves, Holtspur Bottom BC reserve (Bucks) and Millhoppers (Herts). Prestwood Picnic Site (Bucks) is local authority-owned and managed in partnership with BC.

10. Other activities

The Upper Thames Branch produces occasional “Conservation Reviews” which detail species and sites in the three counties and can be brought from the branch. The Hertfordshire and Middlesex Branch produce an annual “Butterfly and Moth Report” which can be brought from the branch. Both these two branches also have web sites, <http://phoenix.herts.ac.uk/pub/R.Souter> for Hertfordshire and Middlesex, <http://homepages.tesco.net/~h.dunbar> for Upper Thames.

Priorities for all branches in the region are as follows:

- i) To collaborate closely with all possible partners to ensure that actions identified in this plan are implemented and so targets met within the proposed timescales. In particular to continue to build on relationships with other conservation groups.

- ii) To consult with and provide feedback to landowners and land managers. To provide them with management recommendations which are realistic and can be maintained in the long term.

- iii) To raise the profile of Butterfly Conservation through publicity and education, including the further development and active maintenance of Branch web sites.

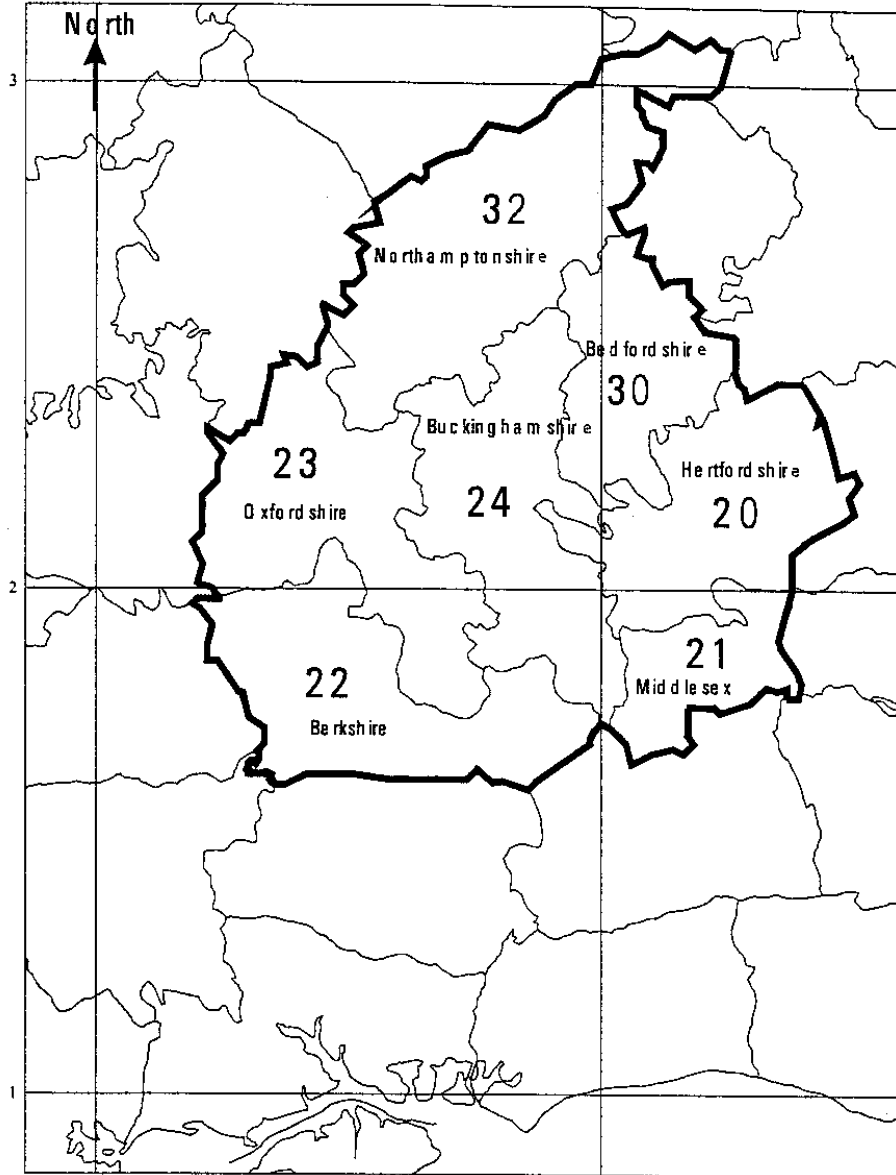
- iv) To publish the results from monitoring work, management regimes and research projects so that the information can be disseminated both regionally and nationally.

