



Butterfly Conservation Regional Action Plan East Midlands of England

**(Derbyshire, Leicestershire, Lincolnshire,
Nottinghamshire & Rutland)**

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East Midlands Branch BC

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Executive Summary

This plan highlights the main conservation priorities for butterfly species and habitats in the East Midlands as well as identifying the most important habitats for Lepidoptera. Actions and targets for high priority species will be largely implemented in the next five years (2000 to 2005), actions for medium priority species to be implemented in the next ten years (2000 to 2010) and actions for other species to be implemented once targets for higher priority species have been achieved. However, as Butterfly Conservation must also be able to react to unforeseen circumstances, there may well be some actions undertaken in the next decade which were not conceived at this time.

High priority butterflies identified in the plan are grizzled skipper, wood white, brown hairstreak, black hairstreak, small blue, duke of burgundy and the large heath.

Medium priority butterflies are dingy skipper, green hairstreak, white-letter hairstreak, white admiral, dark green fritillary, silver-washed fritillary and grayling.

High priority moths are the triangle, chalk carpet, argent and sable, pauper pug, scarce pug, scarce vapourer, square-spotted clay, the concolorous, rush wainscot, marsh moth and the four-spotted.

The main conservation priorities identified for Butterfly Conservation branches in the East Midlands are:

a) Species protection

- To safeguard all surviving populations of high and medium priority species.
- To seek opportunities to extend breeding areas of high and medium priority species.
- To encourage survey work to determine the current status of all high and medium priority species in areas where this is unknown or doubtful.
- To support ecological research, through universities and colleges (e.g. BSc, MSc, PhD, English Nature's CEL scheme), which may assist the long-term conservation of high and medium priority species.
- Promote programmes to re-establish high and medium priority species within their natural range. Programmes should take account of Butterfly Conservation's Code of Practice on Lepidoptera Restoration.
- To increase the level of moth recording and knowledge of habitat requirements of high and medium priority moths. Separate species plans are included only for the high priority moths. The long-term aim should be to draw up similar plans for all medium priority moths and key Microlepidoptera as information becomes available.

b) Monitoring

- To continue to monitor all current transects providing a high or medium priority species is present.
- Establish transects or undertake timed counts on at least two key sites for each high and medium priority species.
- To liaise with other conservation organisations involved in monitoring and provide adequate feedback and encouragement.

c) Liaison

- To collaborate closely with all possible partners to ensure that actions and targets identified in this plan are implemented within the proposed time scales. Collaboration with partners who are directly or indirectly involved in land management for conservation should be a priority.
- To provide feedback to landowners and land managers and provide them with management recommendations for butterflies.
- To continue to build on relationships with other conservation groups in the East Midlands and raise the profile of Butterfly Conservation through publicity and education.
- To publish the results from survey and monitoring work, management regimes and research projects so that information can be disseminated both regionally and nationally.

d) Land management

To consider acquiring threatened sites containing high and medium priority species as Butterfly Conservation reserves. Where this is not practicable, other conservation bodies will be encouraged to acquire threatened sites as appropriate.

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1.1 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 ensured considerable effort goes into the production of Local Biodiversity Action Plans through the Local Agenda 21 process. Butterfly Conservation is attempting to maximize 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 twenty-five most threatened species. 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 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 regional priorities, and to aid the conservation of species and habitats characteristic of the local area. The region covered by the plan encompasses Lincolnshire, Leicestershire, Rutland, Nottinghamshire and Derbyshire (i.e. vice-counties 53-57), an area split between three separate Butterfly Conservation Branches: Lincolnshire, East Midlands and Cheshire and Peak District.

Regional Action Plans: The Wider Context

As well as guiding Butterfly Conservation's 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.

1.2 Summary of main aims and targets of the East Midlands Regional Action Plan.

- To identify those species of butterfly most at risk in the region.
- To identify key areas and sites in the region with populations of high and medium priority species.
- To safeguard all colonies of high and medium priority species through appropriate management and/or Reserve acquisition.
- To identify and implement further survey, monitoring, research and management as required.

1.3 Regional Priority List

The list of species below has been produced from Butterfly Conservation's National Priority List using the four criteria described in Section 1.4

1.3.1 High Priority Species

Grizzled Skipper
Wood White
Brown Hairstreak
Black Hairstreak
Small Blue
Duke of Burgundy
Large Heath

1.3.2 Medium Priority Species

Dingy Skipper
Green Hairstreak
White-letter Hairstreak
White Admiral
Dark Green Fritillary
Silver-washed Fritillary
Grayling

1.3.3 Extinct High Priority Species Restored to the Region

Chequered Skipper
Marsh Fritillary

1.3.4 Extinct Medium Priority Species Restored to the Region

Small Pearl-bordered Fritillary

1.4 Rationale used to determine regional priorities.

Regional priorities were determined using criteria laid down in Butterfly Conservation's Guidelines for producing Regional Action Plans (Bourn, Warren and Kirkland 1996) namely rarity, rate of decline and the proportion of the national resource held in the region.

A species qualified for a higher than national rating if it fulfilled any one or more of the following criteria (Table 1):

- **Criteria 1** - The estimated rate of decline was greater than 50% loss of tetrads over the last 25 years. In some cases two values were calculated to satisfy this criteria, namely: the rate of decline based on all tetrads in the region and secondly, the rate of decline at sites where the species was positively recorded in the past.
- **Criteria 2** - The species occupied less than 0.6% of the tetrads in the region.
- **Criteria 3** - The region holds greater than 20% of the total number of UK sites for a particular species.
- **Criteria 4** - There is sufficient regional justification for change.

The number of tetrads occupied by each species in all counties of the region forms the basis of many of the comments made in the species accounts.

The following species have had their status reviewed as a result of **Criteria 1**:

Grizzled skipper
Brown hairstreak
Black hairstreak
Large heath

The following species have had their status reviewed as a result of **Criteria 2**:

Wood white
Brown hairstreak
Black hairstreak
Small blue
Duke of Burgundy
Silver-washed fritillary
Grayling
Large heath

No butterfly species in the region have had their status reviewed as a result of **Criteria 3**

The following species have had their status reviewed as a result of **Criteria 4**:

Dingy skipper - Elevated to medium priority on the basis of its restricted geographical distribution in the region, especially outside the Peak District National Park (2.5% of recorded tetrads outside Peak District National Park).

Green hairstreak - Elevated to medium priority on the basis of its restricted geographical distribution in the region, especially outside the Peak District National Park (2.6% of recorded tetrads outside Peak District National Park).

White admiral - Almost qualifies by criteria 2 (1.9% of recorded tetrads). Elevated to medium priority on the basis of its restricted geographical distribution in the region and its importance as a 'flagship' species for the conservation management of Lincolnshire woodlands.

Dark green fritillary - Elevated to medium priority on the basis of its restricted geographical distribution in the region, especially outside the Peak District National Park (0.7% of recorded tetrads outside Peak District National Park).

Table 1. Butterfly species showing a regional change from their national priority rating as a result of applying criteria laid down in BC Guidelines for producing Regional Action Plans (see Bourn, Warren and Kirkland 1996).

Species	Criteria 1 (Rate of decline)	Criteria 2 (Rarity)	Criteria 3 (Proportion of national resource)	Criteria 4 (Regional justification for change)	Change in priority
Dingy skipper				YES	L to M
Grizzled skipper	YES				M to H
Wood white		YES			M to H
Green hairstreak				YES	L to M
Brown hairstreak	YES	YES			M to H
Black hairstreak	YES	YES			M to H
Small blue		YES			M to H
Duke of burgundy		YES			M to H
White admiral				YES	L to M
Dark green fritillary				YES	L to M
Silver-washed fritillary		YES			L to M
Grayling		YES			L to M
Large heath	YES	YES			M to H

The detailed calculations for the criteria are given in Appendix 10.1 (Methods used for assigning regional priorities).

1.5 High Priority Macromoths - Nationally and Regionally Important

Note that the species lists for moths follow the order and nomenclature of Bradley and Fletcher (1979), with subsequent amendments. National status from Waring (in prep).

The following nine species were identified as high priority moths for this region by Dr Paul Waring (see Bourn, Warren and Kirkland 1996) and all occur in less than 15 10 km² nationally. Species accounts for these high priority moths are given in section 3.8.

- 0174 Triangle - *Heterogenea asella* RDB3
- 1731 Chalk Carpet - *Scotopteryx bipunctaria* Nb
- 1787 Argent and Sable - *Rheumaptera hastata* Nb
- 1824 Fletcher's Pug = (Pauper Pug) - *Eupithecia egenaria* RDB3
- 1847 Scarce Pug - *Eupithecia extensaria* RDB3
- 2025 Scarce Vapourer - *Orgyia recens* RDB2
- 2131 Square-spotted Clay - *Xestia rhomboidea* Nb
- 2347 Concolorous - *Chortedes extrema* RDB3
- 2374 Rush Wainscot - *Archanara algae* RDB3
- 2392 Marsh Moth - *Athetis pallustris* RDB3
- 2465 Four-spotted - *Tyta luctuosa* Na
- 2488 Common Fan-foot *Pechipogo strigilata* Na

1.6 Medium Priority Macromoths - Notable species occurring in the region

The list includes all Nationally Notable (Na or Nb) species of moths (Macrolepidoptera) currently known to occur in the region. This list is incomplete and it is also anticipated that the status of many of these species may change in the next few years as a result of increased recording levels. For these reasons, the status of medium priority moths will be reviewed in the future as more data becomes available. The counties in which these species have been recently recorded are given in section 3.9.

COMMON NAME	SCIENTIFIC NAME	NATIONAL STATUS
0162 Goat Moth	<i>Cossus cossus</i>	Nb
0164 Cistus Forester	<i>Adscita geryon</i>	Nb
0370 Hornet Moth	<i>Sesia apiformis</i>	Nb
0373 Currant Clearwing	<i>Synanthedon tipuliformis</i>	Nb
0374 Yellow-legged Clearwing	<i>Synanthedon vespiformis</i>	Nb
0379 Red-belted Clearwing	<i>Synanthedon myopaeformis</i>	Nb
0380 Red-tipped Clearwing	<i>Synanthedon formicaeformis</i>	Nb
0381 Large Red-belted Clearwing	<i>Synanthedon culiciformis</i>	Nb
0382 Six-belted Clearwing	<i>Bembecia ichneumoniformis</i>	Nb
1633 Small Eggar	<i>Eriogaster lanestris</i>	Nb
1662 Light Orange Underwing	<i>Archiearis notha</i>	Nb
1670 Small Grass Emerald	<i>Chlorissa viridata</i>	Na
1691 Rosy Wave	<i>Scopula emutaria</i>	Nb
1698 Purple-bordered Gold	<i>Idaea muricata</i>	Nb

1701 Dotted-border Wave	<i>Idaea sylvestraria</i>	Nb
1718 Oblique Striped	<i>Phibalapteryx virgata</i>	Nb
1721 Balsam Carpet	<i>Xanthorhoe biriviata</i>	Na
1751 Devon Carpet	<i>Lampropteryx otregiata</i>	Nb
1810 Marsh Carpet	<i>Perizoma sagittata</i>	Na
1820 Pinion-spotted Pug	<i>Eupithecia valerianata</i>	Nb
1821 Valerian Pug	<i>Eupithecia insigniata</i>	Nb
1833 Bleached Pug	<i>Eupithecia expallidata</i>	Nb
1836 Campanula Pug	<i>Eupithecia denotata denotata</i>	Na
1841 Yarrow Pug	<i>Eupithecia millefoliata</i>	Nb
1863 Dentated Pug	<i>Anticollix sparsata</i>	Na
1865 Broom-tip	<i>Chesias rufata</i>	Nb
1872 Blomer's Rivulet	<i>Discoloxia blomeri</i>	Nb
1911 Large Thorn	<i>Ennomos autumnaria</i>	Nb
1943 Great Oak Beauty	<i>Boarmia roboraria</i>	Nb
1983 Broad-bordered Bee Hawk Moth	<i>Hemaris fuciformis</i>	Nb
2017 Small Chocolate-tip	<i>Clostera pigra</i>	Nb
2062 Water Ermine	<i>Spilosoma urticae</i>	Nb
2083 Coast Dart	<i>Euxoa cursoria</i>	Nb
2084 Light Feathered Rustic	<i>Agrotis cinerea</i>	Nb
2093 Sand Dart	<i>Agrotis ripae</i>	Nb
2099 Portland Moth	<i>Actebia praecox</i>	Nb
2149 Silvery Arches	<i>Polia trimaculosa</i>	Nb
2152 White Colon	<i>Sideridis albicolon</i>	Nb
2201 Shore Wainscot	<i>Mythimna litoralis</i>	Nb
2211 Wormwood	<i>Cucullia absinthii</i>	Nb
2217 Star-wort	<i>Cucullia asteris</i>	Nb
2313 Angle-striped Sallow	<i>Enargia paleacea</i>	Nb
2325 Crescent Striped	<i>Apamea oblonga</i>	Nb
2348 Lyme Grass	<i>Chortodes elymi</i>	Nb
2349 Mere Wainscot	<i>Chortodes fluxa</i>	Nb
2373 Webb's Wainscot	<i>Archanara sparganii</i>	Nb
2396 Rosy Marbled	<i>Elaphria venustula</i>	Nb
2418 Cream-bordered Green Pea	<i>Earias clorana</i>	Nb
2493 Dotted Fan-foot	<i>Machrochilo cribrumalis</i>	Nb

2. Sources of Information

This plan was compiled by Sam Ellis. The main source of recent data for the plan was the Butterflies for the New Millennium project (1995-1999); historical data (1970-1982) was obtained from the *Atlas of Butterflies in Britain and Ireland* (Heath, Pollard and Thomas 1984). Additional information was obtained from Duddington and Johnson (1983), Harrison and Frost (1996), Harrison and Viles (1996), Smith (1996) and Smith (1999). The following individuals and organisations directly or indirectly provided records and information used to compile this report: Lincolnshire Branch, Butterfly Conservation (Allan Binding, Peter Cawdell, Steve Green, John Fleming, Rex Johnson, Pete Smith, Mark Tyszka), East Midlands Branch, Butterfly Conservation (Lionel Bidwell, Dr Alan Birch, Ken Orpe, Maurice Paul, Adrian Russell, Michael Walker), Cheshire and Peak District Branch, Butterfly Conservation (David Mallon), Lincolnshire Trust for Nature Conservation (<http://www.lincstrust.co.uk/index.html>), Lincolnshire Naturalists Union, Dr Sheila Wright, Leicestershire Entomological Society (Ray Morris, Jane McPhail), Derbyshire and Nottinghamshire Entomological Society (Fred Harrison, Ian Viles), Dr David Sheppard (English Nature) Paul Barwick (Forest Enterprise) and the Conservation Office, Butterfly Conservation.

More detailed information regarding sources of information, including general reference books and journals are provided in Appendix 10.3 (References).

3. Species Accounts

The following species accounts are ordered according to their priority as determined by the criteria outlined in Section 1.4. The accounts are divided into five sections:

- Local distribution and status including data relating to the five vice counties in the region.
- Survey
- Monitoring
- Management
- Actions and targets

Species accounts are included for low priority species but these may only give summary information and do not include actions and targets where action is deemed inappropriate or unnecessary.

The following abbreviations are used throughout the text:

BC:	Butterfly Conservation
BCL:	Butterfly Conservation, Lincolnshire Branch
BCEM:	Butterfly Conservation, East Midlands Branch
BCCPD:	Butterfly Conservation, Cheshire and Peak District Branch
EN:	English Nature
MAFF:	Ministry of Agriculture, Food and Fisheries
FRCA:	Farming and Rural Conservation Agency
LWT:	Lincolnshire Wildlife Trust
LRWT:	Leicestershire and Rutland Wildlife Trust
NWT:	Nottinghamshire Wildlife Trust
DWT:	Derbyshire Wildlife Trust
LNU:	Lincolnshire Naturalists Union
LES:	Leicestershire Entomological Society
DNES:	Derbyshire and Nottinghamshire Entomological Society
NT:	National Trust
FE:	Forest Enterprise
FC:	Forestry Commission
LAs:	Local Authorities
LCC:	Lincolnshire County Council
LECC:	Leicestershire County Council
NCC:	Nottinghamshire County Council
DCC:	Derbyshire County Council
UC:	Unitary Councils: Leicester City, North East Lincolnshire, North Lincolnshire, Nottingham City, Rutland
PDNP:	Peak District National Park
DETR:	Department of Environment and Transport

NNR: National Nature Reserve
SSSI: Site of Special Scientific Interest
CWS: County Wildlife Site
WES: Wildlife Enhancement Scheme
RES: Reserves Enhancement Scheme
WGS: Woodland Grant Scheme
ESA: Environmentally Sensitive Area

3.1 High Priority Species

Note: recording period for all butterfly species accounts is 1995-1999 and historical records are for 1970-1982.

3.1a Grizzled Skipper *Pyrgus malvae* Linnaeus

See also *Species Action Plan: Grizzled Skipper* (Brereton, Bourn and Warren 1998); *Action Plan for the Grizzled Skipper and Dingy Skipper* (Birch and Walker 1998)

NATIONAL PRIORITY - MEDIUM

REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 14 tetrads

North Lincolnshire (vice-county 54) - Recorded from 4 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 13 tetrads

Nottinghamshire (vice-county 56) - Recorded from 16 tetrads

Derbyshire (vice-county 57) - Recorded from 1 tetrad

With the exception of an unattributed re-introduction to the Morecambe Bay area and unconfirmed records from North Yorkshire, the grizzled skipper is at the northern edge of its British range in Lincolnshire. A scarce butterfly (2.0% of recorded tetrads), the butterfly has undergone a significant decline in recent years (25 years: 56% by 10 km²), mainly in Lincolnshire. The two grizzled skipper strongholds in the region are the disused railway lines in south-east Nottinghamshire and the Kesteven Uplands. The latter includes both the Rutland disused limestone quarries and south-west Lincolnshire, where the butterfly is still recorded from several LWT reserves. On the best sites, both grizzled and dingy skippers fly together (e.g. East Leake Railway Line, SK 5426).

The only recent Derbyshire records are from the disused railway line at Pleasley (SK 4862-4864) in 1996. In North Lincolnshire, the grizzled skipper is now very rare. It was recorded from Chambers Wood, Bardney Limewoods NNR (TF 1472-474) throughout the 1980s and early 1990s until 1997 and at Kirkby Moor LWT reserve until 1998.

Threats

- Habitat loss: unimproved grassland and scrub, woodland clearings, post-industrial habitats (e.g. disused quarries, disused railway lines).
- Habitat change: overgrazing, natural succession leading to loss of bare ground in grassland and artificial habitats.
- Habitat fragmentation and isolation.

Survey

No specific surveys have been undertaken for this species within the region. However, informal searches are carried out regularly for the butterfly.

Monitoring

Data are available for the Twyford Wood West and Grimsthorpe Park transects. One individual was recorded on the Chambers Wood transect in 1997.

Management

Guidelines are provided in the national Species Action Plan (Brereton, Bourn and Warren, 1998). There is no specific site management for this species in the region. However, management regimes including light grazing (especially cattle or deer) and mowing currently employed on grassland reserves are likely to benefit the butterfly, providing some scrub is maintained.

