



Species Action Plan

BROWN HAIRSTREAK

Thecla betula

1998

Compiled by :

N. A. D. Bourn and M. S. Warren

Butterfly Conservation

Manor Yard

East Lulworth

Wareham

Dorset

BH20 4QP

Tel: 01929 400209

email: nbourn@butterfly-conservation.org

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Butterfly Conservation (the British Butterfly Conservation Society) has an overriding objective to ensure a future for butterflies, moths and their habitats. In order to achieve this objective its aims are to:

- raise public awareness of the plight of our butterflies and moths and encourage public involvement in conservation.
- halt the decline of butterflies and moths and maintain or improve the present status of threatened species.
- improve the extent and suitability of key lepidoptera habitats and the environmental quality of the countryside as a whole for all lepidoptera species.
- work with and advise other conservation groups, local bodies and agencies on techniques of land management which favour butterflies and moths and related wildlife.
- acquire and manage habitats for butterflies and moths.
- encourage the research (both at amateur and professional levels) on butterflies and moths.
- support and encourage butterfly and moth conservation world-wide.

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Summary

- In the UK the Brown Hairstreak is a local species which is widespread in a few regions in England and Wales. It has declined severely in many areas since 1950, especially in the central and eastern counties of England where the species is now very rare. It has also become far scarcer and more restricted in some of its remaining strongholds in southern and western England and south Wales although the species is under-recorded in some areas. The bulk of this decline is probably due to loss, and changing management, of hedgerows and wood margins. The Brown Hairstreak is listed under Schedule 5 of the Wildlife and Countryside Act for sale only.
- The national decline in range was estimated at 31% in the period between 1940/1969 and 1970/1982 (as determined from 10km grid square records).
- The rate of loss at important butterfly sites in central southern England was estimated at 9% per decade (during the 1980s), although the species appears to be holding its own and is still widespread in Wales and parts of south west England. The national distribution map is now very much out of date and the confirmation and identification of core areas is urgently required to ensure appropriate conservation action for the species. A **medium** priority is afforded to the conservation action in this plan to protect and increase the number of Brown Hairstreak colonies in the UK.
- The Brown Hairstreak occurs in regions with extensive areas of hedgerows, scrub pockets and woodland clearing and edge, usually on heavy soils where the larval foodplant, Blackthorn, *Prunus spinosa*, is abundant. It responds positively to sensitive hedgerow management and can be considered an indicator of well managed hedgerow landscapes.
- The main threats to the Brown Hairstreak are continued hedgerow removal and intensive hedgerow management. Extensive annual mechanical cutting of hedges causes huge mortality of eggs and can lead to rapid extinction of colonies. The elimination or neglect of scrub edges and pockets, are also a threat to this species where it occurs.
- The immediate major objectives of the plan are to halt the decline of the Brown Hairstreak in the UK and to maintain viable networks of populations throughout its current range. A long term objective of the plan is to restore its 1950 range.
- The objectives of the plan will be achieved by determining current core areas of the Brown Hairstreak; protecting and enhancing the management of hedgerows and wood edges where the butterfly is still found; and improving information on and dissemination of the habitat requirements of the species.
- The Action Plan covers the next ten years, will be monitored annually and reviewed as the situation demands.

Part 1 Overview

1.1 PRIORITY STATEMENT

The Brown Hairstreak was once widespread in areas with an abundance of woodland and blackthorn hedgerows throughout much of southern England and west Wales. It has declined severely in many areas since 1950, most noticeably in central and eastern counties of England, where the species is now very rare. It is listed as a species of conservation concern in Biodiversity: The UK Steering Group Report (DOE, 1995). Based on our current knowledge, **medium** priority should be afforded to conservation action to protect and increase the number of Brown Hairstreak colonies in the UK. This priority will be reviewed when we have more complete distribution data from Wales and SW England.

1.2 BROAD OBJECTIVES

1. Halt decline.
2. Maintain extensive habitats and viable networks of populations throughout its current range.
3. Long term objective to restore its 1950 range.

1.3 LEGAL STATUS

The butterfly is listed on Schedule 5 of the 1981 Wildlife and Countryside Act (for sale only)*.

*It is a criminal offence to sell, offer or expose for sale, or possess or transport for the purposes of sale, whether alive or dead, any wild specimen and parts or derivatives of them; or for anyone to publish or cause to be published any advertisement indicating or suggesting that they buy or sell such things, without a license.