- v) To try and recruit more members and increase the number of active members.

11. Review

This plan will be reviewed annually. This review will be in the form of a short progress report, commenting on the implementation of the main aims. A thorough review will occur every five years to assess the priority ratings of all species and up-date the plan as a whole.

Appendix 1. Vice-counties of Thames Region



Appendix 2 - Priority Ratings for British butterflies

In 1994 the Government produced the UK Biodiversity Action Plan. They subsequently established a Biodiversity Steering Group which produced a detailed report in 1995 where butterflies were placed in short, middle or long Biodiversity Action Plan (BAP) lists. While Butterfly Conservation's British priorities were largely based on these BAP lists, the full rationale of criteria used by Butterfly Conservation to compile the British priority list given below is provided by Warren *et al.* (1997).

a) High Priority Species

Chequered Skipper
Heath Fritillary
High Brown Fritillary
Large Copper
Large Blue
Marsh Fritillary
Northern Brown Argus
Pearl-bordered Fritillary
Silver-spotted Skipper

b) Medium Priority Species

Adonis Blue
Black Hairstreak
Brown Hairstreak
Dingy Skipper
Duke of Burgundy
Glanville Fritillary
Grizzled Skipper
Large Heath
Lulworth Skipper
Purple Emperor
Small Blue
Small Pearl-bordered Fritillary
Small Mountain Ringlet
Silver-studded Blue
Swallowtail
White-letter Hairstreak
Wood White

Appendix 3 - Butterfly records for the Thames Region.

(The total number of 10km squares in the Thames Region is 130, the total number of tetrads is 2763). 1970-82 records from BRC and 1995-99 records from BNM as provided by Dr Jim Asher.

Species	No. of 10km squares 1970-82	No. of 10km squares 1995-99	No. of 2km squares (tetrads) 1995-99
Chequered Skipper	1	0	0
Small Skipper	128	129	1708
Essex Skipper	56	129	1381
Silver-spotted Skipper	3	5	14
Large Skipper	125	130	1549
Dingy Skipper	61	56	141
Grizzled Skipper	66	70	177
Swallowtail (migrant)	2	4	-
Wood White	32	22	43
Clouded Yellow	24	109	-
Brimstone	125	130	1695
Large White	127	130	2248
Small White	128	130	2264
Green Veined White	127	130	2327
Orange Tip	125	130	1952
Green Hairstreak	40	58	143
Brown Hairstreak	14	5	12
Purple Hairstreak	72	112	523
White-letter Hairstreak	72	94	289
Black Hairstreak	16	18	38
Small Copper	123	129	980
Small Blue	29	40	90
Silver-studded Blue	6	5	10
Brown Argus	42	120	600
Common Blue	126	130	1428
Chalkhill Blue	37	31	93
Adonis Blue	6	9	16
Holly Blue	104	129	1511
Duke of Burgundy	21	16	32
White Admiral	41	72	176
Purple Emperor	14	25	38
Red Admiral	121	130	1743
Painted Lady	103	128	1140
Small Tortoiseshell	129	130	2288
Large Tortoiseshell	8	3	-
Peacock	129	130	2205
Comma	113	129	1543
Small Pearl-bordered Fritillary	5	1	1

Continued

Continued

Species	10km square records 1970-82	10km square records 1995-99	No. of 2km squares (tetrads) 1995-99
Pearl-bordered Fritillary	6	1	1
High Brown Fritillary	6	0	-
Silver Washed Fritillary	17	37	60
Marsh Fritillary	12	4	5
Speckled Wood	96	130	1975
Wall Brown	125	88	250
Marbled White	70	114	901
Grayling	15	6	23
Gatekeeper	123	130	2241
Meadow Brown	129	130	2364
Ringlet	118	129	1520
Small Heath	125	125	827

Appendix 4 - Definitions of the status of British moths

a) **Red Data Book (RDB)** - there are three categories which are based on the degree of threat. The definitions below are taken from Shirt (1987).

RDBL - Endangered.

Definition - Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating.

Criteria - Species which are known as only a single population within one 10km square of the National Grid.

RDB2 - Vulnerable.

Definition - Taxa believed likely to move into the Endangered category in the near future if the causal factors continue operating.

Criteria - Species which are a) declining throughout their range b) in vulnerable habitats and c) whose populations are low.

RDB3 - Rare.

Definition - Taxa with small populations that are not at present endangered or Vulnerable, but are at risk.