Actions and Targets

Action	BC's Targets	Possible partners
1. Protect all surviving colonies (including designation of non-SSSI land supporting grizzled skipper as CWS).	By 2005	EN, Wildlife Trusts, FE, LAs, site owners
2. Survey work to establish current status in the region.	By 2005	BCL, BCEM, Natural History Societies
3. Continue to monitor annually population size and management on the Twyford Wood West and Grimsthorpe Park transects.	Ongoing	BCL, Grimsthorpe Park Ranger
4. Establish transect or undertake timed counts to monitor population size and management at a post-industrial site.	By 2001	BCEM
5. Continue to implement or encourage implementation of appropriate management regimes (e.g. WES, RES) on SSSIs supporting the grizzled skipper and prevent further fragmentation of suitable habitat.	By 2005	EN, site owners
6. Encourage implementation of appropriate management regimes (e.g. Countryside Stewardship) on CWS and other sites supporting the grizzled skipper and prevent further fragmentation of suitable habitat.	By 2005	MAFF/FRCA, site owners
7. Encourage or undertake ecological research which assists the conservation of the grizzled skipper: habitat requirements, habitat management, landscape management.	By 2005	BC, EN, universities and colleges.
8. Seek opportunities to restore suitable habitat in the former range of the grizzled skipper to encourage recolonisation from occupied sites.	By 2005	EN, Wildlife Trusts, FE, LAs, site owners
9. Consider strategic introductions to suitable habitat in the former range of the grizzled skipper if natural recolonisation is unlikely (e.g. Chambers Wood, Kirkby Moor).	By 2010	BC, EN, Wildlife Trusts, FE, LAs, site owners

3.1b Wood White *Leptidea sinapis* Linnaeus

See also *Species Action Plan: Wood White* (Warren and Bourn 1998)

NATIONAL PRIORITY - MEDIUM

REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - No records

Leicestershire (with Rutland) (vice-county 55) - Recorded from 1 tetrad

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - Recorded from 1 tetrad

The 1995 records from Whitwell Wood (SK 5278) in Derbyshire, nearly 100 km north of the northern edge of its current British range in Northamptonshire, are an unattributed introduction. A similar unsuccessful introduction was made to Chambers Wood, Bardney Limewoods NNR (TF 1472-1474) in 1994. However, recent records from Leire Cutting (SP 5088) in south Leicestershire, about 20-30 km north-west of its current range, may well be a natural colonisation.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species in the region.

Management

Guidelines are provided in the national Species Action Plan (Warren and Bourn 1998).

Actions and Targets

Action	BC's Targets	Possible partners
1. Protect possible colonisation site at Leire Cutting. Inform Leire Parish Council of site's significance.	By 2005	EN, LECC, Leire Parish Council
2. Survey work to establish current status in south Leicestershire.	Ongoing	BCEM
3. Establish transect or undertake timed counts to monitor population size at Leire Cutting.	By 2001	BCEM
4. Develop and implement appropriate management regime for Leire Cutting.	By 2005	EN, LECC, Leire Parish Council
5. Encourage or undertake ecological research which assists the conservation of the wood white: habitat requirements, habitat management, landscape management.	By 2005	BC, EN, universities and colleges

3.1c Brown Hairstreak *Thecla betulae* Linnaeus

NATIONAL PRIORITY - MEDIUM

REGIONAL PRIORITY - HIGH

See also *Species Action Plan: Brown Hairstreak* (Bourn and Warren 1998a); *The Brown Hairstreak* (Anon. 1997a)

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - Recorded from 5 tetrads

Leicestershire (with Rutland) (vice-county 55) - No records

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - No records

One of the rarest butterflies in the region (0.2% of recorded tetrads), restricted to two main sites, about 3 km apart, in the Bardney Limewoods (TF 17) complex. The brown hairstreak reaches the northern edge of its current British range in central Lincolnshire and the nearest colonies are in Worcestershire 160 km distant. The butterfly has been recorded from the Bardney Limewoods for many years, including Newball Wood (TF 0876, 1940s, 1950s), Southrey Wood (TF 1266-1268, 1940s, 1950s), Scotgrove Wood (TF 1270, 1971), Cocklode/Great West Wood (TF 1076, 1984), Austacre/New Park Woods (TF 1470, 1982-84) and Chambers Wood (TF 1472-1474, 1970, 1984). The absence of current records from the north-western Bardney Limewoods (TF 07) explains the significant decline in recent years (25 years: 74% by 10 km²).

There are 1960s or 1970s records from Tugby Wood (SK 7602) in south Leicestershire, but the site has not been surveyed systematically.

Threats

- Habitat loss: woodlands, hedgerows.
- Habitat change: annual cutting of blackthorn hedges, over zealous control of blackthorn scrub and woodland rides/edges, neglect of blackthorn thickets.

Survey

Pete Smith and Peter Cawdell have undertaken egg surveys in Bardney Limewoods each winter since 1994-95 (Smith 1999). Detailed maps of egg sites have been produced for the two extant sites. The butterfly was confirmed as absent from a further nine sites. Informal searches are carried out regularly for the adult butterfly.

Monitoring

There is no deliberate monitoring of this species within the region, though the recent egg surveys could form the basis of a monitoring programme (e.g. transect or timed egg counts). One adult was recorded on the Chambers Wood transect in 1996.

Management

Guidelines are provided in the national Species Action Plan (Bourn and Warren 1998a) and *The Brown Hairstreak* leaflet (Anon. 1997). For Bardney Limewoods, Smith (1999) identifies maintaining stands of mature trees ('master trees') in the two core areas and the provision of young blackthorn (*Prunus spinosa*) for egg-laying as the two main management objectives. Two to five year old blackthorn growing in sunny, sheltered situations is encouraged by coppicing along rides, woodland edges and hedgerows. Providing this does not conflict with other wildlife interests, the end of July/early August is the most appropriate time, when the brown hairstreak is in the pupal stage. Older blackthorn (> ten years old) is seldom utilised for egg laying and is cut in the winter.

Actions and Targets

Action	BC's Targets	Possible partners
1. Protect all surviving colonies (including designation of non-SSSI land supporting brown hairstreak as CWS).	By 2005	EN, LWT, FE, LCC, site owners
2. Distribute brown hairstreak leaflet to partners.	By 2001	BCL
3. Continue survey work recording ova to establish current status in region, including historical sites outside Bardney Limewoods.	Ongoing	BCL
4. Establish monitoring system to assess population size (timed egg counts) and management at two sites in Bardney Limewoods.	By 2000	BCL
5. Encourage sympathetic hedgerow and woodland management on extant sites by a) removal of non-native conifers b) coppicing blackthorn and c) using blackthorn in planting schemes.	Ongoing	EN, LWT, FE, LCC, site owners
6. Encourage appropriate management of potential habitat adjacent to and between extant sites.	Ongoing	EN, LWT, FE, LCC, site owners
7. Seek opportunities to restore suitable habitat in the former range of the brown hairstreak.	Ongoing	EN, LWT, FE, LCC, site owners
8. Encourage or undertake ecological research which assists the conservation of the brown hairstreak: habitat requirements, habitat management, landscape management.	By 2005	BC, EN, universities and colleges

3.1d Black Hairstreak *Satyrium pruni* Linnaeus

See also *Species Action Plan: Black Hairstreak* (Bourn and Warren 1998b); *The Black Hairstreak* (Anon 1997b); *Biodiversity Challenge: An Action Plan for Leicester, Leicestershire and Rutland (Species Action Plan)* (Jeeves, Kindleysides, Bullock and Lott 1998)

NATIONAL PRIORITY - MEDIUM

REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - No records

Leicestershire (with Rutland) (vice-county 55) - Recorded from 2 tetrads

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - No records

One of the rarest butterflies in the region (0.1% of recorded tetrads), restricted to one established site at Luffenham Heath Golf Course (SK 9402) in Rutland, with satellite colonies on the surrounding farmland. The apparent decline in the region (25 years: 74% by 10 km²) may be explained by the absence of recent records from the 10 km² north of Peterborough, which includes the southern tip of Lincolnshire.

Threats

- Habitat loss: woodlands, scrub.
- Habitat change: reduction of older blackthorn through deer browsing and shorter coppicing cycles, typical of woodland not managed for black hairstreak.
- Extreme fragmentation and isolation of suitable blackthorn stands.

Survey

BC and the Institute of Terrestrial Ecology undertook a national survey of sites to assess habitat suitability in 1999. Further surveys are planned for 2000. Informal searches are carried out regularly around the main site for the butterfly and Leicestershire Entomological Society are seeking funding for a five year survey and monitoring programme for the butterfly.

Monitoring

Monitoring of this elusive butterfly is particularly difficult and no sites are monitored nationally, nor has a standard technique been developed. However, regular non-quantitative monitoring is undertaken at the main site.

Management

Guidelines are provided in the national Species Action Plan (Bourn and Warren 1998b) and *The Black Hairstreak* leaflet (Anon. 1997b). In contrast to the brown hairstreak, the black hairstreak requires older blackthorn (> 7-10 years old), but also growing in sheltered, sunny situations on, for example, south-facing glade edges or mixed-age scrub on the south-facing side of a woodland. This habitat is created by longer rotations of rides, glades and scrub. Hedge-laying of blackthorn can be undertaken to minimise deer browsing of new growth.

Actions and Targets

Action	BC's Targets	Possible partners
1. Protect all surviving colonies (including designation of non-SSSI land supporting black hairstreak as CWS).	By 2005	EN, LRWT, Rutland UC, site owners
2. Produce butterfly factsheet (life history, management) to distribute to partners.	By 2001	BCEM, LES
3. Survey work to establish current status in region and identify potential habitat.	Ongoing	BCEM, LES
4. Devise and establish monitoring system to assess population size and management at main site.	By 2001	BCEM, LES
5. Encourage sympathetic hedgerow and woodland management by a) long rotation coppicing/laying of blackthorn and b) using blackthorn in planting schemes.	Ongoing	EN, LRWT, FE, Rutland UC, site owners
6. Encourage or undertake ecological research which assists the conservation of the black hairstreak: habitat requirements, habitat management, landscape management.	By 2005	BC, EN, universities and colleges

3.1e Small Blue *Cupido minimus* Fuessly

See also *Species Action Plan: Small Blue* (Bourn and Warren 2000).

NATIONAL PRIORITY - MEDIUM

REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - No records

Leicestershire (with Rutland) (vice-county 55) - No records (1 unconfirmed)

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - Recorded from 1 tetrad

One of the rarest butterflies in the region (0.1% of recorded tetrads), being found only in the White Peak of the Peak District National Park. Historical records from this area are few and it was believed to be extinct in Derbyshire between 1915 and 1985. It was recorded in Miller's Dale (SK 1272-1274) and Cressbrook Dale (SK 1674) in 1986 and in Cunningdale (SK 0872) in 1993-94 and 1996. There is an unconfirmed 1995 record, dated outside the normal flight period, from Monks Dale (SK 1272). The Cunningdale site is a south-west facing limestone daleside with scattered scrub, where the larval foodplant, kidney vetch (*Anthyllis vulneraria*), grows in a sparse sward. However, it was not seen at this site in 1997-99 and the last remaining Peak District colony may be extinct.

A 1999 report of small blue in a lay-by (SK 9610) on the A1 in Rutland requires confirmation. This site is 30-50 km north-east of its current range and suggests natural colonisation in the south of the region may be ongoing.

Threats

- Habitat loss: unimproved grassland.
- Habitat change: overgrazing (especially by sheep in summer), increased rabbit grazing, natural succession.

Survey

Informal searches at suitable sites have been carried out for this butterfly; these have intensified following discovery of the most recent colony in 1993.

Monitoring

The Cunningdale site is monitored annually by members of BCCPD, DWT High Peak Group, DES and others.

Management

Under an agreement with EN, DWT High Peak Group carried out practical management at Cunningdale SSSI during 1996 (scrub removal and scraping bare areas to encourage spread of kidney vetch). EN subsequently negotiated a WES agreement with the owners, under which the site has been fenced and a revised grazing regime initiated.

Actions and Targets

Action	BC's Targets	Possible partners
1. Continue survey work to establish current status in Peak District and Rutland.	By 2005	BCCPD, BCEM, DNES, LES
2. Protect any other surviving colonies (including designation of non-SSSI land supporting small blue as CWS).	By 2005	EN, DWT, DCC, site owners
3. Establish transect or undertake timed counts to monitor population size and management at Cunningdale site if colony still extant.	By 2001	BCCPD, BCEM
4. Continue to implement appropriate management regime (e.g. WES, Countryside Stewardship) on Cunningdale site and on any other sites found to support the small blue.	By 2005	EN, MAFF/FRCA, site owners
5. Encourage or undertake ecological research which assists the conservation of the small blue: habitat requirements, habitat management, landscape management.	By 2005	BC, EN, universities and colleges
6. Seek opportunities to restore suitable habitat in the former range of the small blue to encourage recolonisation from occupied sites.	By 2005	EN, DWT, PDNP, site owners
7. Consider strategic introductions to suitable habitat in the former range of the small blue if natural recolonisation is unlikely.	By 2010	BC, DWT, PDNP, site owners

3.1f Duke of Burgundy *Hamaeris lucina* Linnaeus

See also *Species Action Plan: Duke of Burgundy* (Bourn and Warren 1998c)

NATIONAL PRIORITY - MEDIUM

REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 5 tetrads

North Lincolnshire (vice-county 54) - No records

Leicestershire (with Rutland) (vice-county 55) - Recorded from 1 tetrad

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - No records

One of the rarest butterflies in the region (0.3% of recorded tetrads), restricted to the Kesteven Uplands. Previously thought to be extinct in Lincolnshire, until three colonies were re-discovered in 1993 on limestone grassland sites all owned by the Grimsthorpe and Drummond Trust (SK 92 - TF 02). The size of these colonies is not known, but thought to be small.

Historically there were several colonies in the Rutland limestone quarries, but all but one were extinct by the 1970s. Natural succession to scrub is thought to have caused at least one of these extinctions. The butterfly was last recorded at the extant site in 1997.

Threats

- Habitat loss: unimproved grassland.
- Habitat change: overgrazing, inappropriate grazing, increased rabbit grazing, over zealous scrub control, natural succession.

Survey

BCL have surveyed the Grimsthorpe Estate from 1994 onwards. The habitat requirements of the butterfly at the Lincolnshire sites were studied by Vandome (1998).

Monitoring

Data are available from the Grimsthorpe Park transect. Egg counts in 1999 at Grimsthorpe Park are proposed to continue in future years.

Management

Guidelines are provided in the national Species Action Plan (Bourn and Warren 1998c). At one of the Lincolnshire sites, attempts to increase the abundance of cowslip (*Primula veris*), the larval foodplant in grassland, are being undertaken by experimental cutting and cattle grazing in three areas outside the existing habitat patches. Limited scrub control has been undertaken during winter 1999/2000 at this site.

Actions and Targets

Action	BC's Targets	Possible partners
1. Protect all surviving colonies (including designation of non-SSSI land supporting duke of burgundy as CWS).	By 2005	EN, LCC, Grimsthorpe and Drummond Trust
2. Continue survey work to establish current status in South Lincolnshire.	By 2005	BCL, NNU
3. Continue to monitor annually population size and management on the Grimsthorpe Park transect.	Ongoing	Grimsthorpe Park Ranger
4. Undertake timed counts to monitor population size and management at one other site.	By 2001	BCL, Grimsthorpe Park Ranger
5. Continue to implement or encourage implementation of appropriate management regimes (e.g. WES, Countryside Stewardship) on sites supporting the duke of burgundy and prevent further fragmentation of suitable habitat.	By 2005	EN, MAFF/FRCA, Grimsthorpe and Drummond Trust
6. Encourage or undertake ecological research which assists the conservation of the duke of burgundy: habitat requirements, habitat management, landscape management.	By 2005	BC, EN, universities and colleges
7. Seek opportunities to restore suitable habitat in the former range of the duke of burgundy to encourage recolonisation from occupied sites.	By 2005	EN, LWT, LRWT, site owners
8. Consider strategic introductions to suitable habitat in the former range of the duke of burgundy if natural recolonisation is unlikely.	By 2010	BC, EN, LWT, LRWT, site owners

3.1g Large Heath *Coenonympha tullia* Muller

See also *Species Action Plan: Large Heath* (Bourn and Warren 1997)

NATIONAL PRIORITY - MEDIUM

REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - Recorded from 2 tetrads

Leicestershire (with Rutland) (vice-county 55) - No records

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - No records

One of the rarest butterflies in the region (0.1% of recorded tetrads), which has undergone a significant decline in recent years (25 years: 74% by 10 km²). This is a northern species which reaches the south-eastern edge of its range in Lincolnshire. The butterfly is usually only recorded from peatlands where the main larval foodplant, hare's tail cotton grass (*Eriophorum vaginatum*), and cross-leaved heath (*Erica tetralix*), an important adult nectar source, are abundant. It is restricted to just one colony at Crowle Moor LWT reserve, part of Humberhead Peatlands NNR (SE 7412-7414), a lowland raised mire. Formerly recorded from three other sites in the 1960s, including Epworth Turbary LWT reserve (SE 7402).

Threats

- Habitat loss: peat extraction, reclamation for agriculture and afforestation.
- Habitat change: drainage, overgrazing and natural succession.
- Habitat fragmentation and isolation.

Survey

Surveys of Crowle Moor were undertaken in 1995 and 1997.

Monitoring

There is no deliberate monitoring of this species within the region

Management

Guidelines are provided in the national Species Action Plan (Bourn and Warren 1997). LWT have installed a dam to raise the water level and prevent the loss of hare's tail cotton grass at Crowle Moor.

Actions and Targets

Action	BC's Targets	Possible partners
1. Continue survey work to establish current status in North Lincolnshire.	By 2005	BCL, LNU
2. Protect any other surviving colonies (including designation of non-SSSI land supporting large heath as CWS).	By 2005	EN, North Lincolnshire UC
3. Establish transect or undertake timed counts to monitor population size and management at Crowle Moor.	By 2001	BCL
4. Continue to implement appropriate management regime (e.g. RES) on Crowle Moor and prevent further fragmentation of suitable habitat.	By 2005	EN, LWT
5. Encourage or undertake ecological research which assists the conservation of the large heath: habitat requirements, habitat management, landscape management.	By 2005	BC, EN, universities and colleges
6. Seek opportunities to restore suitable habitat in the former range of the large heath to encourage recolonisation from occupied site.	By 2005	EN, LWT, North Lincolnshire UC, site owners
7. Consider strategic introductions to suitable habitat in the former range of the large heath if natural recolonisation is unlikely.	By 2010	BC, LWT, North Lincolnshire UC, site owners

3.2 Medium Priority Species

3.2a Dingy Skipper *Erynnis tages* Bremer & Grey

See also *Species Action Plan: Dingy Skipper* (Bourn, Jeffcoate and Warren 2000), *Action Plan for the Grizzled Skipper and Dingy Skipper* (Birch and Walker 1998)

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - MEDIUM

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 6 tetrads

North Lincolnshire (vice-county 54) - Recorded from 1 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 15 tetrads

Nottinghamshire (vice-county 56) - Recorded from 9 tetrads

Derbyshire (vice-county 57) - Recorded from 64 tetrads

The dingy skipper is a scarce butterfly (3.9% of recorded tetrads), though recorded from all four counties. This species appears to have undergone only a very slight decline (25 years: 4% by 10 km²). However, increased recording effort may mask local declines since the dingy skipper has been lost from five Derbyshire 10 km² since 1980-94.

The butterfly is found in a range of sheltered habitats, where its larval foodplant, birds-foot trefoil (*Lotus corniculatus*) grows in abundance. In this region, the preferred habitat is limestone grassland, but it is also found in secondary habitats such as disused quarries and railway lines. The regional stronghold for the species is the White Peak of the Peak District National Park (40% of occupied tetrads). There are a number of colonies in the Kesteven Uplands, including both disused limestone quarry sites in Rutland and a few sites in south-west Lincolnshire, some of which are LWT nature reserves. On the best sites, both dingy and grizzled skippers fly together. In Nottinghamshire, the butterfly is rare, being restricted to the disused railway lines in the west of the county. Records from the disused railway lines of east Nottinghamshire in the 1980s suggest small, undiscovered colonies may yet persist in that part of the county. There is just a single recent North Lincolnshire record from Chambers Wood, Bardney Limewoods NNR (TF 1472-1474), though not recorded on the Chambers Wood transect.

Threats

- Habitat loss: unimproved grassland, post-industrial habitats (e.g. disused quarries, disused railway lines, 'brown field' sites).
- Habitat change: overgrazing, natural succession leading to loss of bare ground in grassland and artificial habitats.
- Habitat fragmentation and isolation.

Survey

No specific surveys have been undertaken for this species within the region. However, informal searches are carried out regularly.

Monitoring

Transect data are available for the national BMS site at Derbyshire Dales NNR. Data are also available for the West Hallam Ash Tip, Twyford Wood West and Grimsthorpe Park transects.

Management

No specific management of sites is undertaken for this species in the region. However, management regimes including scrub control, grazing (especially cattle) and mowing currently employed on grassland reserves are likely to benefit the butterfly.