1.4

Status and Level of Biological Knowledge

Population	-size	Not known. Estimates of adult population size are very difficult for this elusive, canopy dwelling species.
	-trend, numbers	Nationally total number of colonies/sites is unknown.
	-trend, range	A local species of southern Britain it has declined especially in the south and east. Current strongholds in south and west England and south Wales.
Knowledge of	-status	No up-to-date national data are available for this species. Only 2 long term transects exist with a further 9 added in the last few years. Reliable adult counts are difficult for this elusive tree and hedge top species, egg counts in winter may provide better monitoring data. Location of large and medium colonies requires further survey.
	-trends	Decline in range between 1940-69 and 1970-82 estimated at 31% (Warren et al. 1997). Recent reviews of important sites in central-southern Britain (Warren 1993) found the rate of extinction to be 9% during the decade 1980-1990. Local and regional studies have also indicated declines (e.g. Asher, 1994).
	-conservation requirements	Good ecological knowledge of its requirements including practical management.

Part 2 Biological Assessment

2.1 INTRODUCTION

The Brown Hairstreak occurs in regions with extensive networks of hedgerows and woodland edges, generally on heavy soils, where the larval foodplant, Blackthorn, *Prunus spinosa*, is abundant. It is currently found in the south and west of England and south Wales, with scattered colonies elsewhere.

2.2 ECOLOGY

Life Cycle

The Brown Hairstreak is univoltine, and is one of the last butterflies to emerge, flying in late July, to early September and in exceptional years even into October. The butterfly occurs at low densities over wide areas, typically no more than one or two adults emerge per kilometre of hedgerow during the three to four week emergence period. In order to find a mate, the species congregates early in the season on 'master trees'. Very few of these master trees have been identified but those that have were large, bushy Ash trees growing near the lowest point of the countryside that contains a colony, or along wood edges and rides. Congregations of adults can occur on several trees and have been known to be on different trees from year to year (Fuller, 1995; M Oates, pers. comm.). At one intensively studied site, males were only ever seen at the master tree, where they would be flying in rapid spirals, walking on the leaves, basking in the sunshine or drinking aphid honeydew (Thomas, 1974). The latter coats many Ash trees in August and is the main food source. Only rarely are males seen at ground level, visiting flowers for nectar in years when the honeydew is less abundant. Males emerge first and are rarely seen after the third week of August.

The courtship, mating and subsequent behaviour of adult Brown Hairstreaks above the tree tops is little known, being documented only once (Thomas and Lewington, 1991). Females are believed to remain by the master tree for 6-10 days while their eggs mature before dispersing over the extensive breeding areas. Once the number of females reach a certain level (approximately 15 on the only site studied in detail), the surplus emigrates beyond the colony boundaries, limiting the size of colonies to far below the carrying capacity of the Blackthorn in the area. The females that remain at the master tree fly only on the warmest days, usually between 10.00am and 4.00pm and spend long periods basking when sunlight is weak. In hot conditions, the opposite is true with the wings being kept closed; the white hairs on the lower body reflecting the heat to prevent the butterfly from overheating (Thomas, 1974).

In contrast to males, female Brown Hairstreaks regularly feed on late-summer flowers such as Hemp Agrimony (*Eupatorium cannabinum*), Fleabane (*Pulicaria dysenterica*), Bramble (*Rubus fruticosus*) and thistles. Each female feeds in bouts, punctuated by long periods of egg-laying, when she flies along woodland edges and hedgerows periodically landing on a projecting leaf. If the plant is a *Prunus* she descends, crab-like, edging sideways and backwards down the twig probing every nook and cranny with her abdomen (Thomas and Lewington, 1991). This examination may take several minutes until a suitable spot is found and a single egg is laid (although occasionally 2 or even 3 eggs are laid together). The egg is

always laid on bark, usually on young growth, typically at the base of a spine, or where one year old wood branches from a two year old stem. The vast majority of eggs are laid on Blackthorn (*Prunus spinosa*), although Bullace (*Prunus institia*) is also used on a few sites. Eggs tend to be laid in sheltered areas that are exposed to the sun, no more than 1.5 metres above the ground.

The butterfly breeds at very low densities over wide areas of countryside, often encompassing hundreds of hectares. The same areas tend to be used for breeding from year to year and very few eggs are laid beyond the colony boundaries. The eggs are the easiest stage of the life-cycle to find, being white and quite conspicuous on the black twigs of Blackthorn through the winter. Eggs are often laid at the base of spines on young growth that is growing proud of the body of the hedge, or on suckering Blackthorn at the hedge bottom. The butterfly prefers bushes which are in a dynamic growth state such as an advancing blackthorn edge or recently cut area where there is the young growth selected for egg laying. They will not lay on bushes which have been heavily browsed and have short stunted shoots. Egg mortality on undisturbed sites is usually between 50-75%, caused mainly by an unidentified disease. Predatory insects and parasitic *Trichogramma* wasps account for very little of this mortality (unlike in the other Hairstreaks) (Thomas, 1974).