Criteria - Species which exist in only fifteen or fewer 10km squares.

b) **Definitions for Notable and Local macro-moths** - taken from Waring (1994) and Waring (in press).

Nationally Scarce Grade A (Notable A, Na) - Very restricted national distribution. Species recorded from 16-30 of the 10km squares in Britain since 1980.

Nationally Scarce Grade B (Notable B, Nb) - Restricted national distribution. Species recorded from 31-100 of the 10km squares in Britain since 1980.

Note - species can be abundant where they occur and yet have a very restricted national distribution.

Local Species - Localised within Britain. Known from 101-300 of the 10km squares in Britain since 1980. Covers both species which are patchily distributed throughout Britain and species that are confined to particular areas but generally distributed within these.

Appendix 5 – High and Medium Priority moth vice-county records

Note: all lists have been derived from a number of references as listed in Appendix 6. however, annual microlepidoptera reviews as published in Entomologist's Record have not been extracted.

Key to Vice-Counties

Hertfordshire	vc 20	Buckinghamshire	vc 24
Middlesex	vc 21	Bedfordshire	vc 30
Berkshire	vc 22	Northamptonshire	vc 32
Oxfordshire	vc 23		

A. Summary table of High Priority macro-moths in Thames Region

The summary table below lists all High Priority macro-moths and micro-moths and indicates the counties for which there are post-1980 records.

Species	Vice-county No.						
	20	21	22	23	24	30	32
Argent & Sable <i>Rheumaptera hastata</i>			*	*	*	*?	
Autumnal Snout <i>Schrankia intermedialis</i>	*						
Barberry Carpet <i>Pareulype berberata</i>			*				
Barred Tooth-striped <i>Trichopteryx polycommata</i>			*	*			*
Bordered Gothic <i>Heliophobus reticulata marginosa</i>			*	*			
Brighton Wainscot <i>Oria musculosa</i>			*				
Buttoned Snout <i>Hypena rostralis</i>	*	*	*	*	*		
Chalk Carpet <i>Scotopteryx bipunctaria</i>	*		*	*	*	*	
Common Fan-foot <i>Pechipogo strigilata</i>				*	*	*	*
Concolorous <i>Photedes extrema</i>					*		*
Double-line <i>Mythimna turca</i>			*				
Drab Looper <i>Minoa murinata</i>			*				
Four-spotted <i>Tyta luctuosa</i>			*	*	*	*	*
Heart Moth <i>Dicycla oo</i>			*		*		*
Light Crimson Underwing <i>Catocala promissa</i>			*				
Lunar Yellow Underwing <i>Noctua orbona</i>				*	?	*	
Olive Crescent <i>Trisateles emortualis</i>				*	*		
Orange Upperwing <i>Jodia croceago</i>			*				
Pale Shining Brown <i>Polia bombycina</i>		*	*	*	*	*	*
Square-spotted Clay <i>Xestia rhomboidea</i>	*	*	*	*	*		*
Striped Lychnis <i>Shargacucullia lychnitis</i>			*	*	*		
Triangle <i>Heterogenea asella</i>				?			
White-line Snout <i>Schrankia taenialis</i>	*		*	*	*		
White-spotted Pinion <i>Cosmia diffinis</i>			*	?	*	*	

? = uncertain / unconfirmed record/s.

B Medium Priority Moths important in the Thames Region

The summary table below lists Medium Priority moths for which vice-county records are available. It indicates the vice-counties for which there are post-1980 records.