Actions and Targets

Action	BC's Targets	Possible partners
1. Protect colonies threatened by habitat loss or habitat change.	Ongoing	EN, Wildlife Trusts, FE, LAs, PDNP, site owners
2. Survey work to establish current status in region.	By 2010	BCL, BCEM, BCCPD, Natural History Societies
3. Continue to monitor annually population size and management on the Derbyshire Dales NNR, West Hallam Ash Tip, Twyford Wood West and Grimsthorpe Park transects.	Ongoing	EN, BC, Grimsthorpe Park Ranger
4. Continue to implement or encourage implementation of appropriate management regimes (e.g. WES, RES) on SSSIs supporting the dingy skipper and seek opportunities to extend habitat patches within existing sites.	By 2010	EN, site owners
5. Encourage implementation of appropriate management regimes (e.g. Countryside Stewardship) on CWS and other sites supporting the dingy skipper.	By 2010	MAFF/FRCA, site owners
6. Encourage or undertake ecological research which assists the conservation of the dingy skipper: habitat requirements, habitat management, landscape management.	By 2010	BC, EN, universities and colleges
7. Consider strategic introductions to suitably restored habitat in the former range of the dingy skipper if natural recolonisation is unlikely (e.g. Chambers Wood).	By 2010	BCL, EN, LWT

3.2b Green Hairstreak *Callophrys rubi* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - MEDIUM

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 10 tetrads

North Lincolnshire (vice-county 54) - Recorded from 16 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 22 tetrads

Nottinghamshire (vice-county 56) - Recorded from 4 tetrads

Derbyshire (vice-county 57) - Recorded from 94 tetrads

The green hairstreak is a local butterfly (5.9% of recorded tetrads), though recorded from all four counties. It appears to have undergone a range expansion in recent years (25 years: 52% by 10 km²), though this partly reflects increased recording effort. In Derbyshire, the butterfly is found throughout much of the Peak District National Park, which is the stronghold for the species within the region (55% of occupied tetrads). To the south of the region, the green hairstreak is found in the Kesteven Uplands, including both sites in south-west Lincolnshire and the disused limestone quarries of Rutland. There are a number of other sites in Leicestershire and Rutland but it is very rare in Nottinghamshire and not recorded annually. In North Lincolnshire, apart from colonies at Moor Farm LWT reserve (TF 2262) and a Lincolnshire Wolds woodland, the butterfly is now restricted to coastal sites, where sand dune habitats are utilised.

Most Derbyshire records are from the Dark Peak, where the butterfly is usually found in discrete colonies on sunny and sheltered upland heathland sites, where bilberry (*Vaccinium myrtillus*), the main larval foodplant, is abundant. In the White Peak and the rest of the region bird's-foot trefoil is utilised, though several other species (e.g. gorse *Ulex europaeus*) are possible alternatives.

Threats

- Habitat loss: upland heathland, unimproved calcareous grassland, sand dunes, artificial habitats (e.g. disused quarries).
- Habitat change: over zealous scrub control, natural succession.

Survey

Annual surveys and informal searches undertaken by BCL, BCEM, BCCPD, DNES and DWT High Peak Group.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available from the Donna Nook transect.

Management

There is no specific management of sites for this species in the region. However, the creation of sheep enclosures in the North Peak ESA to aid restoration of heathland, and similar initiatives by other landowners (e.g. National Trust), promote the growth of bilberry. Other management of upland heath by heather burning and cutting, and bracken control by spraying, is also likely to benefit the species.

Actions and Targets

Action	BC's Targets	Possible partners
1. Protect colonies threatened by habitat loss or habitat change.	Ongoing	EN, Wildlife Trusts, NT, FE, LAs, PDNP, site owners
2. Survey work to establish current status in region.	By 2010	BCL, BCEM, BCCPD, Natural History Societies, DWT High Peak Group
3. Continue to monitor annually population size and management on the Derbyshire Dales NNR, Gibraltar Point NNR, Saltfleetby-Theddlethorpe Dunes NNR and Donna Nook transects.	Ongoing	EN, LWT, BCL
4. Continue to implement or encourage implementation of appropriate management regimes (e.g. WES, RES) on SSSIs supporting the green hairstreak and seek opportunities to extend habitat patches within existing sites and prevent further fragmentation of suitable habitat.	By 2010	EN, site owners
5. Encourage implementation of appropriate management regimes (e.g. Countryside Stewardship) on CWS and other sites supporting the green hairstreak and prevent further fragmentation of suitable habitat.	By 2010	MAFF/FRCA, site owners
6. Encourage or undertake ecological research which assists the conservation of the green hairstreak: habitat requirements, habitat management, landscape management.	By 2010	BC, EN, universities and colleges

3.2c White-letter Hairstreak *Strymonidia w-album* Knoch

NATIONAL PRIORITY - MEDIUM

REGIONAL PRIORITY - MEDIUM

South Lincolnshire (vice-county 53) - Recorded from 7 tetrads

North Lincolnshire (vice-county 54) - Recorded from 4 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 43 tetrads

Nottinghamshire (vice-county 56) - Recorded from 24 tetrads

Derbyshire (vice-county 57) - Recorded from 61 tetrads

The white-letter hairstreak is a local butterfly (5.7% of recorded tetrads). It appears to have undergone an expansion of range in recent years (25 years: 174% by 10 km²), though this may reflect increased recording effort. The butterfly is usually found in discrete, sometimes very small colonies, even based on a single tree. The most favoured sites are where flowering elms (*Ulmus* spp.) occur along the ride edges of deciduous woodlands. The butterfly is found less frequently in more open sites such as roadside hedgerows. It is widespread throughout much of Derbyshire, Nottinghamshire and Leicestershire/Rutland. The white-letter hairstreak is now rare in Lincolnshire. In North Lincolnshire, there are recent records known from Barton-on-Humber (TA 0220) and a few other sites. Most records in South Lincolnshire are from the Bourne Woods (TF 02). It is possible that sites were over-looked in the past, but many mature elms were lost to the effects of Dutch elm disease during the 1980s, although wych elms (*Ulmus glabra*) in the north were less affected by the disease.

Threats

- Habitat loss: Dutch Elm disease, removal of hedgerow trees.
- Habitat change: inappropriate hedgerow management (simultaneous layering of elm suckers).
- Absence of elm trees from planting schemes.

Survey

No specific surveys have been undertaken for this species within the region. However, informal searches are carried out regularly for the butterfly.

Monitoring

Transect data are available for the national BMS site at Derbyshire Dales NNR. Data are also available for the Breadsall Cutting transect.

Management

There is no specific management of sites for this species in the region, although the management plan for Bunny Wood NWT reserve (SK 5628) takes account of its requirements. The butterfly may benefit from woodland management encouraging natural regeneration of elms or from woodland planting schemes using wych elm. English Nature currently propagate disease resistant strains for this purpose.

Actions and targets

Action	BC's Targets	Possible partners
1. Protect colonies threatened by habitat loss or habitat change.	Ongoing	EN, Wildlife Trusts, FE, LAs, site owners
2. Produce butterfly factsheet (life history, management) to distribute to partners.	By 2001	BCL, BCEM
3. Survey work recording ova and adults to establish current status in region.	By 2010	BCL, BCEM, Natural History Societies
4. Undertake timed counts to assess population size and management at one other key site.	By 2001	BCL, BCEM
5. Encourage sympathetic woodland management by a) replacing diseased elms with wych elm saplings from local provenance seed or cuttings, and b) using wych elm in planting schemes.	Ongoing	EN, Wildlife Trusts, FE, LAs, site owners

3.2d White Admiral *Ladoga camilla* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - MEDIUM

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 11 tetrads

North Lincolnshire (vice-county 54) - Recorded from 27 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 3 tetrads

Nottinghamshire (vice-county 56) - Recorded from 1 tetrad

Derbyshire (vice-county 57) - Recorded from 4 tetrads

The white admiral is a scarce butterfly (1.9% of recorded tetrads), reaching the northern edge of its British range in North Lincolnshire. The butterfly has been established in Lincolnshire since the 1940s, when a well-documented range expansion from southern England took place. This expansion has been consolidated since 1970-82 (25 years: 625% by 10 km²), within two main centres of population, the Bardney Limewoods (TF 17) in North Lincolnshire and the Bourne Woods (TF 02) in South Lincolnshire. The white admiral is a confirmed breeding species at a private woodland in south Derbyshire and is established at a Nottinghamshire site. These recent records together with one from west Leicestershire may indicate a further northward expansion.

Threats

Habitat loss: shady woodlands.

Habitat change: coppicing, over-mature plantations.

Survey

No specific surveys have been undertaken for this species within the region. However, informal searches are carried out regularly, especially in south-west Lincolnshire.

Monitoring

Data are available for the Chambers Wood and Southrey Wood transects. Annual indices for Chambers Wood are:

1994	1995	1996	1997	1998	1999
65	85	100.5	29	25	32.5

Management

Southrey Wood BC reserve (TA 1266-1268) is partly managed for this species. The butterfly is likely to benefit from woodland management of high forest which maintains partially shaded conditions supporting spindly growth of honeysuckle (*Lonicera periclymenum*), the larval foodplant.

Actions and Targets

Action	BC's Targets	Possible partners
1. Protect colonies threatened by habitat loss or habitat change.	Ongoing	EN, LWT, FE, LAs, site owners
2. Survey work to establish current status in region.	By 2010	BCL, BCEM, BCCPD, Natural History Societies
3. Continue to monitor annually population size and management on the Chambers Wood and Southrey Wood transects.	Ongoing	BCL
4. Establish transect or undertake timed counts to monitor population size and management at a Bourne Woods site.	By 2001	BCL
5. Encourage sympathetic woodland management by ride and glade management in mature plantations.	Ongoing	LWT, FE, site owners
6. Encourage or undertake ecological research which assists the conservation of the white admiral: habitat requirements, habitat management, landscape management.	By 2010	BC, EN, universities and colleges

3.2e Dark Green Fritillary *Argynnis aglaja* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - MEDIUM

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 6 tetrads

North Lincolnshire (vice-county 54) - Recorded from 3 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 4 tetrads

Nottinghamshire (vice-county 56) - Recorded from 1 tetrad

Derbyshire (vice-county 57) - Recorded from 53 tetrads

The dark green fritillary is a scarce butterfly with a restricted distribution in the region (2.8% of recorded tetrads). It appears to have undergone a range expansion in recent years (25 years: 90% by 10 km²), though this may reflect increased recording effort. Violets are the larval foodplant and hairy (*Viola hirta*), marsh (*Viola palustris*) and common dog violet (*Viola riviniana*) may be used. The dark green fritillary frequents more open habitats and may be encountered on unimproved grassland, upland heath, coastal cliffs and dunes, as well as woodland. Derbyshire is the stronghold for this species, where the butterfly is found on most limestone grasslands of the White Peak of the Peak District National Park (72% of occupied tetrads). Recent records from lowland Derbyshire are believed to be wandering individuals from the Peak District colonies. There is only one recent record from Nottinghamshire and only a few from Leicestershire. In Lincolnshire sightings are largely confined to the south-west (TF 02), though it is not known whether these represent wandering individuals or unknown colonies (e.g. Morkey Wood SK 9418, Twyford Wood SK 9424, Bourne Woods TA 02).

Threats

- Habitat loss: unimproved grassland.
- Habitat change: overgrazing, increased rabbit grazing, natural succession.

Survey

No specific surveys have been undertaken for this species within the region. However, informal searches are carried out regularly for the butterfly by BCCPD, BCEM and DNES.

Monitoring

Transect data are available for the national BMS site at Derbyshire Dales NNR, with occasional records from Saltfleetby-Theddlethorpe Dunes NNR.

Management

There is no specific site management for this species in the region. However, management of Derbyshire Dales NNR and DWT reserves in the High Peak to conserve limestone grassland and control scrub are likely to benefit the butterfly.

Actions and Targets

Action	BC's Targets	Possible partners
1. Protect colonies threatened by habitat loss or habitat change.	Ongoing	EN, DWT, LWT, DCC, LCC, PDNP, site owners
2. Survey work to establish current status in region, especially in south-west Lincolnshire.	By 2010	BCCPD, BCL, BCEM, Natural History Societies
3. Continue to monitor annually population size and management on the Derbyshire Dales NNR transect.	Ongoing	EN
4. Establish transects or undertake timed counts to monitor population size and management at one other key site (e.g. Peak District or Kesteven Uplands site).	By 2001	BCCPD, BCL
5. Continue to implement or encourage implementation of appropriate management regimes (e.g. WES, RES) on SSSIs supporting the dark green fritillary and seek opportunities to extend habitat patches within existing sites.	By 2010	EN, site owners
6. Encourage implementation of appropriate management regimes (e.g. Countryside Stewardship) on CWS and other sites supporting the dark green fritillary.	By 2010	MAFF/FRCA, site owners
7. Encourage or undertake ecological research which assists the conservation of the dark green fritillary: habitat requirements, habitat management, landscape management.	By 2010	BC, EN, universities and colleges

3.2f Silver-washed Fritillary *Argynnis paphia* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - MEDIUM

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - Recorded from 3 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 2 tetrads

Nottinghamshire (vice-county 56) - Recorded from 1 tetrad

Derbyshire (vice-county 57) - Recorded from 5 tetrads

The precise status of this butterfly in the region is not known and it is therefore afforded medium priority status until further data becomes available. There are a few records from west Leicestershire, east Derbyshire and the Derbyshire/Nottinghamshire border, but it is not known whether these are wandering individuals from colonies to south-west or unattributed introductions. In Lincolnshire there were sporadic records through the 1970s until 1983, but the recent sightings from the Bardney Limewoods (TF 17) are almost certainly an unattributed introduction.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

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

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in region.	By 2010	BCEM, BCL, Natural History Societies
2. Review RAP status as more data becomes available.	By 2010	BCEM, BCL

3.2g Grayling *Hipparchia semele* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - MEDIUM

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records
North Lincolnshire (vice-county 54) - Recorded from 15 tetrads
Leicestershire (with Rutland) (vice-county 55) - No records
Nottinghamshire (vice-county 56) - No records
Derbyshire (vice-county 57) - No records

One of the rarest butterflies in the region (0.6% of recorded tetrads). It appears to have undergone a range expansion in recent years (25 years: 1029% by 10 km²), though this reflects increased recording effort and previous under-recording for the 1970-82 period. The grayling is primarily a coastal butterfly in Britain. In this region it is more or less confined to the inland blown sand dunes of Scunthorpe Warrens in North Lincolnshire, where between seven and ten colonies are known. There are also a few records from the lowland heaths of the Humberhead Levels. On the coast, the grayling has been recorded from Gibraltar Point NNR (TF 5658) in the mid-1980s and again during the late 1990s. It is not clear whether these represent a previously over-looked colony, a recent colonisation or occasional wanderers from the Norfolk coast.

Threats

- Habitat loss: inland blown sand dunes/rabbit warrens, lowland heaths
- Habitat change: natural succession leading to loss of bare ground in dune and heathland habitats.

Survey

No specific surveys have been undertaken for this species within the region. However, informal searches are carried out regularly.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

There is no specific site management for this species in the region. However dune management and the planting of marram grass (*Ammophila arenaria*), the hostplant in this habitat, is carried out on several reserves and should prove beneficial to its conservation. On lowland heathland the butterfly utilises early successional stages, where the required sparse vegetation is maintained by low productivity on very thin soils and by heather burning and cutting, and bracken control by spraying.

Actions and Targets

Action	BC's Targets	Possible partners
1. Protect colonies threatened by habitat loss or habitat change.	Ongoing	EN, LWT, North Lincolnshire UC, site owners
2. Monitor annually population size and management on the Gibraltar Point NNR transect if grayling becomes established.	Ongoing	EN, LWT
3. Establish transect or undertake timed counts to monitor population size and management at Risby Warren and one other key site.	By 2001	BCL
4. Continue to implement or encourage implementation of appropriate management regimes (e.g. WES, RES) on SSSIs supporting the grayling and seek opportunities to extend habitat patches within existing sites.	By 2010	EN, site owners
5. Encourage implementation of appropriate management regimes (e.g. Countryside Stewardship) on CWS and other sites supporting the grayling.	By 2010	MAFF/FRCA, site owners
6. Encourage or undertake ecological research which assists the conservation of the grayling: habitat requirements and habitat management, landscape management.	By 2010	BC, EN, universities and colleges

3.3 Extinct High Priority Species Restored to the Region

3.3a Chequered Skipper *Carterocephalus palaemon* Stephens

See also *Species Action Plan: Chequered Skipper* (Ravenscroft and Warren 1996)

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - Recorded from 1 tetrad

Leicestershire (with Rutland) (vice-county 55) - No records

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - No records

This butterfly became extinct in England in 1976, with some of the last records from Lincolnshire and Rutland (1970-82: 6 10 km²). During this century, the species was known in Lincolnshire from West Rasen until 1925 and from Skellingthorpe until 1967 (Duddington and Johnson 1983). The butterfly was also found just over the Nottinghamshire border, with records from Wigsley Wood (SK 8470) in 1934. An experimental introduction of the chequered skipper, undertaken by Birmingham University with support from Butterfly Conservation, the Forestry Commission and permission from English Nature has, since 1996, been attempted at a Bardney Limewoods (TF 17) site. While too early to evaluate fully, numbers remained very low for the duration of the project and establishment of a population cannot be claimed. Further research on the exact conditions utilized by the butterfly and the reasons for its decline is required.

Survey

Surveys organised by English Nature and Lincolnshire Naturalists Union to confirm its extinction in the late 1970s and early 1980s. Habitat assessments were undertaken by the Chequered Skipper Working Party from 1990.

Monitoring

The butterfly and its habitat have been the subject of a detailed monitoring programme at the re-introduction site.

Management

Guidelines are provided in the national Species Action Plan (Barnett and Warren 1995). The habitat requirements of the butterfly in England are poorly understood, but are thought to include ungrazed grassland in wide woodland rides and light scrub, similar to habitats utilised in parts of western Europe.

Actions and Targets

Action	BC's Targets	Possible partners
1. Continue to monitor annually population size and management on the re-introduction site.	Ongoing	BC
2. Continue to implement appropriate management regime on re-introduction site and seek opportunities to extend habitat patches within existing sites (e.g. BC Coppice Project).	Ongoing	EN, FE, LWT
3. Encourage or undertake ecological research which assists the conservation of the chequered skipper: habitat requirements, habitat management, landscape management.	By 2005	BC, EN, universities and colleges
4. Seek opportunities to restore suitable habitat in the former range of the chequered skipper to encourage recolonisation from occupied site.	By 2005	EN, FE, LWT
5. Once re-establishment confirmed, consider strategic introductions to suitable habitat in the former range of the chequered skipper if natural recolonisation is unlikely.	By 2005	BC, EN, FE, LWT

3.3b Marsh Fritillary *Eurodryas aurinia* Rott.

See also *Species Action Plan: Marsh Fritillary* (Barnett and Warren 1995a)

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - MEDIUM (Monitoring only)

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records
North Lincolnshire (vice-county 54) - Recorded from 1 tetrad
Leicestershire (with Rutland) (vice-county 55) - No records
Nottinghamshire (vice-county 56) - No records
Derbyshire (vice-county 57) - No records
Cheshire (vice-county 58) - No records

Although there are historical records from Lincolnshire, this butterfly became extinct in the region. The most recent records were from the 1940s near Market Rasen and Skellingthorpe. However, the butterfly was the subject of an unattributed introduction to Little Scrubs Meadow LWT reserve (TF 1474) in Chambers Wood, Bardney Limewoods NNR (TF 1472-1474) in 1993. The species has become established though still confined to this meadow. There are a small number of other potential habitat patches in the Bardney Limewoods, including Chambers Wood Visitor Centre (TF 1472), Hatton Meadows LWT reserve (TF 1674), New Ball Wood (TF 0876) and Rand Wood (TF 0878). However, colonisation of most of these sites from Little Scrubs Meadow is unlikely. Forest Enterprise is considering felling conifer woodland in 2000-01 to extend the habitat at Little Scrubs Meadow. Unfortunately, the known metapopulation structure of the marsh fritillary suggests the long-term viability of the marsh fritillary in the Bardney Limewoods is poor.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Adult butterflies are monitored on the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
21	17.5	28	26	79	67

Management

Guidelines are provided in the national Species Action Plan (Barnett and Warren 1995a). The grassland sward at Little Scrubbs Meadow LWT reserve was mown intensively, but is now managed more sympathetically under a less intensive cutting and grazing regime. In recent years larval webs have been translocated to unmanaged areas.