The Brown Hairstreak overwinters as an egg, the larvae hatching after eight months in late April or early May. The larvae immediately crawl into unfurling leaf-buds. After two weeks they shed their skin and subsequent instars dangle underneath the lower surface of leaves on silk pads. They are well camouflaged and difficult to find. Despite this, up to 80% of larvae are killed by predators, in the early stages by invertebrates such as spiders, harvestmen and others, but later by insectivorous birds such as willow warblers and tits. Larvae are motionless through the day, feeding at dusk on tender leaf-tips, before returning to the same silk pads, although new pads are spun every week or so. After 40 to 60 days, the larvae become a mottled purple colour and crawl to the ground to find pupation sites. The pupae have rarely been found in the wild, but experiments indicate that they may drop to the ground and use cracks in the ground, grass tussocks, or within the curl of a dry, dead leaf (Thomas, 1974). The observations that have been made indicate that the pupae are highly attractive to ants. They are thus found by foraging ants and probably buried in loose earth cells. Although ants tend the pupae constantly, mortality is very high (up to 80%) due to predation by small mammals.

Habitat

The Brown Hairstreak requires extensive networks of hedgerows, scrub and woodland edges or clearings where the larval foodplant, Blackthorn, occurs in abundance. The butterfly is characteristic of landscapes containing small hedged fields (with high densities of sunny, sheltered hedges), woods and copses. Sites are typically on heavy soils on low lying land but can occur on other soils and on chalk downland, (in those areas with nearby sources where increases in scrub may have enabled some colonisation). The butterfly requires substantial uncut sections of hedgerow (several kilometres) and scattered woodland or scrub where there are suitable 'master trees'. The number and type of master trees required is poorly known, but ash appears to be a favourite, possibly because it can have many aphids producing honeydew which is then fed on by the adults.

Management

Thomas (1974) collected data over 6 years in Surrey on egg mortality in hedgerows with different cutting regimes. The data showed that there was an additional 80% mortality of eggs in hedgerows that were cut mechanically on an annual basis (in addition to the high natural mortality of 50-70%). Modelling the impact of differing hedge cutting regimes confirmed that a strategy of annual cutting of all hedges and wood edges would cause a colony to go to rapid extinction in only 3 years (J. A. Thomas, unpublished data). The longest surviving colonies in these models, were those colonies on hedgerows that were cut on longer rotations such as a three year rotation with a third cut each year. This arises because the butterfly lays on the youngest growth and survival is better where a proportion is left uncut in each year.

At Noar Hill, Selborne, Hampshire the Brown Hairstreak has responded well to a programme of blackthorn coppicing, laying eggs in the second year following cutting, though favouring blackthorn 3-5 years following the cut. However, Blackthorn regeneration is quite variable even within a site depending on age, the number of grazers and browsers (deer and sheep) etc., so this time scale for regeneration is unpredictable (M. Oates, pers. comm.).

Longer cutting rotations, hedge laying or coppicing also provide suitable conditions for the maintenance of Brown Hairstreak colonies provided only a proportion of the hedge is cut each year. Cutting should be carried out in the winter/autumn although a proportion of the population will clearly be damaged by this action. In some regions, modern agricultural practices have resulted in hedges being cut in August, immediately after early harvesting. For important Blackthorn hedges for a Brown Hairstreak colony (at its centre and usually near a wood) this is the best practice, as eggs are laid into the cut hedge. It is not recommended for other wildlife, (particularly late brooded birds) and should ideally only be undertaken in those important Brown Hairstreak hedges and when agricultural practicalities make it unavoidable.

Little is known about ideal management of scrub with Brown Hairstreak but the same principals apply. That is the provision of young, vigorous growth of Blackthorn and rotational scrub coppicing on a proportion of the site. The over zealous control of scrub on some sites has reduced suitable areas, and the availability of sheltered bays etc.

2.3 DISTRIBUTION AND POPULATION

Distribution

The Brown Hairstreak is widely distributed across the palaeartic between latitudes 40° to 60°N but is absent from Portugal and the Mediterranean islands. (Thomas and Emmett, 1990; Karsholt and Razowski, 1996). A recent review of the status of butterflies in Europe indicates that, while data quality is poor throughout much of its range, the species appears stable in many countries. However, over the last 25 years it is estimated to have declined by more than 50% in Austria, Belgium, Luxembourg, Netherlands, and Romania, and by 25-50% in Britain, Slovakia and European Turkey with slightly lower rates of decline in Latvia and Slovenia (van Swaay and Warren, 1998).