Species	Vice-county No.						
	20	21	22	23	24	30	32
<i>Aethes rutilana</i> tortricid moth			*		*		
<i>Argyresthia abdominalis</i> yponomeutid moth			*				
<i>Argyresthia praecocella</i> yponomeutid moth					*		
<i>Buckleria paludum</i> pterophorid moth			*				
<i>Caryocolum proximum</i> gelechiid moth		*	*				
<i>Cochylis flaviciliana</i> tortricid moth			*	*	*		
<i>Coleophora currucipennella</i> coleophorid moth	*						
<i>Cosmiotes stabilella</i> elachistid moth					*	*	*
<i>Cosmopterix lienigiella</i> cosmopterygid moth			*				
<i>Cosmopterix zieglerella</i> cosmopterygid moth			*				
<i>Cydia caecana</i> tortricid moth			*				
<i>Cydia pallifrontana</i> tortricid moth			*				*
<i>Ectoedemia atrifrontella</i> nepticulid moth		*					
<i>Ectoedemia turbidella</i> nepticulid moth		*					*
<i>Endothenia ustulana</i> tortricid moth			*	*			
<i>Epermenia insecurella</i> epermeniid moth	*						
<i>Epiblema grandaevana</i> tortricid moth							*
<i>Ethmia funerella</i> ethmiid moth						*	
<i>Eucosma pauperana</i> tortricid moth			*				
<i>Eudemis porphyrana</i> tortricid moth			*				
<i>Gelechia turpella</i> gelechiid moth		*				*	
<i>Glyphypterix linneella</i> cosmopterygid moth			*				*
<i>Mompha subdivisella</i> momphid moth	*		*	*	*		
<i>Pammene suspectana</i> tortricid moth			*				
<i>Pammene trauniana</i> tortricid moth			*				
<i>Pancalia leuwenhoekella</i> micro-moth			*	*	*		
<i>Sitochroa palealis</i> pyralid moth			*	*	*		
<i>Sorhagenia janiszewskae</i> cosmopterygid moth			*				
<i>Sorhagenia lophyrella</i> cosmopterygid moth			*	*			
<i>Stigmella minusculella</i> nepticulid moth	*			*			
<i>Stigmella prunetorum</i> nepticulid moth					*		
<i>Thisanotia chrysonuchella</i> pyralid moth			*				*
Angle-striped Sallow <i>Enargia paleacea</i>	*						
Balsam Carpet <i>Xanthorhoe biriviata</i>	*	*	*		*		
Bleached Pug <i>Eupithecia expallidata</i>			*				*
Blomer's Rivulet <i>Discoloxia blomeri</i>					*		
Broad-bordered Bee Hawk <i>Hemaris fuciformis</i>	*			*	*		
Broom-tip <i>Chesias rufata</i>			*		*		
Campanula Pug <i>Eupithecia denotata</i>		*	*				
Cistus Forester <i>Adscita geryon</i>			*	*	*	*	
Cloaked Carpet <i>Euphyia biangulata</i>			*				

Continued

Species	Vice-county No.						
	20	21	22	23	24	30	32
Cream-bordered Green Pea <i>Earias clorana</i>	*				*		*
Currant Clearwing <i>Synanthedon tipuliformis</i>	*	*	*	*			
Dentated Pug <i>Anticollix sparsata</i>			*				
Dotted Border Wave <i>Idaea sylvestraria</i>			*				
Dotted Chestnut <i>Conistra rubiginea</i>			*	*			
Dotted Fan-foot <i>Macrochilo cribrumalis</i>	*						
Festoon <i>Apoda limacodes</i>			*		*		*
Goat Moth <i>Cossus cossus</i>	*		*			*	*
Grass Wave <i>Perconia strigillaria</i>			*			*	*
Great Brocade <i>Eurois occulta</i>	*		*		*	*	
Great Oak Beauty <i>Boarmia roboraria</i>	*	*	*	*	*		*
Hornet Moth <i>Sesia apiformis</i>	*		*	*	*		*
Horse Chestnut <i>Pachycnemia hippocastanaria</i>			*				
Juniper Carpet <i>Thera juniperata</i>	*	*	*	*	*	*	*
Kent Black Arches <i>Meganola albula</i>		*		*			
Large Red-belted Clearwing <i>Synanthedon culiciformis</i>	*	*	*				
Large Thorn <i>Ennomos autumnaria</i>				*		*	*
Lead-coloured Pug <i>Eupithecia plumbeolata</i>	*	*	*				
Least Carpet <i>Idaea vulpinaria atrosignaria</i>	*	*	*	*	*	*	
Light Feathered Rustic <i>Agrotis cinerea</i>	*	*	*	*	*	*	
Light Orange Underwing <i>Archiearis notha</i>	*	*	*		*	*	
Little Thorn <i>Cepphis advenaria</i>			*			*	
Marbled Clover <i>Heliothis viriplaca</i>			*				*
Marbled Green <i>Cryphia muralis</i>			*	*			
Marbled Pug <i>Eupithecia irriguata</i>	*		*	*	*		*
Marsh Oblique-barred <i>Hypenodes humidalis</i>			*	*			
Mere Wainscot <i>Photedes fluxa</i>			*	*	*	*	*
Mocha <i>Cyclophora annulata</i>					*	*	
Oblique Striped <i>Phibalapteryx virgata</i>			*				
Orange Footman <i>Eilema sororcula</i>		*	*	*			*
Orange-tailed Clearwing <i>Synanthedon andrenaeformis</i>	*		*				
Pale-lemon Sallow <i>Xanthia ocellaris</i>		*	*			*	
Pimpinel Pug <i>Eupithecia pimpinellata</i>	*		*			*	
Pinion-spotted Pug <i>Eupithecia insigniata</i>			*	*		*	*
Plumed Prominent <i>Ptilophora plumigera</i>					*		
Purple-bordered Gold <i>Idaea muricata</i>			*				
Red-belted Clearwing <i>Synanthedon myopaeformis</i>	*	*	*	*			*
Red-necked Footman <i>Atolmis rubricollis</i>			*				
Ringed Carpet <i>Cleora cinctaria</i>			*				
Rosy Marbled <i>Elaphria venustula</i>		*	*		*		
Ruddy Carpet <i>Catarhoe rubidata</i>			*				