Actions and Targets

Action	BC's Targets	Possible partners
1. Continue to monitor annually population size and management on the Chambers Wood transect.	Ongoing	BCL
2. Ensure management of habitat at Little Scrubbs Meadow is not compromised by specific management for an introduced species.	Ongoing	LWT

3.4 Extinct Medium Priority Species Restored to the Region

3.4a Small Pearl-bordered Fritillary *Boloria selene* Denis & Schiff.

See also *Species Action Plan: Small Pearl-bordered Fritillary* (Barnett and Warren 1995b)

NATIONAL PRIORITY - MEDIUM

REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - Recorded from 3 tetrads

Leicestershire (with Rutland) (vice-county 55) - No records

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - No records

Although there are historical records for this species from all four counties, as a breeding butterfly, it has been absent from the region for many years. The last records were from Hopton Quarry DWT reserve (SK 2656) in 1970 and the adjacent Via Gellia valley in 1971 and 1979, both in Derbyshire. However, three recent records from North Lincolnshire have been reported, but at sites outside the historical range of the butterfly. Since the nearest extant colonies are 70 km away in the North York Moors, these are presumed to be unattributed introductions.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Not applicable.

Management

Guidelines are provided in the national Species Action Plan (Barnett and Warren 1995b). There is no specific site management for this species in the region.

Actions and Targets

Action	BC's Targets	Possible partners
1. Continue survey work to establish current status in North Lincolnshire.	By 2005	BCL, LNU
2. Use timed counts to monitor population size at introduction sites.	By 2001	BCL

3.5 Species of Uncertain Status

These species are classified as of uncertain status, but which are of possible concern. Their status will be reviewed as more information becomes available.

3.5a Purple hairstreak *Quercusia quercus* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 38 tetrads
North Lincolnshire (vice-county 54) - Recorded from 47 tetrads
Leicestershire (with Rutland) (vice-county 55) - Recorded from 72 tetrads
Nottinghamshire (vice-county 56) - Recorded from 53 tetrads
Derbyshire (vice-county 57) - Recorded from 87 tetrads

Although still a local butterfly (12% of recorded tetrads), the purple hairstreak has undergone a range expansion in recent years (25 years: 607% by 10 km²). This expansion may partly reflect increased recording effort, but there are many more colonies in Leicestershire/Rutland, Nottinghamshire and Derbyshire than in 1970-82. The butterfly was first recorded in the Peak District National Park in 1995 and has continued to expand its range there in upland oak woods. It is absent from much of north and eastern Nottinghamshire and largely absent from southern and north-eastern Leicestershire, though both these latter areas are under-recorded. Although found throughout much of Lincolnshire, there are two main centres of population, the Bardney Limewoods (TF 17) in the north and Bourne Woods (TF 02) in the south.

Surveys

Regular winter surveys for ova are undertaken in Leicestershire/Rutland.

Monitoring

Transect data are available for the national BMS site at Moor Farm. Data are also available from the Chambers Wood and Breadsall Cutting transects. Annual indices for Chambers Wood are:

1994	1995	1996	1997	1998	1999
2	2	6.5	1	4	2.5

Management

There is no specific management of sites for this species in the region. Uneven-aged woodlands, with sunny clearings with abundant ant nests are thought to be most suitable. The butterfly probably benefits from woodland management practices, such as coppice-with-oak standards. Conifer plantations with a scattering of oaks (*Quercus* spp.) can support the species and woodland planting schemes incorporating oaks, will benefit the butterfly in the long-term.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in region.	By 2010	BCL, BCEM, BCCPD, Natural History Societies
2. Review RAP status as more data becomes available.	By 2010	BCL, BCEM, BCCPD

3.5b Brown Argus *Aricia agestis* Denis & Schiff.

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 35 tetrads

North Lincolnshire (vice-county 54) - Recorded from 33 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 15 tetrads

Nottinghamshire (vice-county 56) - Recorded from 9 tetrads

Derbyshire (vice-county 57) - Recorded from 50 tetrads

On the basis of recent genetic research (Christina James, pers. comm.), all *Aricia* in the region are provisionally described as the brown argus. This research confirms that two species of *Aricia* are found in Britain, but that introgressive hybridisation has occurred in a zone across northern England. Introgressive hybridisation can arise under conditions which favour one of two closely related species in a zone of contact. Consequently, infiltration of genes of one species, into the genotype of the other occurs. James proposes that the Peak District sites support brown argus edge of range populations but which have some northern brown argus (*Aricia artaxerxes*) characteristics.

The brown argus is still a local butterfly, with a restricted distribution in the region (5.8% of recorded tetrads). The regional stronghold for the species is the White Peak of the Peak District National Park (32% of occupied tetrads), colonies previously classified as northern brown argus. The scientific interest of these populations merits special consideration.

Elsewhere in the region, the brown argus has undergone an expansion of range in recent years (25 years: 752% by 10 km²). It is established in the Kesteven Uplands, including the limestone grassland sites in south-west Lincolnshire as well as recent colonisations of the Rutland limestone quarries. Recent colonisations have also taken place in south-east Nottinghamshire where disused railway lines appear to be the favoured habitat and the latter are probably the colonisation route for the butterfly. Elsewhere in Lincolnshire, apart from the far north of the county, there are scattered records from most areas, including some coastal sites. In Lincolnshire, it appears to be spreading further north each year, with many previously occupied sites being recolonised.

The butterfly utilises common rockrose (*Helianthemum nummularium*) as a larval food plant on the carboniferous limestone grassland of the Derbyshire Dales and on the limestone grasslands of Lincolnshire. Elsewhere, on artificial habitats and sand dunes, a wider range of hostplants may be utilised, including round-leaved crane's-bill (*Geranium rotundifolium*), cut-leaved crane's-bill (*Geranium dissectum*), dove's-foot crane's-bill (*Geranium molle*) common stork's-bill (*Erodium cicutarium*). Egg laying on round-leaved crane's-bill was observed on a disused railway track near Woodhall Spa (TF 1963), Lincolnshire in 1999.

Survey

No specific surveys have been undertaken for this species within the region. However, BCL members have regularly carried out informal searches for the butterfly over the last five years.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
0	0	0	3	0	6

Management

There is no specific site management for this species in the region. However, management regimes including scrub control, grazing and mowing currently employed on grassland reserves are likely to benefit the butterfly.

Actions and Targets

Action	BC's Targets	Possible partners
1. Protect Peak District colonies threatened by habitat loss or habitat change.	Ongoing	EN, DWT, DCC, PDNP, site owners
2. Survey work to establish current status Peak District National Park.	By 2010	BCCPD, DNES
3. Continue to monitor annually population size and management on the Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR transects.	Ongoing	EN, LWT
4. Review RAP status as more data becomes available.	By 2010	BCCPD

3.5c Wall *Lasiommata megera* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 74 tetrads

North Lincolnshire (vice-county 54) - Recorded from 219 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 190 tetrads

Nottinghamshire (vice-county 56) - Recorded from 162 tetrads

Derbyshire (vice-county 57) - Recorded from 251 tetrads

Widely distributed (37% of recorded tetrads) throughout the region. The wall appears to have undergone a very slight range expansion in recent years (25 years: 15% by 10 km²), though this is very probably attributable to increased recording effort. Slightly less common in Lincolnshire (34% of recorded tetrads) than the rest of the East Midlands (38% of recorded tetrads). This species rarely occurs in large numbers except in favourable grassland habitats. However, observers report local declines, with lower numbers recorded than in previous decades. Although the wall appears to be more stable in this region than in central southern England, its distribution and status should continue to be monitored.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
112	72	20.5	6.5	6	33

Management

There is no specific site management for this species in the region. However, management regimes including scrub control, grazing and mowing currently employed on grassland reserves are likely to benefit the butterfly, providing they create bare ground for breeding.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in region.	By 2010	BCL, BCEM, BCCPD, Natural History Societies
2. Review RAP status as more data becomes available.	By 2010	BCL, BCEM, BCCPD

3.5d Marbled White *Melanargia galathea* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 3 tetrads

North Lincolnshire (vice-county 54) - Recorded from 4 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 8 tetrads

Nottinghamshire (vice-county 56) - Recorded from 3 tetrads

Derbyshire (vice-county 57) - Recorded from 3 tetrads

The precise status of this butterfly in the region is not known, though the number of recent records suggest an expansion of range from Warwickshire is maybe in progress. Marbled whites are established at Ketton Quarry (SK 9705), with occasional records from the surrounding areas of Rutland. In south Nottinghamshire, there are at least two introduced colonies, with that at Portland Park successfully established. The butterfly has now been recorded for several years from Drakelow Power Station reserve (SK 2220) in Derbyshire. In Lincolnshire, there are several scattered records. Those from Chambers Wood NNR (TF 1472-1474) are an unattributed introduction, whereas the marbled whites recently discovered at Grimsthorpe Park (TF 02) are believed to be a previously overlooked colony.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Over twenty years regular non-quantitative monitoring at Ketton Quarry. Data are available for the Chambers Wood and Grimsthorpe Park transects. Annual indices for Chambers Wood are:

1994	1995	1996	1997	1998	1999
3	1	0	0	0	0

Management

There is no specific site management for this species in the region. However, management regimes including scrub control and very light grazing currently employed on grassland reserves are likely to benefit the butterfly.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in region.	By 2010	BCEM, BCL, Natural History Societies
2. Establish transect to monitor population size and management at Ketton Quarry.	By 2001	BCEM
3. Review RAP status as more data becomes available.	By 2010	BCEM, BCL

3.5e Small Heath *Coenonympha pamphilus* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 74 tetrads

North Lincolnshire (vice-county 54) - Recorded from 122 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 102 tetrads

Nottinghamshire (vice-county 56) - Recorded from 109 tetrads

Derbyshire (vice-county 57) - Recorded from 232 tetrads

Widely distributed throughout much of the region (26% of recorded tetrads). The small heath appears to have undergone a slight range expansion in recent years (25 years: 20% by 10 km²), though this probably reflects increased recording effort. The Peak District National Park is the stronghold for this species within the region (19% of occupied tetrads). Compared to other common grass feeding butterflies, the small heath has a more restricted distribution and is less abundant in south Derbyshire, Nottinghamshire, Leicestershire/Rutland and Lincolnshire.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
8.5	11	11	5	4	3

Management

There is no specific site management for this species in the region. However, management regimes including scrub control, grazing and mowing currently employed on grassland reserves are likely to benefit the butterfly.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in region.	By 2010	BCCPD, BCL, BCEM, Natural History Societies
2. Review RAP status as more data becomes available.	By 2010	BCCPD, BCL, BCEM

3.6 Low Priority Species

3.6a Small Skipper *Thymelicus sylvestris* Poda

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 125 tetrads

North Lincolnshire (vice-county 54) - Recorded from 170 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 235 tetrads

Nottinghamshire (vice-county 56) - Recorded from 159 tetrads

Derbyshire (vice-county 57) - Recorded from 379 tetrads

Widely distributed (44% of recorded tetrads) throughout the region. The small skipper appears to have undergone a range expansion in recent years (25 years: 66% by 10 km²). This may be partly a consequence of increased recording effort, though the butterfly has colonised the northern part of the Peak District National Park during the last 10 years. More local in Lincolnshire (34% of recorded tetrads) than the rest of the East Midlands (49% of recorded tetrads).

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
333	502	786.5	391	67	201

Management

There is no specific site management for this species in the region. However, management regimes including scrub control and very light grazing currently employed on grassland reserves are likely to benefit the butterfly, providing some scrub is maintained.

Actions and Targets

None at present.

3.6b Essex Skipper *Thymelicus lineola* Ochsenheimer

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 92 tetrads

North Lincolnshire (vice-county 54) - Recorded from 33 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 113 tetrads

Nottinghamshire (vice-county 56) - Recorded from 13 tetrads

Derbyshire (vice-county 57) - Recorded from 1 tetrad

Reaches the northern edge of its British range in North Lincolnshire and South Lincolnshire. Although still a local butterfly (10% of recorded tetrads), the Essex skipper is undergoing a range expansion (25 years: 838% by 10 km²). This species is established in the Kesteven Uplands, along the border of the two most southerly vice-counties (South Lincolnshire and Leicestershire/Rutland: 25% of recorded tetrads). It has expanded across much of Leicestershire during the late 1990s, but is still scarce in both Nottinghamshire (3% of recorded tetrads) and North Lincolnshire (6% of recorded tetrads). A singleton recorded from Drakelow Power Station reserve (SK 2220) in 1999 was the first Derbyshire record for this species.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Since small and Essex skippers are difficult to distinguish without netting, no specific transect monitoring of this species is undertaken within the region.

Management

There is no specific site management for this species in the region. However, management regimes including scrub control and very light grazing currently employed on grassland reserves are likely to benefit the butterfly, providing some scrub is maintained.

Actions and Targets

None at present.

3.6c Large Skipper *Ochlodes venata* Bremer & Grey

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 100 tetrads

North Lincolnshire (vice-county 54) - Recorded from 156 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 186 tetrads

Nottinghamshire (vice-county 56) - Recorded from 96 tetrads

Derbyshire (vice-county 57) - Recorded from 237 tetrads

Widely distributed throughout the region, but fewer records than for small skipper (29% of recorded tetrads). The large skipper appears to have undergone a slight range expansion in recent years (25 years: 20% by 10 km²). This probably reflects increased recording effort, though the butterfly has colonised the northern part of the Peak District National Park during the last 10-12 years. Only slightly less common in Lincolnshire (29% of recorded tetrads) than the rest of the East Midlands (33% of recorded tetrads).

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
102	135	159.5	143	73	89

Management

There is no specific site management for this species in the region. However, management regimes including scrub control and very light grazing currently employed on grassland reserves are likely to benefit the butterfly, providing some scrub is maintained.

Actions and Targets

None at present.

3.6d Clouded Yellow *Colias croceus* Geoffroy

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 33 tetrads

North Lincolnshire (vice-county 54) - Recorded from 31 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 35 tetrads

Nottinghamshire (vice-county 56) - Recorded from 44 tetrads

Derbyshire (vice-county 57) - Recorded from 56 tetrads

This species occurs less frequently in the region (19% of recorded tetrads) than either the painted lady or the red admiral, the two migrant species regularly recorded. The number of reports received fluctuates annually, and the coincidence of 'clouded yellow years' with recording periods explains the increase since 1970-82 (25 years: 12941% by 10 km²).

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

No deliberate monitoring of this species is carried out within the region.

Management

There is no specific site management for this species in the region. The species is unable to over-winter in Britain, so site management for this butterfly would be inappropriate.

Actions and Targets

None at present.

3.6e Brimstone *Gonepteryx rhamni* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 135 tetrads

North Lincolnshire (vice-county 54) - Recorded from 198 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 272 tetrads

Nottinghamshire (vice-county 56) - Recorded from 183 tetrads

Derbyshire (vice-county 57) - Recorded from 216 tetrads

Widely distributed (38% of recorded tetrads) throughout the region. The brimstone appears to have undergone a range expansion in recent years (25 years: 60% by 10 km²), though this may partly reflect increased recording effort. Only slightly less common in Lincolnshire (38% of recorded tetrads) than the rest of the East Midlands (42% of recorded tetrads).

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR and Moor Farm. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
68	95	68.5	38	74.5	123

Management

There is little specific site management for this species in the region. However planting of its two larval hostplants, buckthorn (*Rhamnus catharticus*) and alder buckthorn (*Frangula alnus*) in LCC parks and gardens during the 1980s and 1990s aided its expansion.

Actions and Targets

None at present.

3.6f Large White *Pieris brassicae* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 182 tetrads

North Lincolnshire (vice-county 54) - Recorded from 306 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 299 tetrads

Nottinghamshire (vice-county 56) - Recorded from 270 tetrads

Derbyshire (vice-county 57) - Recorded from 564 tetrads

One of the most widely distributed and common species in the region (66% of recorded tetrads). The large white appears to have undergone a slight range expansion in recent years (25 years: 36% by 10 km²), though this probably reflects increased recording effort. In Derbyshire, where the butterfly is particularly well-recorded (85% of recorded tetrads), it is less common in the uplands of the Peak District National Park.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
71	68	24.5	32	91.5	95.5

Management

There is no specific site management for this species in the region, although many vegetable gardens and allotments provide suitable habitat for this butterfly.

Actions and Targets

None at present.

3.6g Small White *Pieris rapae* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 198 tetrads

North Lincolnshire (vice-county 54) - Recorded from 345 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 281 tetrads

Nottinghamshire (vice-county 56) - Recorded from 307 tetrads

Derbyshire (vice-county 57) - Recorded from 489 tetrads

The most widely distributed and common species in the region (73% of recorded tetrads). Like the large white, this species appears to have undergone a slight range expansion in recent years (25 years: 30% by 10 km²), though this probably reflects increased recording effort. Similarly, in Derbyshire, where the butterfly is particularly well-recorded (91% of recorded tetrads), it is less common in the uplands of the Peak District National Park.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
495	229.5	139.5	237	110	131

Management

There is no specific site management for this species in the region, although many vegetable gardens and allotments provide suitable habitat for this butterfly.

Actions and Targets

None at present.

3.6h Green-veined White *Pieris napi* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 207 tetrads

North Lincolnshire (vice-county 54) - Recorded from 327 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 340 tetrads

Nottinghamshire (vice-county 56) - Recorded from 288 tetrads

Derbyshire (vice-county 57) - Recorded from 556 tetrads

One of the most widely distributed and common species in the region (70% of recorded tetrads). As with the other common 'whites', this species appears to have undergone a slight range expansion in recent years (25 years: 26% by 10 km²), though this is probably a consequence of increased recording effort. Less common in Lincolnshire (61% of recorded tetrads) than the rest of the East Midlands (69% of recorded tetrads). More widespread in the uplands of the Peak District National Park, than the large and small white.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
402.5	247	70	403.5	398.5	320.5

Management

There is no specific site management for this species in the region. However management regimes currently employed on wetland nature reserves are likely to benefit the butterfly.

Actions and Targets

None at present.

3.6i Orange Tip *Anthocharis cardamines* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 158 tetrads

North Lincolnshire (vice-county 54) - Recorded from 229 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 272 tetrads

Nottinghamshire (vice-county 56) - Recorded from 240 tetrads

Derbyshire (vice-county 57) - Recorded from 389 tetrads

Widely distributed (53% of recorded tetrads) throughout the region, though less common than the green-veined white. The orange tip appears to have undergone a slight range expansion in recent years (25 years: 27% by 10 km²), though this probably reflects increased recording effort. More local in Lincolnshire (44% of recorded tetrads) than the rest of the East Midlands (57% of recorded tetrads).

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
21.5	25.5	25	21.5	23	16

Management

There is no specific site management for this species in the region. However management regimes currently employed on wetland nature reserves are likely to benefit the butterfly.

Actions and Targets

None at present.

3.6j Small Copper *Lycaena phlaeas* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 84 tetrads

North Lincolnshire (vice-county 54) - Recorded from 187 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 183 tetrads

Nottinghamshire (vice-county 56) - Recorded from 179 tetrads

Derbyshire (vice-county 57) - Recorded from 291 tetrads

Widely distributed throughout the region (38% of recorded tetrads). The small copper appears to have undergone a slight range expansion in recent years (25 years: 17% by 10 km²), though this probably reflects increased recording effort. The butterfly has a much more restricted distribution in South Lincolnshire (26% of recorded tetrads) than the rest of the region (41% of recorded tetrads), probably attributable agricultural improvement of semi-natural habitat.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
58	50	22	26.5	1	11

Management

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

Actions and Targets

None at present.

3.6k Common Blue *Polyommatus icarus* Rott.

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 103 tetrads

North Lincolnshire (vice-county 54) - Recorded from 181 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 188 tetrads

Nottinghamshire (vice-county 56) - Recorded from 174 tetrads

Derbyshire (vice-county 57) - Recorded from 274 tetrads

Widely distributed throughout the region (38% of recorded tetrads). The common blue appears to have undergone a range expansion in recent years (25 years: 49% by 10 km²), though this may partly reflect increased recording effort. Less common in Lincolnshire (33% of recorded tetrads) than the rest of the East Midlands (40% of recorded tetrads). The larvae feed on bird's-foot trefoil, which is well represented on the semi-natural neutral and calcareous grasslands and coastal sand dunes of the region.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood and Snakeholme Pit transects. Annual index values for Chambers Wood are:

1994	1995	1996	1997	1998	1999
40	68.5	102.5	24	8	51

Management

Specific site management for this species is undertaken at Snakeholme Pit BC reserve (TF 1070). Management regimes including scrub control, grazing and mowing currently employed on grassland reserves are likely to benefit the butterfly.

Actions and Targets

None at present.

3.61 Holly Blue *Celastrina argiolus* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 142 tetrads

North Lincolnshire (vice-county 54) - Recorded from 227 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 260 tetrads

Nottinghamshire (vice-county 56) - Recorded from 244 tetrads

Derbyshire (vice-county 57) - Recorded from 290 tetrads

Widely distributed throughout the region (47% of recorded tetrads). The holly blue has undergone a range expansion in recent years (25 years: 553% by 10 km²). This butterfly was previously largely restricted to eastern Derbyshire and southern Leicestershire/Rutland during the recording period 1970-82, but is now almost as widely distributed in Lincolnshire (42% of recorded tetrads) as the rest of the East Midlands (50% of recorded tetrads). Since its resurgence in the 1980s, it declined to a low in 1995, since when it has increased again. These fluctuations are most likely due to the effect of parasitism by the wasp *Listrodomus nyctemerus*. When conditions are suitable this nomadic butterfly is able to utilise its two main foodplants, holly (*Ilex aquifolium*) and ivy (*Hedera helix*), in a range of habitats.

Survey

No specific surveys have been undertaken for this species within the region. However, prior to the range expansion in the 1980s, informal searches for the butterfly were carried out regularly by BCL.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR and Moor Farm. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
0	0	5	4	11	4.5

Management

There is little specific site management for this species in the region. However, tree guards were erected by BCL around old hollies supporting the holly blue in Bardney Churchyard (TF 1068) during the late 1980s.

Actions and Targets

None at present.

3.6m Red Admiral *Vanessa atalanta* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 143 tetrads

North Lincolnshire (vice-county 54) - Recorded from 246 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 259 tetrads

Nottinghamshire (vice-county 56) - Recorded from 179 tetrads

Derbyshire (vice-county 57) - Recorded from 391 tetrads

Widely distributed (50% of recorded tetrads) throughout the region. The red admiral appears to have undergone a range expansion in recent years (25 years: 67% by 10 km²), though this may partly reflect increased recording effort. Equally common in Lincolnshire (45% of recorded tetrads) and the rest of the East Midlands (47% of recorded tetrads). This butterfly is a regular immigrant to the region. An increase in recent early and late sightings might indicate successful over-wintering, or possibly migration of hibernating individuals from the south.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
31	52	45	9	74.5	68

Management

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

Actions and Targets

None at present.

3.6n Painted Lady *Cynthia cardui* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 148 tetrads

North Lincolnshire (vice-county 54) - Recorded from 215 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 211 tetrads

Nottinghamshire (vice-county 56) - Recorded from 171 tetrads

Derbyshire (vice-county 57) - Recorded from 343 tetrads

Only slightly less common than the red admiral during the current recording period (44% of recorded tetrads). Only slightly less common in Lincolnshire (42% of recorded tetrads) than the rest of the East Midlands (46% of recorded tetrads). This butterfly is a regular immigrant to the region and the overall increase of 119% by 10 km² (25 years) reflects the relatively large number of records from the 1996 migration.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
7	10.5	2114	2	16.5	1.5

Management

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

Actions and Targets

None at present.

3.60 Small Tortoiseshell *Aglais urticae* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 206 tetrads

North Lincolnshire (vice-county 54) - Recorded from 325 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 375 tetrads

Nottinghamshire (vice-county 56) - Recorded from 291 tetrads

Derbyshire (vice-county 57) - Recorded from 554 tetrads

The second most widespread species in the region (71% of recorded tetrads). The small tortoiseshell appears to have undergone a slight range expansion in recent years (25 years: 27% by 10 km²), though this probably reflects increased recording effort. Less common in Lincolnshire (61% of recorded tetrads) than the rest of the East Midlands (77% of recorded tetrads). A partial migrant.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
38	124.5	118	375	17	39.5

Management

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

Actions and Targets

None at present.

3.6p Peacock *Inachis io* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 197 tetrads

North Lincolnshire (vice-county 54) - Recorded from 325 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 337 tetrads

Nottinghamshire (vice-county 56) - Recorded from 308 tetrads

Derbyshire (vice-county 57) - Recorded from 492 tetrads

One of the most widely distributed and common species within the region (68% of recorded tetrads). The peacock appears to have undergone a slight range expansion in recent years (25 years: 41% by 10 km²), though this may partly reflect increased recording effort. Less common in Lincolnshire (60% of recorded tetrads) than the rest of the East Midlands (72% of recorded tetrads).

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
495.5	269	656	742.5	527	718.5

Management

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

Actions and Targets

None at present.

3.6q Comma (*Polytonia c-album*) Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 88 tetrads

North Lincolnshire (vice-county 54) - Recorded from 152 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 209 tetrads

Nottinghamshire (vice-county 56) - Recorded from 161 tetrads

Derbyshire (vice-county 57) - Recorded from 295 tetrads

During the 1970-82 recording period this butterfly was more or less on the northern edge its British range in South Lincolnshire. Since then, the comma has undergone a range expansion (25 years: 512% by 10 km²) and is now widely distributed throughout the region (37% of recorded tetrads). More local in Lincolnshire (28% of recorded tetrads) than the rest of the East Midlands (42% of recorded tetrads).

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR and Moor Farm. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
8	29.5	60	45.5	25.5	57.5

Management

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

Actions and Targets

None at present, although the planting of disease resistant elm for the white-letter hairstreak should also benefit this species.

3.6r Speckled Wood *Pararge aegeria* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 52 tetrads

North Lincolnshire (vice-county 54) - Recorded from 79 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 278 tetrads

Nottinghamshire (vice-county 56) - Recorded from 113 tetrads

Derbyshire (vice-county 57) - Recorded from 274 tetrads

During the 1970-82 recording period this butterfly was more or less on the northern edge its English range in North Lincolnshire. Since then, the speckled wood has undergone a range expansion (25 years: 340% by 10 km²) and is now widely distributed throughout the much of the region (32% of recorded tetrads), particularly east Derbyshire, west and south Nottinghamshire and Leicestershire/Rutland. The butterfly has recently begun to colonise the Peak District National Park. However, it is much more local in Lincolnshire, with three main centres of population. The most extensive area lies between Market Rasen (TF 18) and Horncastle (TF 26), including the Bardney Limewoods (TF 17). To the east, there are many speckled wood records from near Louth (TF 38) and from the Kesteven Uplands in the south-west.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, and Moor Farm. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
496.5	361	166	264	389	375

Management

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

Actions and Targets

None at present.

3.6s Gatekeeper *Pyronia tithonus* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 152 tetrads

North Lincolnshire (vice-county 54) - Recorded from 235 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 334 tetrads

Nottinghamshire (vice-county 56) - Recorded from 235 tetrads

Derbyshire (vice-county 57) - Recorded from 330 tetrads

Widely distributed throughout the region (52% of recorded tetrads). The gatekeeper has undergone a western range expansion in recent years (25 years: 117% by 10 km²), though no doubt partly attributable to increased recording effort. Less common in Lincolnshire (44% of recorded tetrads) than the rest of the East Midlands (57% of recorded tetrads). There were few Derbyshire records from 1970-82, but the butterfly has now colonised much of the county lowlands and extends as far as Glossop in the Peak District National Park.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
116	127	303	110	71	63

Management

There is no specific site management for this species in the region. However, management regimes including light grazing and mowing currently employed on grassland reserves are likely to benefit the butterfly, providing some scrub is maintained.

Actions and Targets

None at present.

3.6t Meadow Brown *Maniola jurtina* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 177 tetrads

North Lincolnshire (vice-county 54) - Recorded from 289 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 306 tetrads

Nottinghamshire (vice-county 56) - Recorded from 236 tetrads

Derbyshire (vice-county 57) - Recorded from 473 tetrads

One of the most widely distributed and common species within the region (60% of recorded tetrads). The meadow brown appears to have undergone a slight range expansion in recent years (25 years: 31% by 10 km²), though this may partly reflect increased recording effort. Less common in Lincolnshire (54% of recorded tetrads) than the rest of the East Midlands (64% of recorded tetrads). Utilises a broad range of grassland habitats, but can be absent from improved or heavily grazed pastures. Occurs at low densities along hedges and other linear habitats.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
372	287.5	503.5	148	219	505.5

Management

There is no specific site management for this species in the region. However, management regimes including scrub control, grazing and mowing currently employed on grassland reserves are likely to benefit the butterfly.

Actions and Targets

None at present.

3.6u Ringlet *Aphantopus hyperantus* Linnaeus

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - LOW

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 130 tetrads

North Lincolnshire (vice-county 54) - Recorded from 228 tetrads

Leicestershire (with Rutland) (vice-county 55) - Recorded from 153 tetrads

Nottinghamshire (vice-county 56) - Recorded from 107 tetrads

Derbyshire (vice-county 57) - Recorded from 50 tetrads

Widely distributed throughout much of the region (27% of recorded tetrads). Like the gatekeeper, the ringlet has undergone a western range expansion in recent years (25 years: 126% by 10 km²), though no doubt partly attributable to increased recording effort. There were few Derbyshire and western Leicestershire records from 1970-82, but the butterfly has now begun to colonise the lowlands in these areas. However, it still appears to be less common in the west of Derbyshire and there are only a few recorded tetrads in the uplands of the Peak District National Park.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Transect data are available for the following national BMS sites: Derbyshire Dales NNR, Gibraltar Point NNR, Moor Farm and Saltfleetby-Theddlethorpe Dunes NNR. Data are also available for the Chambers Wood transect:

1994	1995	1996	1997	1998	1999
596	963	1177	875	647	617.5

Management

There is no specific site management for this species in the region. However, management regimes including scrub control and very light grazing currently employed on grassland reserves are likely to benefit the butterfly.

Actions and Targets

None at present.

3.7 Extinct Low Priority Species Restored to the Region

3.7a Chalkhill Blue *Lysandra coridon* Poda

NATIONAL PRIORITY - LOW REGIONAL PRIORITY - MEDIUM

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 2 tetrads

North Lincolnshire (vice-county 54) - No records

Leicestershire (with Rutland) (vice-county 55) - No records

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - No records

Cheshire (vice-county 58) - No records

This butterfly was at the northern edge of its range in Lincolnshire. It became extinct at Duke's Covert and Copper Hill LWT reserve (SK 9842) in 1974. A unattributed re-introduction took place in 1985 and a small population has been maintained since.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

BCL undertake annual visits to the re-introduction site and assess the population.

Management

There is no specific site management for this species in the region. However grassland management regimes at Duke's Covert and Copper Hill LWT reserve are likely to benefit the butterfly.

Actions and Targets

Action	BC's Targets	Possible partners
1. Establish transect to monitor population size and management at Duke's Covert and Copper Hill LWT reserve.	By 2001	BCL, LWT

3.8 High Priority Macromoths

Note: recording period for all moth species accounts is 1980-1999. See also *An Atlas of the Nationally Scarce and Threatened Macro-moths of Great Britain* (Waring in prep) for further details of these species.

3.8a 0174 Triangle *Heterogenea asella* Denis & Schiff.

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - Recorded from 1 tetrad

Leicestershire (with Rutland) (vice-county 55) - No records

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - No records

An RDB3 species of oak and beech woodland. In 1995 a singleton was recorded from College Wood (TF 1274, 1995), a Bardney Limewood, the most northerly British site. The larvae feed on the foliage of oak and beech (*Fagus sylvatica*), but poplar (*Populus* spp.), birch (*Betula* spp.) and lime (*Tilia* spp.) are possible alternative foodplants. It is not clear whether high forest or coppice/recent plantation is the preferred habitat. This is a very local moth and seldom seen, though both sexes come to light.

Threats

- Habitat loss: clear-felling and coniferisation of oak and beech woodland.
- Habitat change: changes in woodland structure and management are thought to be possible threats.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

There is no specific site management for this species in the region. The ecology of this species is poorly understood and it is not possible to give specific management recommendations. However, maintenance of the woodland canopy with a continuity of age classes, should benefit the species.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in the Bardney Limewoods.	By 2010	BCL, LNU
2. Establish regular monitoring at College Wood.	By 2001	BCL, LNU
3. Encourage or undertake ecological research which assists the conservation of the triangle.	By 2010	BC, EN, universities and colleges
4. Liaise with site owners and managers about the presence of the triangle and its conservation requirements. Ensure habitat requirements included in policies and plans for broad-leaved woodland.	Ongoing	EN, FE, LWT, LCC, site owners

3.8b 1731 Chalk Carpet *Scotopteryx bipunctaria* Denis & Schiff.

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - Recorded from 1 tetrad

Leicestershire (with Rutland) (vice-county 55) - Recorded from 1 tetrad

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - Recorded from 12 tetrads

A Notable B species of chalk and limestone grassland. The larvae utilise bird's-foot trefoil and other trefoils and clovers as foodplants (e.g. black medick *Medicago lupulina*, horse-shoe vetch *Hippocrepis comosa*, purple clover *Trifolium pratense* and white clover *Trifolium repens*). However, only very short turf with abundant bare ground (chalk/soil) provide the preferred habitat. Consequently this moth is restricted to heavily grazed calcareous grassland, cliffs, screes and artificial habitats such as embankments and quarries. Apparently suitable habitat close to extant colonies is not always occupied, suggesting the moth has poor powers of dispersal. The adult moth comes freely to light and is readily disturbed during the day, suggesting colonies are unlikely to be overlooked. A local species in the Midlands, with a major cluster of records from the White Peak of the Peak District National Park. Occasional singletons, probably strays, have been reported from south Derbyshire. There is a single 1981 record from Pickworth Great Wood (SK 9614) in Leicestershire.

Threats

- Habitat loss: conversion of unimproved calcareous grassland to improved grassland, loss of artificial habitats (e.g. chalk and limestone embankments and quarries).
- Habitat change: agricultural neglect, converting short-turf grassland to rank grassland and scrub (natural succession).
- Habitat fragmentation and isolation.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

There is no specific site management for this species in the region. However, management regimes including scrub control, grazing and mowing currently employed on grassland reserves are likely to benefit the moth. Bird's-foot trefoil can be encouraged by rotational heavy grazing whereby grazing pressure is reduced for one to two years after one years heavy grazing.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status on chalk and limestone grasslands.	By 2010	BCL, BCCPD, BCEM, LNU, LES, DNES
2. Establish regular monitoring at two key sites, using an adaptation of the butterfly transect count method.	By 2001	BCL, BCCPD, BCEM, LNU, LES, DNES
3. Encourage or undertake ecological research which assists the conservation of the chalk carpet.	By 2010	BC, EN, universities and colleges
4. Liaise with site owners and managers about the presence of the chalk carpet and its conservation requirements. Ensure habitat requirements included in policies and plans for chalk and limestone grassland.	Ongoing	EN, MAFF, FRCA, Wildlife Trusts, LAs, site owners

3.8c 1787 Argent and Sable *Rheumaptera hastata* Linnaeus

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - No records

Leicestershire (with Rutland) (vice-county 55) - No records

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - Recorded from 5 tetrads

A Notable B species of birch woodland and bogs. The larvae feed on birches and the terminal leaves of bog myrtle (*Myrica gale*). On both foodplants the larva spins two or three leaves together and feeds from within the chamber. The adult moths are day-flying, usually in warm, sunny weather. Eggs are reported to be laid on birch regrowth less than 30 cm tall and in woodland, larvae are mostly found on low birch coppice. There are recent records from five Derbyshire sites, at Beeley and Hell Bank Plantations (SK 2866, 1984), Brierley Wood (SK 3674, 1983-84), Chesterfield (SK 3870, 1982) Crich Chase (SK 4252, 1981-83) and Longshaw (SK 2480, 1984).

Threats

- Habitat loss: birch woodland, peat extraction.
- Habitat change: cessation of coppicing and natural succession in birch woodland, overgrazing of bog myrtle by sheep.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

There is no specific site management for this species in the region. However, rotational coppice, ride and glade management all provide suitable habitat.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in region.	By 2010	BCCPD, DNES
2. Establish regular monitoring at two key sites.	By 2001	BCCPD, DNES
3. Encourage or undertake ecological research which assists the conservation of the argent and sable.	By 2010	BC, EN, universities and colleges
4. Liaise with landowners and managers about the presence of the argent and sable and its conservation requirements. Ensure habitat requirements included in policies and plans for birch woodland and bogs.	Ongoing	EN, DWT, FE, LAs, site owners

3.8d 1824 Fletcher's Pug = (Pauper Pug) *Eupithecia egenaria* Herrich-Schaffer

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 1 tetrad
North Lincolnshire (vice-county 54)- Recorded from 3 tetrads
Leicestershire (with Rutland) (vice-county 55) - No records
Nottinghamshire (vice-county 56) - No records
Derbyshire (vice-county 57) - No records

An RDB3 woodland species, utilising the flowers of small-leaved lime (*Tilia cordata*) as a larval foodplant. Large-leaved lime (*Tilia platyphyllos*) and the hybrid common lime (*Tilia x europaea*) are alternative hostplants. Adult moths are occasionally disturbed by day from lime trees and at night come readily to light traps on the ground, especially males. This moth was only discovered in the region in 1995, despite searches of the Lincolnshire limewoods in the 1970s. Adult pauper pugs have now been recorded from three Bardney Limewood sites: Great West Wood (TF 1076, 1995), Stainfield Wood (TF 1272, 1995) and Ivy Wood (TF 1474, 1995). It has also been recorded from Gosberton (TF 2420, 1993) in South Lincolnshire.

Threats

- Habitat loss: limewoods (e.g. diseases of lime trees, felling).

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

There is no specific site management for this species in the region. However, encouragement of natural regeneration of limes should provide the habitat continuity required by this species.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in limewoods.	By 2010	BCL, LNU
2. Establish regular monitoring at two key sites.	By 2001	BCL, LNU
3. Encourage or undertake ecological research which assists the conservation of the pauper pug.	By 2010	BC, EN, universities and colleges
4. Liaise with site owners and managers about the presence of the pauper pug and its conservation requirements. Ensure habitat requirements included in policies and plans for broad-leaved woodland.	Ongoing	EN, FE, LWT, LCC, site owners

3.8e 1847 Scarce Pug *Eupithecia extensaria* Freyer

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records
North Lincolnshire (vice-county 54) - Recorded from 1 tetrad
Leicestershire (with Rutland) (vice-county 55) - No records
Nottinghamshire (vice-county 56) - No records
Derbyshire (vice-county 57) - No records

An RDB3 species of saltmarshes on the east coast of England. Sea wormwood (*Artemisia maritima*) is the larval foodplant, with both flowers and leaves utilised. Foodplants growing among tall grasses are thought to be preferred. Adults are sometimes disturbed during the day and will come to light, but the moth is usually searched or swept for amongst the foodplant. The only recent records are from Gibraltar Point NNR (TF 5660, 1993-98), though there are also records from Saltfleetby-Theddlethorpe Dunes NNR (TF 48) to 1980 and from the Wash NNR in the 1960s.

Threats

- Habitat loss: the foodplant may be stripped from sea-walls during repair work, rising sea levels are a possible future threat,

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

There is no specific site management for this species in the region. However, 'managed retreat' (soft coastal defences) may provide habitat creation opportunities for this species.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status on Lincolnshire coast.	By 2010	BCL, LNU
2. Establish regular monitoring at Gibraltar Point.	By 2001	BCL, LNU
3. Encourage or undertake ecological research which assists the conservation of the scarce pug.	By 2010	BC, EN, universities and colleges
4. Liaise with site owners and managers about the presence of the scarce pug and its conservation requirements. Ensure habitat requirements included in policies and plans for sea-defences.	Ongoing	EN, LWT, LCC, East Lindsey DC, site owners

3.8f 2025 Scarce Vapourer *Orgyia recens* Hübner

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 1 tetrads

North Lincolnshire (vice-county 54) - Recorded from 4 tetrads

Leicestershire (with Rutland) (vice-county 55) - No records

Nottinghamshire (vice-county 56) - Recorded from 1 tetrads

Derbyshire (vice-county 57) - No records

An RDB2 species. Larvae are found on a wide range of deciduous trees and shrubs, including willows (*Salix* spp.), heather (*Calluna vulgaris*), hawthorn (*Crataegus monogyna*), birch (*Betula* spp.), wild rose (*Rosa* spp.) and meadowsweet (*Filipendula ulmaria*). Habitats include open woodland, hedgerows, sandhills and mires. The extent to which breeding is confined certain bushes or hedgerows is unknown. Males are day-flying, but the females are incapable of flight. Many records are of larvae. In north Lincolnshire, most recent records are from Messingham Sand Quarry LWT reserve (SE 9002, 1985-98), but there are others from Crowle Moor LWT reserve (SE 7414, 1990-94), Epworth Turbary LWT reserve (SE 7402, 1992) and Scotton Common LWT reserve (SK 8698, 1992). The only south Lincolnshire record is from a garden in Lincoln (SK 96) in 1985 and the single Nottinghamshire record is from Aviary Wood (SK 6272, 2000).