Continued

Species	Vice-county No.						
	20	21	22	23	24	30	32
Sallow Clearwing <i>Synanthedon flaviventris</i>			*				
Scarce Burnished Brass <i>Diachrysia chryson</i>			*	*			
Silky Wainscot <i>Chilodes maritimus</i>	*		*	*	*	*	
Silvery Arches <i>Polia trimaculosa</i>	*		*		*		
Six-belted Clearwing <i>Bembecia scopigera</i>			*	*		*	*
Sloe Carpet <i>Aleucis distinctata</i>			*	*			
Small Black Arches <i>Meganola strigula</i>			*	*	*		
Small Chocolate-tip <i>Clostera pigra</i>			*				
Small Eggar <i>Eriogaster lanestris</i>			*	*	*	*	*
Sword-grass <i>Xylena exsoleta</i>			*	*			
Waved Black <i>Parascotia fuliginaria</i>	*	*	*	*	*		
White-banded Carpet <i>Spargania luctuata</i>	*						
White-barred Clearwing <i>Synanthedon spheciformis</i>			*				
White-marked <i>Cerastis leucographa</i>	*		*	*	*		*
Wormwood <i>Cucullia absinthii</i>		*	*	*	*		
Yellow-legged Clearwing <i>Synanthedon vespiformis</i>	*		*		*		

C Other Medium Priority micro-moths important in the Thames Region

The summary table below lists Medium Priority micro-moths which are known to have post-1980 records in the region, but for which vice-county records are not available at the time of going to press.

Species	
<i>Alipsa angustella</i>	pyralid moth
<i>Blastodacna atra</i>	micro-moth
<i>Calamotropha paludella</i>	pyralid moth
<i>Caloptila falconipennella</i>	micro-moth
<i>Coleophora frischella</i>	coleophorid moth
<i>Coleophora hemerobiella</i>	coleophorid moth
<i>Depressaria pimpinellae</i>	micro-moth
<i>Ectoedemia quinquella</i>	nepticulid moth
<i>Enicostoma lobella</i>	micro-moth
<i>Eucosmomorpha albersana</i>	tortricid moth
<i>Homeosoma nebulella</i>	pyralid moth
<i>Leioptilus carphodactyla</i>	plume moth
<i>Mecyna flavalis</i>	pyralid moth
<i>Microstega hyalinalis</i>	pyralid moth
<i>Nemapogon wolfiella</i>	tineid moth
<i>Ochsenheimeria vaculella</i>	micro-moth
<i>Phalonidia manniana</i>	tortricid moth
<i>Phyllonorycter platanoidella</i>	micro-moth
<i>Proutia betulina</i>	psychid moth
<i>Synaphe punctalis</i>	pyralid moth

Appendix 6 - References

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Appendix 7 – Key to abbreviations

BBOWT	Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust
BC	Butterfly Conservation
BNM	Butterflies for the New Millennium
BRC	Biological Record Centre
CEH	Centre for Ecology and Hydrology
CDH	Chiltern Downland Heritage
EA	Environment Agency
EN	English Nature
FC	Forestry Commission
FE	Forest Enterprise
FNR	Forest Nature Reserve
FRCA	Farming and Rural Conservation Agency
FWAG	Farming Wildlife Advisory Group
HMWT	Hertfordshire & Middlesex Wildlife Trust
HNHS	Hertfordshire Natural History Society
ITE	Institute of Terrestrial Ecology
LNR	Local Nature Reserve
MAFF	Ministry of Fisheries and Food
NNR	National Nature Reserve
NT	National Trust
NWT	Northamptonshire Wildlife Trust
RIS	Rothamsted Insect Survey
SSSI	Site of Special Scientific Interest
WCA	Wildlife and Countryside Act
WT	Woodland Trust