Threats

- Habitat loss: loss of scrub and open woodland, hedgerows, sandhills and mires.
- Habitat change: hedge trimming.
- Habitat fragmentation and isolation, due to limited dispersal ability.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

There is no specific site management for this species in the region. Very little is known about the habitat requirements of the moth, including whether managed or unmanaged bushes or hedges are preferred.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in region (probably requires larval sampling).	By 2010	BCL, LNU
2. Establish regular monitoring at two key sites.	By 2001	BCL, LNU
3. Encourage or undertake ecological research which assists the conservation of the scarce vapourer.	By 2010	BC, EN, universities and colleges
4. Liaise with site owners and managers about the presence of the scarce vapourer and its conservation requirements. Ensure habitat requirements included in policies and plans for open woodland, hedgerows, sandhills and mires.	Ongoing	EN, LWT, site owners

3.8g 2131 Square-spotted Clay *Xestia rhomboidea* Esper

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - Recorded from 1 tetrad

Leicestershire (with Rutland) (vice-county 55) - Recorded from 1 tetrad

Nottinghamshire (vice-county 56) - Recorded from 1 tetrad

Derbyshire (vice-county 57) - No records

A Notable B species of open deciduous woodland and scrub. There is some doubt that wild larvae have ever been found in Britain, with listed foodplants possibly arising from captive rearing experience. It has been suggested that larvae feed first on low-growing herbs and then ascend woody plants, such as willow (*Salix caprea*) and birch. Adult moths come to light and readily to sugar. They have been recorded nectaring on burdock (*Arctium* spp.), rosebay willowherb (*Epilobium angustifolium*), wood sage (*Teucrium scorodonia*) and ragwort (*Senecio* spp.). Recent records are from Saltfleetby-Theddlethorpe Dunes NNR (TF 48, to 1982) in North Lincolnshire, Pickworth Great Wood (SK 9614 - 9814, 1981, 1995, 1998) in Leicestershire and Gleadthorpe (1982) Nottinghamshire. No recent records from Derbyshire.

Threats

- Habitat loss: loss of scrub and open woodland edge habitats are possible threats.
- Habitat change: decline of coppicing and neglect of deciduous woodland are possible threats.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

There is no specific site management for this species in the region. Very little is known about the habitat requirements of the moth.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in region.	By 2010	BCL, BCCPD, BCEM, LNU, LES, DNES
2. Establish regular monitoring at Pickworth Great Wood and one other key site.	By 2001	BCL, BCCPD, BCEM, LNU, LES, DNES, FE
3. Encourage or undertake ecological research which assists the conservation of the square-spotted clay.	By 2010	BC, EN, universities and colleges
4. Liaise with landowners and managers about the presence of the square-spotted clay and its conservation requirements. Ensure habitat requirements included in policies and plans for open woodland and scrub.	Ongoing	EN, Wildlife Trusts, FE, LAs, site owners

3.8h 2347 Concolorous *Chortodes extrema* Hübner

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records

North Lincolnshire (vice-county 54) - Recorded from 1 tetrad

Leicestershire (with Rutland) (vice-county 55) - Recorded from 1 tetrad

Nottinghamshire (vice-county 56) - No records

Derbyshire (vice-county 57) - No records

The only two recent regional records of this RDB3 species, are from Great West Wood (TF 1076, 1974 onwards) in the Bardney Limewoods and from Luffenham Heath Golf Course (SK 9402, 1990 onwards) in Leicestershire/Rutland. There are unconfirmed records from another Leicestershire/Rutland site at Ketton Quarry (SK 9606). The larvae feed on the stems of purple small-reed (*Calamagrostis canescens*) and wood small-reed (*Calamagrostis epigejos*), usually in open areas of marshy woodland and on fen margins. Adult moths come readily to light.

Threats

- Habitat loss: marshy woodland and fen margins.
- Habitat change: scrub encroachment (natural succession) and fires are potential threats.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

There is no specific site management for this species in the region. However, prevention of scrub encroachment will maintain the earlier successional stages in which the foodplants are more abundant.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in region.	By 2010	BCL, BCEM, LNU, LES
2. Establish regular monitoring at Great West Wood and Luffenham Heath Golf Course	Ongoing	BCL, BCEM, LNU, LES
3. Encourage or undertake ecological research which assists the conservation of the scarce vapourer.	By 2010	BC, EN, universities and colleges
4. Liaise with site owners and managers about the presence of the concolorous and its conservation requirements. Ensure habitat requirements included in policies and plans for wet woodland and fens.	Ongoing	EN, FE, LWT, LRWT, LCC, Rutland UC, site owners

3.8i 2374 Rush Wainscot *Archanara algae* Esper

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 2 tetrads

North Lincolnshire (vice-county 54) - Recorded from 3 tetrads

Leicestershire (with Rutland) (vice-county 55) - No records

Nottinghamshire (vice-county 56) - Recorded from 1 tetrad

Derbyshire (vice-county 57) - No records

A species frequenting the margins of freshwater ponds and disused gravel pits. The larvae initially utilise the tips of common club rush (*Scirpus lacustris*) as a foodplant, and finish their growth in either common reedmace (*Typha latifolia*) or sometimes yellow iris (*Iris pseudacorus*). Pupation often takes place in dead standing stems and survival is greatest furthest from the waters edge, in stems surrounded by herbage, where predation by moorhens (*Gallinula chloropus*) and coots (*Fulica atra*) is less.

There are recent records from Baston Fen LWT reserve (TF1416, 1997) and Gosberton (TF 2430, 1994) in South Lincolnshire and from Messingham Sand Quarry LWT reserve (SE 9002, 1994), Burton Gravel Pits LWT reserve (SK 9474, 1965-1990) and Linwood Warren LWT reserve (TF 1286, 1993) in North Lincolnshire. Also recorded regularly from a light trap in Nottinghamshire, but breeding site not yet located. Both sexes come to light.

Threats

- Habitat loss: clearance of emergent vegetation, leading to loss of freshwater margins.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

There is no specific site management for this species in the region. However, minimising the clearance of emergent vegetation for anglers or boats should benefit the species.

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status in region.	By 2010	BCL, BCEM, LNU, LES
2. Establish regular monitoring at two key sites.	Ongoing	BCL, BCEM, LNU, LES
3. Encourage or undertake ecological research which assists the conservation of the rush wainscot.	By 2010	BC, EN, universities and colleges
4. Liaise with site owners and managers about the presence of the rush wainscot and its conservation requirements. Ensure habitat requirements included in policies and plans for freshwater habitats.	Ongoing	EN, Wildlife Trusts, LAs, site owners.

3.8j 2392 Marsh Moth *Athetis pallustris* Hübner

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - No records
North Lincolnshire (vice-county 54) - Recorded from 4 tetrads
Leicestershire (with Rutland) (vice-county 55) - No records
Nottinghamshire (vice-county 56) - No records
Derbyshire (vice-county 57) - No records

An RDB3 species, now confined to the Lincolnshire coast. Although there was an historical record from Theddlethorpe sand dunes, this moth was not rediscovered in Lincolnshire until 1970. Recent records are from Saltfleetby-Theddlethorpe Dunes NNR (TF 48, 1970-95) and Gibraltar Point NNR (TF 5660, 1992-97). Recorded up to 1985 from Calceby Beck Marsh (TF 3976) and Swaby Valley LWT reserve (TF 3876). Larvae have only been found at Saltfleetby-Theddlethorpe Dunes NNR, with adults, which come readily to light, recorded from all four sites. Larvae have been found using the litter-pile method in September. Small, low piles of cut grass and herbs, 30 cm high and 60 cm across, are made and searched a week or two later.

The moth is found in dune slacks and fen margins, and is more abundant in drier swards than under wet conditions. The larvae feed on meadowsweet and other herbs such as plantains (*Plantago* spp.), but at Gibraltar Point NNR and Saltfleetby-Theddlethorpe Dunes NNR meadowsweet is respectively, almost absent and scarce. The breeding site at Saltfleetby-Theddlethorpe Dunes NNR is characterised by a herb-rich, sparse sward, about 10 cm high with flowering grass stems up to 1 m and an abundance of ribwort plantain (*Plantago lanceolata*).

Threats

- Habitat loss: dune slacks and fenland.
- Habitat change: flooding/waterlogging, overgrazing at the Saltfleetby-Theddlethorpe Dunes NNR breeding site.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

Monitored at Gibraltar Point NNR by LWT since 1995.

Management

There is no specific site management for this species in the region. However, the management history of the breeding site at Saltfleetby-Theddlethorpe Dunes NNR is well known. This was a ploughed field in the 1930s, which reverted to grassland in the 1940s and became an informal caravan park until the 1960s. At this time it was probably mown and during the 1980s it was cut for hay each July. Since 1987, it has been grazed by sheep in the autumn.

Actions and Targets

1. Survey work to establish current status on Lincolnshire coast (probably requires larval sampling).	By 2010	BCL, LNU
2. Establish regular monitoring at Saltfleetby-Theddlethorpe Dunes NNR site and continue to monitor at Gibraltar Point NNR.	By 2001	BCL, LNU, LWT
3. Encourage or undertake ecological research which assists the conservation of the marsh moth.	By 2010	BC, EN, universities and colleges
4. Liaise with site owners and managers about the presence of the marsh moth and its conservation requirements. Ensure habitat requirements included in policies and plans for coastal sites.	Ongoing	EN, LWT, LCC, East Lindsey DC, site owners

3.8k 2465 Four-spotted *Tyta luctuosa* Denis & Schiff.

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) - Recorded from 4 tetrads

North Lincolnshire (vice-county 54) - Recorded from 1 tetrad

Leicestershire (with Rutland) (vice-county 55) - Recorded from 1 tetrad

Nottinghamshire (vice-county 56) - Recorded from 1 tetrad

Derbyshire (vice-county 57) - No records

A Notable A species of chalk grassland, heathland and man-made habitats (e.g. railway banks and cuttings, quarries), utilising field bindweed (*Convolvulus arvensis*) as the larval foodplant. Only very warm microclimates provide suitable conditions, typically well-drained south-facing slopes with sparse vegetation and bare ground. Adults are day-flying, but also turn up in light traps. Recent records from Robert's Field LWT reserve (TF 0014, 1997), Swinstead Valley (TF 0022, 1995-97) Rippingale Fen (TF 1426, 1995) and Swayfield (SK 9822, 1997) in South Lincolnshire and from South Cockerington (TF 3888, 1991) in North Lincolnshire. A single 1990 record from a site in Leicestershire (SK 5207) and regularly recorded from one site in Nottinghamshire.

Threats

- Habitat loss: conversion of unimproved calcareous grassland to improved grassland, loss of artificial habitats (e.g. railway embankments and quarries).
- Habitat change: agricultural neglect, converting short-turf grassland to rank grassland and scrub (natural succession), fires.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

There is no specific site management for this species in the region. However, regular scraping of man-made habitats should benefit the species, as would grazing of semi-natural habitats.

Actions and Targets

1. Survey work to establish current status in region (day-time searches for adults and nocturnal larval searches).	By 2010	BCL, BCEM, LNU, LES
2. Establish regular monitoring at two key sites.	By 2001	BCL, BCEM, LNU, LES
3. Encourage or undertake ecological research which assists the conservation of the four-spotted.	By 2010	BC, EN, universities and colleges
4. Liaise with site owners and managers about the presence of the four-spotted and its conservation requirements. Ensure habitat requirements included in policies and plans for chalk grassland and man-made habitats.	Ongoing	EN, Wildlife Trusts, LAs, site owners

3.81 Common Fan-foot *Pechipogo strigilata* (Linnaeus 1758)

NATIONAL PRIORITY - HIGH REGIONAL PRIORITY - HIGH

Description of local distribution and status

South Lincolnshire (vice-county 53) -
North Lincolnshire (vice-county 54) -
Leicestershire (with Rutland) (vice-county 55) - Occurs
Nottinghamshire (vice-county 56) -
Derbyshire (vice-county 57) -

Common Fan-foot is a moth of broad-leaved woodland where 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 on the tree or on the ground.

The moth formerly occurred throughout most of southern England and Wales but it has declined greatly in recent decades and now survives in only a small number of oakwoods on heavy clay soils in the Midlands and south-central England.

Threats

- Changes in management in broadleaved woodland.
- Replanting of broadleaved woodland with conifer plantations.
- Habitat fragmentation and isolation.

Survey

No specific surveys have been undertaken for this species within the region.

Monitoring

There is no deliberate monitoring of this species within the region.

Management

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

Actions and Targets

Action	BC's Targets	Possible partners
1. Survey work to establish current status.	By 2010	BCL, BCCPD, BCEM, LNU, LES, DNES
3. Encourage or undertake ecological research which assists the conservation of the Common Fan-foot.	By 2010	BC, EN, universities and colleges
4. Liaise with site owners and managers about the presence of the Common Fan-foot and its conservation requirements.	Ongoing	EN, MAFF, FRCA, Wildlife Trusts, LAs, site owners

3.9 Medium Priority Macromoths

The table below lists all medium priority moths and indicates the vice-counties where there are post-1980 records.

COMMON NAME	SCIENTIFIC NAME	COUNTIES
0162 Goat Moth	<i>Cossus cossus</i>	55, 56
0164 Cistus Forester	<i>Adscita geryon</i>	57
0370 Hornet Moth	<i>Sesia apiformis</i>	53, 55, 56
0373 Currant Clearwing	<i>Synanthedon tipuliformis</i>	53, 54, 55, 57
0374 Yellow-legged Clearwing	<i>Synanthedon vespiformis</i>	55, 56, 57
0379 Red-belted Clearwing	<i>Synanthedon myopaeformis</i>	55, 56
0380 Red-tipped Clearwing	<i>Synanthedon formicaeformis</i>	53, 56, 57
0381 Large Red-belted Clearwing	<i>Synthanedon culiciformis</i>	54, 55, 56, 57
0382 Six-belted Clearwing	<i>Bembecia ichneumoniformis</i>	54, 55, 56, 57
1633 Small Eggar	<i>Eriogaster lanestris</i>	53
1662 Light Orange Underwing	<i>Archiearis notha</i>	53, 54
1670 Small Grass Emerald	<i>Chlorissa viridata</i>	54, 55, 56
1691 Rosy Wave	<i>Scopula emutaria</i>	54
1698 Purple-bordered Gold	<i>Idaea muricata</i>	54
1701 Dotted-border Wave	<i>Idaea sylvestraria</i>	54, 55
1718 Oblique Striped	<i>Phibalapteryx virgata</i>	54, 56
1721 Balsam Carpet	<i>Xanthorhoe biriviata</i>	56
1751 Devon Carpet	<i>Lampropteryx otregiata</i>	56
1810 Marsh Carpet	<i>Perizoma sagittata</i>	54, 56
1820 Pinion-spotted Pug	<i>Eupithecia insigniata</i>	54, 55, 56, 57
1821 Valerian Pug	<i>Eupithecia valerianata</i>	54, 55, 56, 57
1833 Bleached Pug	<i>Eupithecia expallidata</i>	53, 54, 55
1836 Campanula Pug	<i>Eupithecia denotata denotata</i>	56
1841 Yarrow Pug	<i>Eupithecia millefoliata</i>	54
1863 Dentated Pug	<i>Anticollix sparsata</i>	54, 56
1865 Broom-tip	<i>Chesias rufata</i>	56
1872 Blomer's Rivulet	<i>Discoloxia blomeri</i>	54, 56, 57
1943 Great Oak Beauty	<i>Boarmia roboraria</i>	54, 56
1983 Broad-bordered Bee Hawk Moth	<i>Hemaris fuciformis</i>	54, 56
2017 Small Chocolate-tip	<i>Clostera pigra</i>	54, 56
2062 Water Ermine	<i>Spilosoma urticae</i>	54
2083 Coast Dart	<i>Euxoa cursoria</i>	54
2084 Light Feathered Rustic	<i>Agrotis cinerea</i>	54, 55, 57
2093 Sand Dart	<i>Agrotis ripae</i>	54
2099 Portland Moth	<i>Actebia praecox</i>	54, 56
2149 Silvery Arches	<i>Polia trimaculosa</i>	53, 55
2152 White Colon	<i>Sideridis albicolon</i>	54, 56
2201 Shore Wainscot	<i>Mythimna litoralis</i>	54
2211 Wormwood	<i>Cucullia absinthii</i>	54, 55, 56, 57
2217 Star-wort	<i>Cucullia asteris</i>	54

2313	Angle-striped Sallow	<i>Enargia paleacea</i>	54, 55, 56
2325	Crescent Striped	<i>Apamea oblonga</i>	54
2348	Lyme Grass	<i>Chortedes elymi</i>	54
2349	Mere Wainscot	<i>Chortedes fluxa</i>	53, 54, 55
2373	Webb's Wainscot	<i>Archanara sparganii</i>	53, 54, 55
2396	Rosy Marbled	<i>Elaphria venustula</i>	53
2418	Cream-bordered Green Pea	<i>Earias clorana</i>	53, 54, 55, 56
2488	Common Fan-foot	<i>Pechipogo strigilata</i>	55
2493	Dotted Fan-foot	<i>Machrochilo cribrumalis</i>	54

4. Key Areas and Key Sites for Butterflies (see Figures 1 and 2).

4.1 Key Areas for Butterflies in the Region

4.1a Bardney Limewoods

A relatively small complex of woodlands in central Lincolnshire, supporting stands of small-leaved lime (*Tilia cordata*) and well-known for their entomological interest, especially butterflies.

Butterfly species breeding (see species accounts for details)	Regional priority	Significance of key area to species (proportion of records within the region)
Grizzled skipper	High	1% (possibly extinct)
Brown hairstreak	High	100%
White admiral	Medium	39%

Extinct species restored the region and breeding (see species accounts for details)	Regional priority	Significance of key area to species (proportion of records within the region)
Chequered skipper	High	100%
Marsh fritillary	Medium (monitoring only)	100%

High priority moth species recorded since 1980	National status
The triangle	RDB3
Pauper pug	RDB3
The concolorous	RDB3

The presence of the only East Midlands brown hairstreak colonies alone warrants key area status. Formerly a stronghold for the chequered skipper, the Bardney Limewoods are the location for a trial restoration of this species to England. Unfortunately, they are also prone to several unattributed introductions of species outside their current range, including wood white, marsh fritillary, silver-washed fritillary and marbled white. Only the marsh fritillary colony is still extant. Historically, the limewoods supported purple emperor (*Apatura iris*), small pearl-bordered fritillary, pearl-bordered fritillary (*Boloria euphrosyne*) and high brown fritillary (*Argynnis adippe*). The status of the grizzled skipper is uncertain, but may be extinct.

Bardney Limewoods NNR was designated in 1997 and encompasses 505 ha of woodland managed by Forest Enterprise. A Local Joint Statement of Intent for the restoration and management of native woodland in the remaining undesignated 760 ha, has been proposed and agreed by Forest Enterprise and English Nature. Chambers Wood is the single most important woodland, and includes Little Scrubbs Meadow, a species-rich

grassland owned by Forest Enterprise and managed jointly with Lincolnshire Wildlife Trust. Thirty-two species have been recorded in Chambers Wood since 1994. College Wood is the most northerly British site for the triangle. Other limewoods include Stainton Wood, Newball Wood, Cocklode Wood, Great West Wood, Stainfield Wood, Scotgrove Wood, New Park Wood, Southrey Wood.

4.1b Kesteven Uplands

The extent of this key area is delineated by the EN Natural Area of the Kesteven Uplands, encompassing ancient, semi-natural woodlands, limestone grasslands and parkland. To the east, the Bourne Woods and the old Forest of Kesteven lie on clay soils, whereas to the south and west, nearer the Lincolnshire Ridge, limestone grassland occurs on shallow well-drained calcareous loams. The south-western tip in Rutland is characterised by disused limestone quarries. This key area is therefore important for species of both woodland and limestone grassland.

Species breeding (see species accounts for details)	Regional priority	Significance of key area to species (proportion of records within the region)
Grizzled skipper	High	33%
Duke of Burgundy	High	87% (possibly 100%)
White-letter hairstreak	Medium	5%
Dingy skipper	Medium	12%
Green hairstreak	Medium	8%
Dark green fritillary	Medium	7%
White admiral	Medium	15%

High priority moth species recorded since 1980	National status
The four-spotted	Na

Most key sites are in the southern half of the Kesteven Uplands. Grimsthorpe Park, owned by the Grimsthorpe and Drummond Trust, is the most important estate and comprises several sites, which collectively support grizzled skipper, duke of burgundy, dingy skipper, green hairstreak, white admiral and dark green fritillary. The Park is managed sympathetically for butterflies by the Grimsthorpe Park Ranger, who also undertakes a transect walk. Several limestone grassland sites in both Lincolnshire (e.g. Robert's Field) and Rutland (e.g. Ketton Quarry) are Wildlife Trust nature reserves. The main woodland sites are Twyford Wood, Morkery Wood, Hoywell Wood, Pickworth Wood and Bourne Wood, all owned or managed by Forest Enterprise. Twyford Wood includes two BC reserves. These support green hairstreak, white-letter hairstreak and white admiral, but are not as important as the limestone grassland sites. Threats to the Kesteven Uplands include agricultural intensification, housing development and recreation, but are perceived to be decreasing.

4.1c Peak District

The Peak District National Park is the only upland area within the region. The Dark Peak to the north is moorland, providing upland heath habitat for the green hairstreak and rough grassland for the small heath. To the south, the carboniferous limestone dales of the White Peak provide suitable habitat for the small blue, dingy skipper, dark green fritillary and brown argus. The status of the small blue is uncertain, but may be extinct. Until recently the *Aricia* in the Peak District were classified as northern brown argus but recent research suggests these are brown argus. Nevertheless, their scientific interest, in that they still have some northern brown argus characteristics, warrants special consideration, although the regional priority remains low.

Species breeding (see species accounts for details)	Regional priority	Significance of key area to species (proportion of records within the region)
Small blue	High	100%
White-letter hairstreak	Medium	10%
Dingy skipper	Medium	40%
Green hairstreak	Medium	55%
Dark green fritillary	Medium	72%

High priority moth species recorded since 1980	National status
Chalk carpet	Nb

Many sites in the Peak District National Park are managed effectively for conservation. Most of the upland heath in Derbyshire lies within the Peak District Moors SPA and the Eastern Moors SSSI. The National Trust's High Peak and Longshaw estates, which lie within these support good populations of green hairstreak. Key sites in the White Peak include the Derbyshire Dales NNR, Derbyshire Wildlife Trust reserves at Chees Dale, Miller's Dale Quarry and Priestcliffe Lees, Plantlife's Deepdale nature reserve, as well as several SSSIs.

4.2 Important butterfly sites not included in key areas

4.2a Crowle Moor (SE 7412-7414)

LWT reserve, part of Humberhead Peatlands NNR, SSSI. 163 ha. Lowland raised mire, supporting most south-easterly British large heath populations. Scarce vapourer (RDB3) recorded post-1990. Managed by scrub control and grazing with Hebridean sheep.

4.2b Risby Warren (SE 9212)

Private (Elsham Estate). SSSI. Very large inland blown sand dunes, supporting main grayling colony in the region. Largely unmanaged, but rabbit grazed.

4.2c Moor Farm and Kirkby Moor (TF 2262)

Moor Farm: LWT reserve, Kirkby Moor: SSSI. Moor Farm: 48 ha. Mosaic of wet and dry heath, lowland mire, grassland and woodland. Moor Farm is a BMS transect site. Kirkby Moor supports green hairstreak. Dingy skipper now extinct at Moor Farm and grizzled skipper last seen at Kirkby Moor in 1998. Good for purple hairstreak and common butterflies of open habitats. Managed by scrub/woodland control and grazing with Hebridean sheep.

4.2d Saltfleetby-Theddlethorpe Dunes (TF 48)

Owned by EN, LWT and LCC. NNR, SSSI. 485 ha. Calcareous sand dunes, freshwater marsh (maritime fen), saltmarsh and mud flats. BMS transect route through dunes. Supports green hairstreak. Marsh moth (RDB3) recorded post-1990. Good for common butterflies of open habitats. Occasional dark green fritillary records on BMS transect, as well as rare migrants (e.g. Queen of Spain fritillary *Argynnis lathonia*). Dunes and freshwater marsh managed by traditional grazing and mowing for hay. Sea buckthorn (*Hippophae rhamnoides*) control on dunes.

4.2e Gibraltar Point (TF 5458)

Owned by LCC and East Lindsey DC. NNR, SSSI. 437 ha. Sand dunes, saltmarsh, mud flats, scrub and plantation woodland. BMS transect route. Supports green hairstreak, recent record for grayling. Only post-1990 record for scarce vapourer (RDB3) in region; marsh moth also recorded post-1990. Good for brown argus and common butterflies of open habitats. Dunes and freshwater marsh managed by cattle and sheep grazing. Sea buckthorn control on dunes.

4.2f Duke's Covert and Copper Hill (SK 9842)

LWT reserve. SSSI. 1.8 ha. Limestone grassland, supporting re-introduced colony of chalkhill blues. Managed by mowing, grazing and scrub control.

4.2g Leire Cutting (SP 5088)

Leire Parish Council. 6 ha. Disused railway cutting, supporting a range of habitats from open grassland to woodland. Possible colonisation of wood whites. Small colony of marbled whites.

4.2h Luffenham Heath Golf Course (SK 9402)

Private (Luffenham Heath Golf Course). SSSI. 87 ha. Complex of limestone and acid grassland, lowland heath, scrub and ash woodland. The main site for the black hairstreak in the region, with historical records for chequered skipper. The concolorous moth is also present.

4.2i East Leake Railway Line (SK 5426)

Supports both grizzled and dingy skippers. Access difficult to restoration as a mineral line.

4.2j Bingham Railway Line (SK 7038)

Supports grizzled skipper and the four-spotted moth.

4.2k Rosliston Forestry Centre (SK 2416)

24 species recorded, this site supports white-letter and purple hairstreak.

4.2l Aston Brickyard Plantation (SK 4030)

22 species recorded, this site supports white-letter hairstreak.

4.2m Hilton Gravel Pits (SK 2430)

23 species recorded, this site supports white-letter and purple hairstreak.

4.2n Breadsall Cutting (SK 3838)

25 species recorded, this site supports white-letter and purple hairstreak.

4.2o Elvaston Country Park (SK 4032)

26 species recorded, this site supports white-letter and purple hairstreak.

4.2p West Hallam Ash Tip (SK 4442)

23 species recorded, this site supports dingy skipper.

Figure 1. Site map for key areas and sites within Lincolnshire. See 4.1 and 4.2 for area and site descriptions.

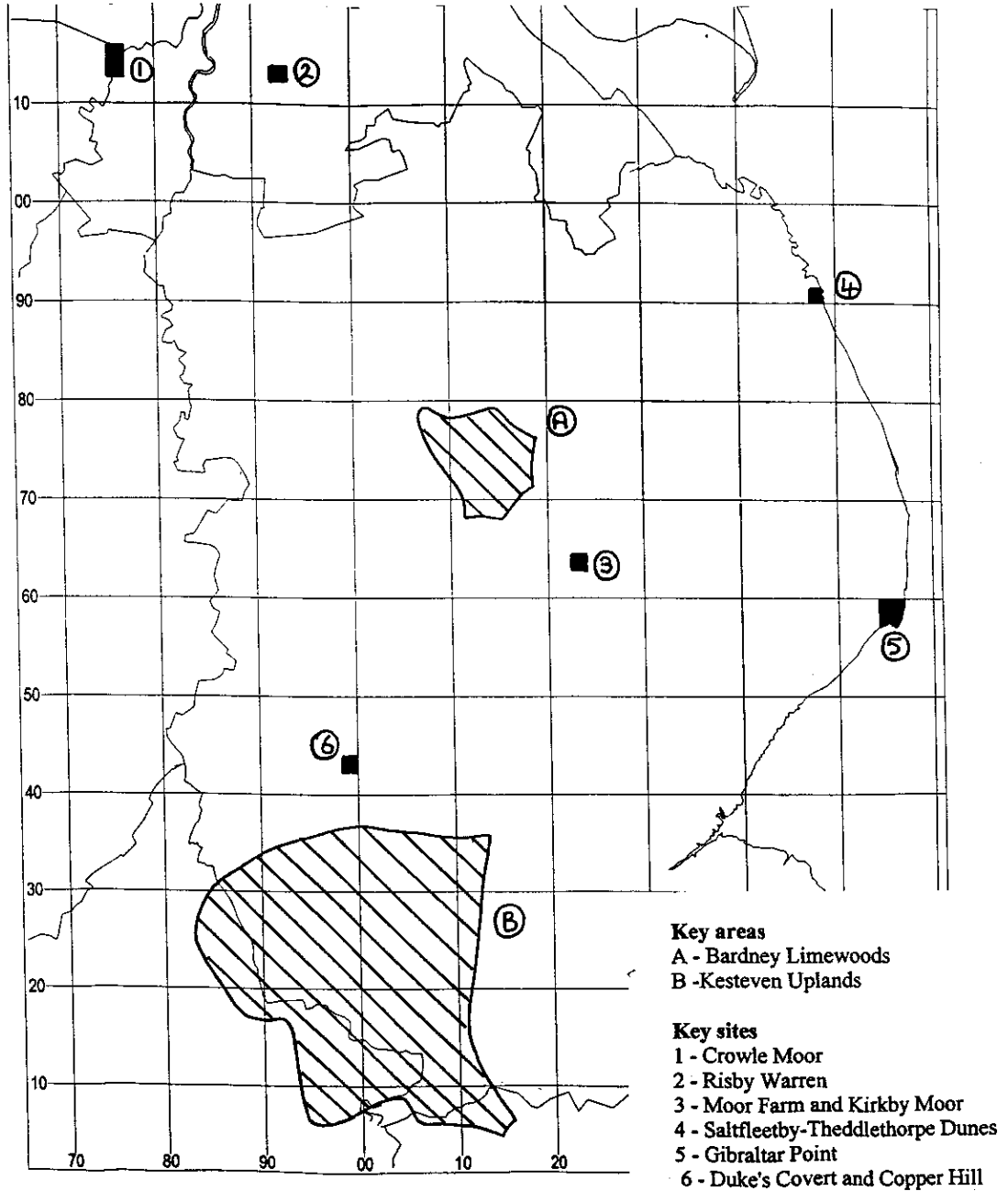
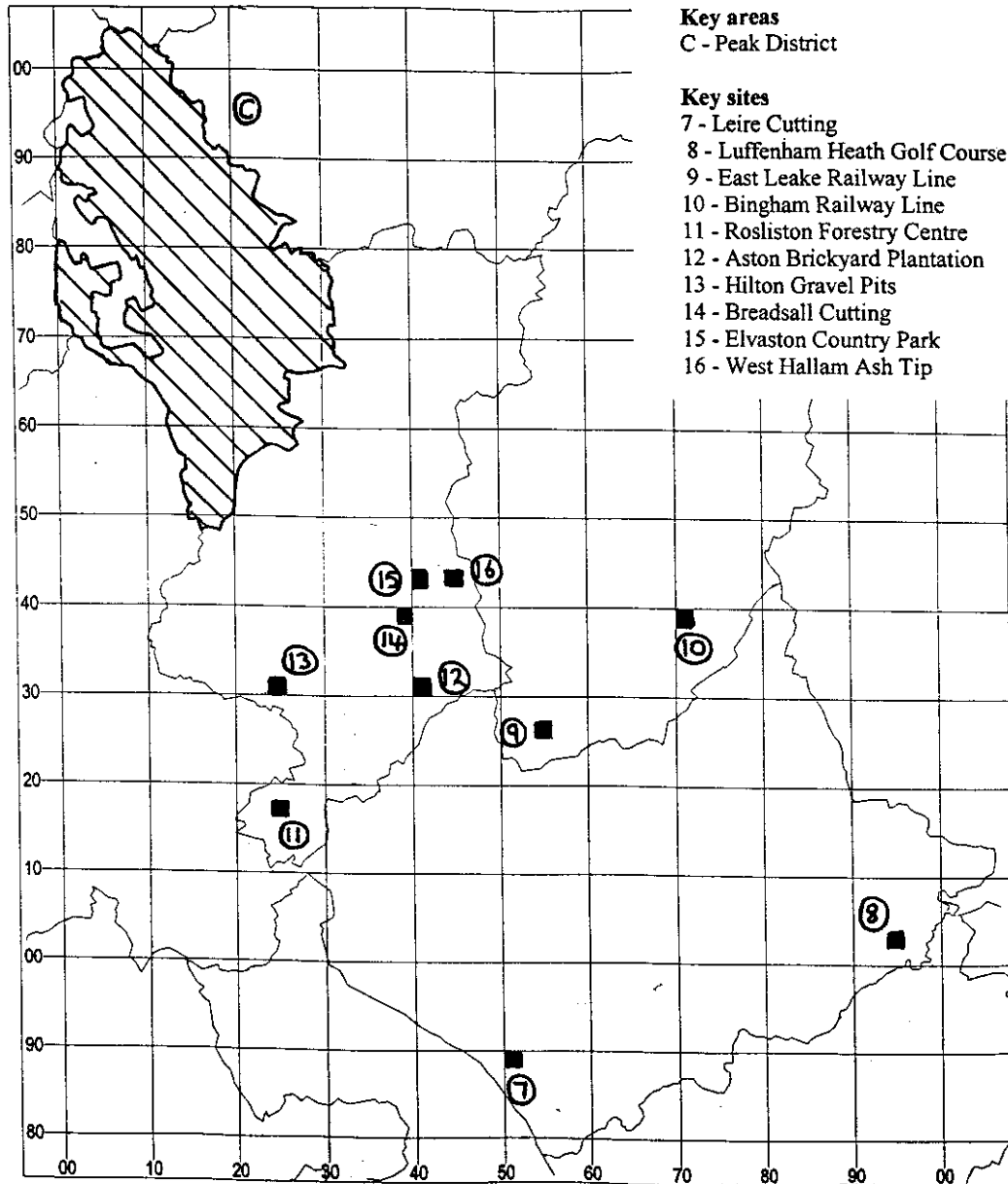


Figure 2. Site map for key areas and sites within Leicestershire/Rutland, Nottinghamshire and Derbyshire. See 4.1 and 4.2 for area and site descriptions.



5. Survey

Survey work for butterflies has increased in the region in recent years. This is largely in response to the requirement to produce a Millennium Atlas in 2000 using records obtained over the period 1995 to 1999. Nevertheless, recording remains sporadic in parts of south and east Lincolnshire.

Mark Tyszka is the Butterflies for the New Millennium Co-ordinator for the Lincolnshire Branch, Butterfly Conservation and Allan Binding is the Lincolnshire Naturalists Union Butterfly County Recorder. In the East Midlands Branch, Michael Walker is the Butterfly County Recorder and Butterflies for the New Millennium Co-ordinator for Nottinghamshire. Ken Orpe is the Butterfly County Recorder, Butterflies for the New Millennium Co-ordinator for Derbyshire, and BC East Midlands Branch Transect Officer. Adrian Russell is the Butterflies for the New Millennium Co-ordinator for Leicestershire, Co-ordinator of the Leicestershire Lepidoptera Recording Scheme and BC East Midlands Branch Moth Officer. County Moth Recorders are Rex Johnson in Lincolnshire, Ray Morris and Jane McPhail in Leicestershire, Dr Sheila Wright in Nottinghamshire and Ian Viles in Derbyshire. Rex Johnson is also BC Lincolnshire Branch Moth Officer.

Surveys of the brown hairstreak in Bardney Limewoods have been undertaken since 1994 (Smith 1999) and the habitat requirements of the duke of burgundy fritillary in Lincolnshire studied by Vandome (1998).

Over 130,000 separate records have been made between 1995 and 1999 in the region. At the 10 km² scale, there is 99% coverage, with records from 172 of the 174 10 km² in the region. At the tetrad scale, there is 67% coverage, with records from 2454 of the 3655 tetrads in the region. Best coverage has been achieved in Derbyshire (651 tetrads: 97% of recorded tetrads) and the worst in South Lincolnshire (322 tetrads: 45%). The number of recorded tetrads for other vice-counties are: North Lincolnshire (549 tetrads: 52%), Leicestershire/Rutland (497 tetrads: 75%) and Nottinghamshire (428 tetrads: 79%). Targeting of under recorded areas, especially for high and medium priority species, will be encouraged. Sites with key populations of high and medium priority species will be identified. Where practicable, the extent of habitat patches (breeding areas) and size and /or density of populations will be estimated.

In addition to general survey work, Butterfly Conservation will encourage or undertake research work in the region, targeted at specific species and sites, particularly if they are under threat.

6. Monitoring

Transect monitoring as part of the national Butterfly Monitoring Scheme (BMS) is undertaken at Derbyshire Dales NNR (SK 1666-1866, 1979 onwards), Gibraltar Point NNR (TF 5458, 1977 onwards), Moor Farm LWT reserve (TF 2262, 1980 onwards), Saltfleetby-Theddlethorpe Dunes NNR (TF 48, 1977 onwards). These data are not directly available to Butterfly Conservation.

Monitoring of sites using the BMS transect method is now undertaken at several sites in the region:

Lincolnshire transects

- Arnolds Meadow and Coronation Channel (TF2420, 1997-98)
- Chambers Woods (part of Bardney Limewoods NNR, TF1474, 1994 onwards)
- Donna Nook (TF 4298, 1990-98)
- Far Ings (TA 0022, 1996)
- Grimsthorpe Park 1: Pots and Pans, New Quarry (TF 0420, 1999)
- Grimsthorpe Park 2: Fox Rough (TF 0220, 1999)
- Grimsthorpe Park 3: Bracken Beds (TF 0218, 1999)
- Hartsholme Country Park (SK 9468, 1993 onwards)
- Irbydales (TA 1804, 1997 onwards)
- Kirkby Moor (TF 2262, 1997-98)
- Snakeholme Pit BC reserve (TF1070, 1988 onwards)
- Snipe Dales Country Park (TF 3268, 1996)
- Swanholme Lakes LNR (SK 9468, 1994 onwards)
- Toby's Hill (TF 4494, 1998 onwards)
- Twyford Wood West (TF 9422, 1999)

Leicestershire transects

- Fosse Meadow (SP 4890, 1997 onwards)

Nottinghamshire transects

- Centre Parcs, Sherwood Forest (SK 6262, 1997 onwards)
- Gunthorpe Gravel Pits (SK 6744, 1997 onwards)

Derbyshire transects

- Breadsall Cutting (SK 3838, 1982 onwards)
- Carsington Water (SK 2452, 1994 onwards)
- Friargate Railway Station (SK 3436, 1981 onwards)
- West Hallam Ash Tip (SK 4442, 1987 onwards)
- Willington Power Station (SK 3028, 1992-97)

There are a number of other full or partial transects in the region, but full details are currently unavailable.

The brown hairstreak has been monitored annually at the main Bardney Limewood site using winter egg counts since 1994-95 (Smith 1999).

The intention is to establish transects or undertake timed counts on two key sites for each high and medium priority species. Alternative monitoring systems will be devised for woodland canopy hairstreaks (e.g. timed egg counts).

7. Management

7.1 Site Management

The Lincolnshire, East Midlands and Cheshire and Peak District Branches are involved in the management of a number of sites.

The provision of management advice includes:

- Membership of the Advisory Committee for Bardney Limewoods NNR.

Sites managed with assistance from Lincolnshire Branch, Butterfly Conservation:

Bardney Limewoods NNR - coppicing, ride and hedgerow management.
Snakeholme Pit BC reserve - owned by Environment Agency, BCL has formal management agreement, mowing and scrub control to maintain open grassland.
Twyford Wood West - owned by Forest Enterprise, scrub control to maintain open grassland.

Sites managed with assistance from East Midlands Branch, Butterfly Conservation:

None.

Sites managed with assistance from Cheshire and Peak District Branch, Butterfly Conservation:

Branch members work on several DWT reserves.

7.2 Habitat management

Habitats of particular concern include:

7.2a Woodlands

Although the region's woodlands no longer support the variety of specialist woodland species found elsewhere in the UK, sympathetic woodland management would still be of general benefit to other species.

The removal of non-native trees encourages reversion to semi-natural woodland and is undertaken, for example, in the Bardney Limewoods complex. This is likely to be extended to all Forest Enterprise woodlands as a result of the new Broadleaf Woodland Strategy.

It is widely recognised that many butterfly species have been lost from, or prevented from colonising woodland because of the degree of shading, which usually occurs in unmanaged woodlands. Woodland management techniques, which serve to create openings in the canopy, are likely to create suitable butterfly habitat, providing clearings are large enough. The most practical ways of achieving this are through:

- Coppicing. Periodic removal of the canopy increases sunlight penetration, creating warm, sheltered conditions and encouraging a diversity of larval food plants and adult nectar plants.
- Creation of wide, U-shaped rides. Similar warm, sheltered conditions supporting diversity of larval food and adult nectar plants are created when sunlight penetrates linear habitats. Variation in vegetation structure at ride edges provides a greater number of perching and basking sites.
- Scalping of woodland edges. As the woodland edge is often a more valuable habitat than the woodland interior for butterflies, the creation of an irregular edge serves to increase the habitat resource.

Hedgerow and scrub management, by coppicing, to encourage young blackthorn growth for the brown hairstreak, can also be undertaken along woodland edges and rides.

7.2b Jurassic limestone grassland: Kesteven Uplands

The grizzled skipper, duke of burgundy, dingy skipper, green hairstreak, dark green fritillary and other grassland butterflies are threatened, both by overgrazing, and by the absence of management, leading to succession to dense scrub and woodland. Each grassland species has specific sward height requirements (Figure 3).

7.2c Carboniferous limestone grassland: Peak District

The small blue, dingy skipper, dark green fritillary and other grassland butterflies are threatened, both by overgrazing, and by the absence of management, leading to succession to dense scrub and woodland. Many key sites lie within the Derbyshire Dales NNR and are effectively managed. Several other sites in the White Peak are SSSIs and managed through the White Peak WES and two DWT reserves are managed through the White Peak RES. The main provisions of this scheme are:

- Unimproved grasslands are not mown, but managed by grazing with appropriate breeds of sheep or young beef cattle between July and February. Swards should be about 2.5 cm tall at the end of the grazing season and not suffer significant poaching. Enhanced payments are available where grasslands are grazed only from September to February and for grazing with small beef cattle up to a maximum of 1 livestock unit per ha per year.
- Tall grasslands are grazed one year in three between September and December, with appropriate hill sheep or young beef cattle.
- In addition there are general requirements for controlling scrub, avoiding poaching, as well as restrictions on the use of herbicides and fertilisers.

7.2d Heathland

The majority of heathlands in the region occur in the uplands. Though not often noted as butterfly habitat, the green hairstreak is often present if bilberry is abundant. Large areas are managed for grouse shooting and are subject to rotational burning. Overgrazing by sheep has degraded many areas of upland heath over the last fifty years, but the trend is now being reversed. Some landowners (e.g. National Trust) are actively reducing sheep density in order to improve habitat quality. MAFFs North Peak ESA Scheme excludes

sheep from moorland to promote regrowth of heathland vegetation. Such management is generally regarded as sufficient, although overgrazing poses a threat to some species. Successional changes occur when traditional management is abandoned.

Lowland heath is a much scarcer resource within the region, and is generally more valuable for butterflies. Succession and vegetation change are recognised as major threats to the habitat. Management techniques include:

- Cutting or burning of heather and bilberry, primarily on upland heaths, in order to maintain the habitat at a comparatively early successional stage. Cuttings should be removed after such operations.
- Grazing and scrub clearance, primarily on lowland heaths. Again all cut scrub should be removed from site. It is preferable to allow some scrub to remain uncut, particularly where green hairstreak populations are present, as the males require scrub for perching.
- Treatment of bracken by cutting or use of herbicide.

7.2e Mires

Many of these sites have become degraded through changes in the hydrological regime. Other sites are threatened by encroachment by tree seedlings. Conservation management tends to revolve around:

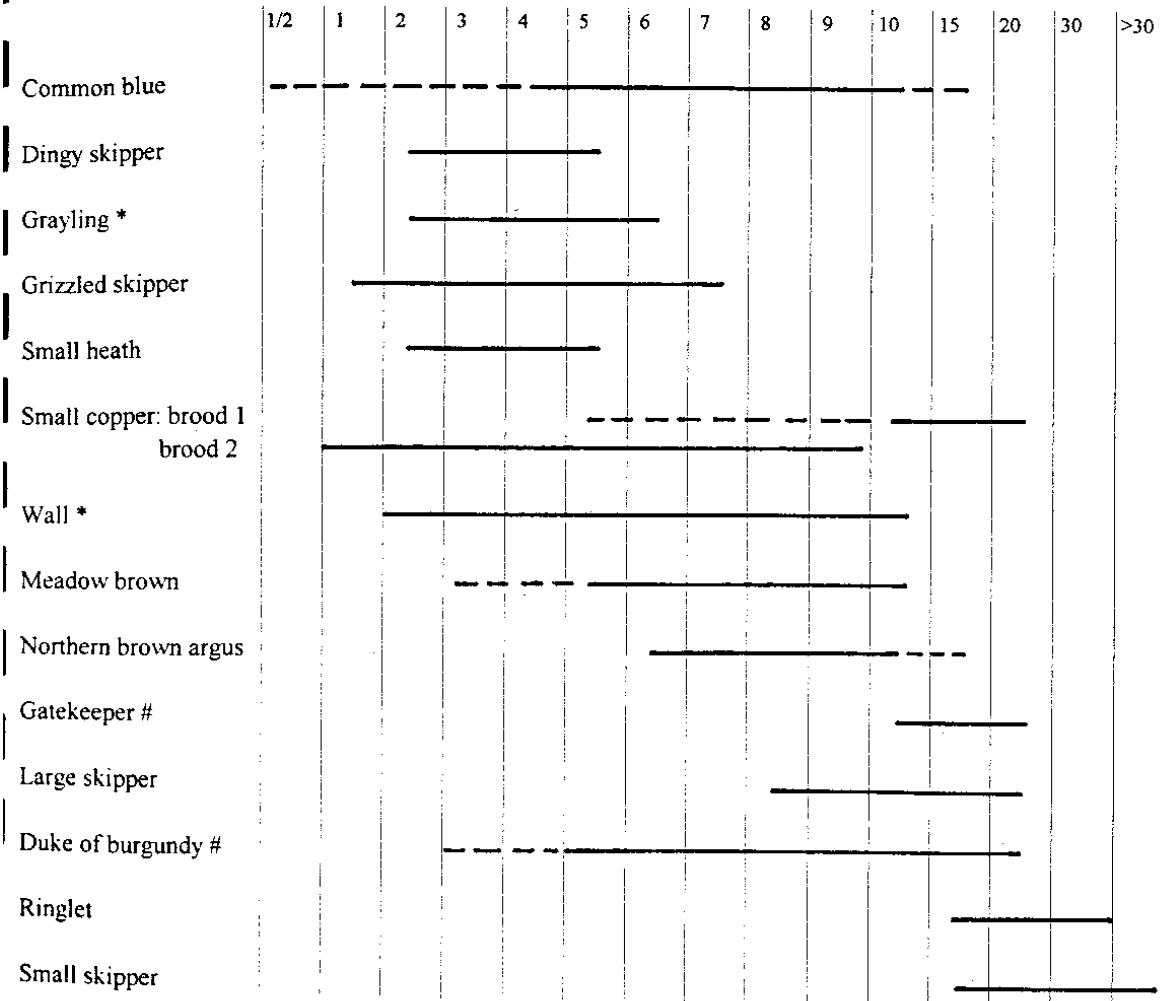
- Blocking off land drains to maintain water levels. This technique has the greatest potential in terms of conservation land management.
- Removal of tree seedlings where necessary. This is normally carried out by hand weeding.
- Stocking levels are regulated on some sites to prevent under or overgrazing

7.2f Sand dunes

Dynamic dune-forming processes are continually in evidence along the region's coastline. Accordingly a non-interventionist management strategy is often the most appropriate, although control of scrub is carried out, particularly of introduced sea buckthorn. Marram grass may be planted at certain sites to stabilise dunes. The inland blown sand dunes of the Scunthorpe Warrens, which support the grayling, are largely unmanaged but grazed by rabbits.

Figure 3. Turf height (cm) preferences for grassland butterflies within the region
 (Source: BUTT, 1986; Ellis, 1995)

* Turf must be very sparse
 # Shrubs also needed



8. Other activities

Branch priorities in the region are as follows:

- a) To raise the profile of Butterfly Conservation in the region by:
 - working more closely with other natural history societies (e.g. Lincolnshire Naturalists Union, Leicestershire Entomological Society, Derbyshire and Nottinghamshire Entomological Society, local societies).
 - continuing our involvement with other conservation organisations (e.g. English Nature, Wildlife Trusts, National Trust, Forest Enterprise, local authorities, Peak District National Park).
 - continuing to contact local media about special events or particular species.
- b) To attempt to increase the membership base and increase and encourage active involvement amongst existing members.
- c) To increase awareness and expertise amongst members by organising training days for:
 - butterfly and moth identification
 - site management for butterflies and moths

9. Review

This plan will be reviewed annually. The review will take the form of a short annual progress report, which will comment on the implementation of the main aims and will be discussed at a meeting of the regional Conservation Committee. There will be a more thorough review every five years where species priority ratings will be re-assessed and the plan updated. In particular, the priority ratings of those species subject to planned restorations (chequered skipper) and unattributed introductions (marsh fritillary, wood white, silver-washed fritillary, marbled white) will be reviewed as further data becomes available. Similarly, the priority of those species of uncertain status will be reviewed as more data becomes available. Action plans will be written for medium priority moths as applicable.

10. Appendices

10.1 Methods used for assigning regional priorities

Criteria 1. Rates of decline estimates

Table 2 lists the butterfly species showing declines in the region when 10 km² records from 1970-1982 (taken from Heath, Pollard and Thomas 1984) are compared with 10 km² records for 1995 to 1999. Estimated declines are calculated for a 25 year period and where they exceed 32% at the 10km² level, the national priority is increased.

Species whose regional priorities have been increased as a result of applying this criterion are highlighted in bold. Where a species has increased its range it is indicated by (+). Possible introductions are indicated by (*).

Table 2. Rates of decline for butterflies in the East Midlands region

Species	10 km ² records (1970-82)	10 km ² records (1995-1999)	25 yr. range change estimate
Small Skipper	109	158	(+) 66 %
Essex Skipper	10	67	(+) 838 %
Large Skipper	105	119	(+) 20 %
Dingy Skipper	35	34	4 %
Grizzled Skipper	34	21	56 %
Wood White	2	2*	No change
Clouded Yellow	1	89	(+) 12941 %
Brimstone	106	149	(+) 60 %
Large White	129	161	(+) 36 %
Small White	137	164	(+) 30 %
Green-veined White	142	166	(+) 26 %
Orange Tip	138	163	(+) 27 %
Green Hairstreak	31	42	(+) 52 %
Brown Hairstreak	2	1	74 %
Purple Hairstreak	16	82	(+) 607 %
White-letter Hairstreak	27	59	(+) 174 %
Black Hairstreak	2	1	74 %
Small Copper	132	147	(+) 17 %
Small Blue	1	2	(+) 147 %
Brown Argus	9	55	(+) 752 %
Common Blue	111	148	(+) 49 %
Holly Blue	33	157	(+) 553 %
Duke of Burgundy	3	3	No change
White Admiral	4	21	(+) 625 %
Red Admiral	110	160	(+) 67 %
Painted Lady	88	159	(+) 119 %

Small Tortoiseshell	141	167	(+) 27 %
Peacock	127	162	(+) 41 %
Comma	33	148	(+) 512 %
Dark Green Fritillary	13	22	(+) 102 %
Silver-washed Fritillary	5	7*	(+) 59 %
Speckled Wood	35	116	(+) 340 %
Wall	135	149	(+) 15 %
Marbled White	5	14	(+) 265 %
Grayling	1	8	(+) 1029 %
Gatekeeper	87	156	(+) 117 %
Meadow Brown	136	165	(+) 31 %
Ringlet	71	132	(+) 126 %
Small Heath	122	139	(+) 20 %
Large Heath	2	1	74 %

Extinct species restored to region

Chequered Skipper	6	1	123 %
Chalkhill Blue	1	1	No change
Small Pearl-bordered Fritillary	1	3	(+) 294 %
Marsh Fritillary	1	1	No change

Criteria 2. Rarity Estimates.

The rarity of the species within the region was assessed by calculating the number of tetrads occupied as a proportion of the total number within the region. If less than 0.6% of the tetrads in the region are occupied by a species then its priority is increased above its national rating. Species showing a change in priority as a result of this criterion are shown in bold.

Table 3. Rarity estimates for butterflies in the East Midlands region

Species	Total no. tetrad records in region (1995-1999)	Regional Rarity (% of tetrads)	Regional Rarity (% of recorded tetrads)	Occupies <0.6% of area
Small Skipper	1068	29.2	43.5	
Essex Skipper	251	6.9	10.2	
Large Skipper	775	21.2	31.6	
Dingy Skipper	95	2.6	3.9	
Grizzled Skipper	49	1.3	2.0	
Wood White	2	<0.1	<0.1	YES
Clouded Yellow	467	12.8	19.0	
Brimstone	1004	27.5	40.9	
Large White	1621	44.4	66.1	
Small White	1788	48.9	72.9	

Green-veined White	1718	47.0	70.0	
Orange Tip	1292	35.3	52.9	
Green Hairstreak	146	4.0	5.9	
Brown Hairstreak	5	0.1	0.2	YES
Purple Hairstreak	297	8.1	12.1	
White-letter Hairstreak	139	3.8	5.7	
Black Hairstreak	2	<0.1	<0.1	YES
Small Copper	924	25.3	37.7	
Small Blue	1	<0.1	<0.1	YES
Brown Argus	142	3.9	5.8	
Common Blue	920	25.2	37.5	
Holly Blue	1163	31.8	47.9	
Duke of Burgundy	6	0.2	0.3	YES
White Admiral	46	1.3	1.9	
Red Admiral	1218	33.3	49.6	
Painted Lady	1088	29.8	44.3	
Small Tortoiseshell	1751	47.9	71.3	
Peacock	1668	45.6	68.0	
Comma	905	24.8	36.9	
Dark Green Fritillary	69	1.9	2.8	
Silver-washed Fritillary	11	0.3	0.5	YES
Speckled Wood	796	21.8	32.4	
Wall	896	24.5	36.5	
Marbled White	21	0.6	0.9	
Grayling	15	0.4	0.6	YES
Gatekeeper	1286	35.2	52.4	
Meadow Brown	1481	40.5	60.4	
Ringlet	668	18.3	27.2	
Small Heath	639	17.5	26.0	
Large Heath	2	<0.1	0.1	YES

Extinct species restored to region

Chequered Skipper	1	<0.1	<0.1
Chalkhill Blue	2	<0.1	0.1
Small Pearl-bordered Fritillary	3	0.1	0.1
Marsh Fritillary	1	<0.1	<0.1

Total number of regional tetrads is 3655 including those on the borders of the region. There are records for 2454 of these tetrads (67%). Where a species occupies <1% of the region's tetrads, the loss of a few colonies may result in a change in their priority.

Criteria 3. Proportion of Total National Resource.

Where a region holds more than 20% of the total number of British records (species occurring only in UK indicated by *) for a particular species its priority should be increased above the national rating.

No species in the region meet this criterion.

Table 4. Proportion of total national resource for butterflies in East Midlands region

Species	No. 10km ² records in region (1995-1999)	No. British 10km ² records (1995-1999)	No. grid squares needed for priority change (20%)
Small Skipper	158	1364 *	273
Essex Skipper	67	582 *	116
Large Skipper	118	1421 *	284
Dingy Skipper	34	526	105
Grizzled Skipper	21	350 *	70
Wood White	2	195	39
Clouded Yellow	89	1054	211
Brimstone	149	1213	243
Large White	161	2257	451
Small White	164	2146	429
Green-veined White	166	2719	544
Orange Tip	163	2175	435
Green Hairstreak	42	804	161
Brown hairstreak	1	122	24
Purple Hairstreak	82	846	169
White-letter Hairstreak	59	492 *	98
Black Hairstreak	1	19*	4
Small Copper	147	2039	408
Small Blue		258	52
Brown Argus	55	664*	133
Common Blue	148	2193	439
Holly Blue	157	1360	272
Duke of Burgundy	3	99 *	20
White Admiral	21	344*	69
Red Admiral	160	2431	486
Painted Lady	159	2178	436
Small Tortoiseshell	167	2613	523
Peacock	162	2172	434
Comma	148	1378 *	276
Dark Green Fritillary	22	770	154
Silver-washed Fritillary	7	544	109
Speckled Wood	116	1762	352

Wall	149	1354	271
Marbled White	14	610*	122
Grayling	8	532	106
Gatekeeper	156	1374	275
Meadow Brown	165	2501	500
Ringlet	132	1762	352
Small Heath	139	1955	391
Large Heath	1	241	48

Extinct species restored to region

Chequered Skipper	1	14 *	3
Chalkhill Blue	1	182*	37
Small Pearl-bordered Fritillary	3	600 *	120
Marsh Fritillary	1	214	43

10.2 Medium Priority Micromoths

The following medium priority micro-moths are known to occur in the region. This list is incomplete and will be reviewed in the future, as more data becomes available. Records are post-1969. See Parsons (1984, 1993, 1996) for further details of scarce and threatened micro-moths.

SCIENTIFIC NAME	NATIONAL STATUS	VICE-COUNTIES
0109 <i>Stigmella prunetorum</i>	pRDB3	57
0191 <i>Acanthopsyche atra</i>	Notable	57
0212 <i>Haplotinea insectella</i>	Notable	54
0226 <i>Triaxomasia caprimulgella</i>	pRDBK	54
0534 <i>Coleophora currucipennella</i>	pRDB3	57
0651 <i>Oecophora bractella</i>	pRDB3	54
0718 <i>Ethmia dodecea</i>	Nb	55
0719 <i>Ethmia funerella</i>	Na	53, 56, 57
0720 <i>Ethmia bipunctella</i>	pRDB2	54
0733 <i>Eulamprotes wilkella</i>	Nb	54
0738 <i>Monochroa tetragonella</i>	RDBK	54
0739 <i>Monochroa conspersella</i>	pRDBI	54
0805 <i>Gelechia hippophaella</i>	pRDB3	54
0813 <i>Scrobipalpa salinella</i>	Notable	54
0831 <i>Caryocolum proximum</i>	pRDBK	53
0845 <i>Syncopacma sangiella</i>	Nb	56
0849 <i>Syncopacma cinctella</i>	Nb	56
0896 <i>Cosmopterix orichalcea</i>	pRDB3	54
1195 <i>Eucosma lacteana</i>	pRDB3	53, 54
1253 <i>Cydia orobana</i>	pRDB3	54
1292 <i>Calamotropha paludella</i>	Nb	53, 55
1299 <i>Crambus hamella</i>	Nb	56
1322 <i>Pediasia fascelinella</i>	pRDB2	54
1324 <i>Pediasia aridella</i>	Nb	54
1325 <i>Platytes alpinella</i>	pRDB3	53, 54
1328 <i>Schoenobius gigantella</i>	Nb	53
1359 <i>Cynaeda dentalis</i>	pRDB3	54
1382 <i>Anania verbascalis</i>	Nb	54
1387 <i>Nascia cilialis</i>	Na	54
1399 <i>Dolicharthria punctalis</i>	Nb	54
1414 <i>Synaphe punctalis</i>	Nb	54
1441 <i>Oncocera semirubella</i>	Nb	54

1464 <i>Gymnancyla canella</i>	Na	54
1469 <i>Euzophera cinerosella</i>	Nb	56, 57

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