In Britain, the Brown Hairstreak formerly occurred widely across England and Wales but has declined substantially due to loss of its hedgerow habitat. Rates of hedgerow loss have been recorded in several studies, for example between 1945 and 1970 140,000 miles were lost in England and Wales (approximately 20% of the total resource), primarily through agricultural intensification (Pollard et al., 1974). More recently, between 1984 and 1990, the net loss of hedgerow length was estimated at 21% in England, 27% in Scotland and 25% in Wales (Barr et al., 1991). The overall decline in range of the Brown Hairstreak is estimated at 31% for the period 1940-1969 and 1970-1982 (Warren et al., 1997).

The Brown Hairstreak is now extinct in most of the midlands and eastern England. It died out in East Sussex in the 1870s (Pratt, 1981), Suffolk in the 1940s (Mendel and Piotrowski, 1986), Bedfordshire in the 1940s (Arnold et al. 1997), and Kent in the 1970s (Philp, 1993). In SW England and Wales, the species is locally common but there have probably been substantial losses due to removal of hedgerows and mechanised management of its hedgerow habitat. Recent county atlases show that the butterfly is still declining in parts of the south (e.g. Asher, 1994). A review of important butterfly sites in central-southern Britain found that the rate of population extinction was high at 9% per decade in the 1980s (Warren, 1993). In Hampshire an estimated decline of between 60 to 80% has occurred since the second world war (M Oates pers. comm.). However, as with other canopy dwelling species, it may be considerably under recorded and indeed systematic surveys in Surrey and Sussex have increased the number of records for this species (Collins, 1995; G. Jeffcoate, pers. comm.; Gay and Gay, 1996). It also appears to still be widespread in south west Wales (Anon, 1996) while this area has been under recorded in recent years (Joy, 1998). A detailed survey in 1998/99 has increased the number of 10km grid squares with recent records in Carmarthenshire from 4 to 14. Recorded 10km squares in this area are thus still down by 5 (27%) from the last recording period (1970-82), but despite recent increased recording the species must be considered under recorded in Wales (Smith, 1999). This and other recent surveys, while successfully recording many sites with Brown Hairstreak also highlight the extent of low, flailed hedgerows and point to declines within populations of the butterfly in this area in the last 15 years (Lucas, 1998). Because of these recent changes the national distribution map (Appendix 1) is now out of date.

The Brown Hairstreak currently has strongholds in three main areas :-

- 1) the heavily wooded clays of the west Weald in West Sussex and Surrey,
- 2) the sheltered low-lying valleys and copses of north Devon and south-west Somerset, from Holsworthy east to the edge of Sedgemoor and the Polden Hills,
- 3) low-lying pastoral areas of south-west Wales.

Population

Brown Hairstreak colonies rarely contain many adults and in one of the largest known colonies, studied for 6 years, adults numbered only 300 in the best year with only 40 emerging in one year (Thomas, 1974). Brown Hairstreak populations are associated with master trees where adults congregate to mate but a proportion of females will move several kilometres as they lay their eggs. Thus, most colonies occur over many square kilometres of

farmland and hedgerow, and in some areas probably merge with neighbouring populations. Despite this, colonisation rates appear to be low in the highly fragmented landscape of lowland England and Wales, and colonies tend to remain in the same areas year after year. There are also a few populations which are now restricted to discrete patches of scrub and wood edge, and which are surrounded by intensively farmed land where there is little breeding habitat at present. However, further studies are needed to determine the population dynamics of this species which occurs at low densities across large landscapes.

2.4 LIMITING FACTORS

Historical

Agricultural intensification leading to hedgerow and woodland loss.

The introduction of the mechanical flail cutter, its widespread use on hedges and the increased frequency of cutting.

Afforestation and intensive management of commercial woodland (removing Blackthorn from rides).

Current and Future Limiting Factors

Continued loss of and **annual** flailing of hedgerows.

Continuing changes in woodland management and loss of suitable woodland edge.

Over zealous control of Blackthorn scrub and /or neglect of Blackthorn thickets.

Ploughing to the field edge and loss of headlands in some areas has reduced the amount of sucker growth of young low Blackthorn available.

2.5 RESUME OF CONSERVATION TO DATE

Ecology and Conservation Requirements

The ecology and management of this elusive butterfly was the subject of a PhD. study in the 1970s by Dr J. A. Thomas, based at the ITE, Monks Wood. He has continued these studies in recent years and is currently developing a model to predict the effects of different hedge cutting regimes.

Current Studies

The Wildlife Trust West Wales have targeted surveying for eggs as the species is now under recorded in this stronghold and also undertakes egg counts on 2 of its reserves (Lucas, 1998).

Several Butterfly Conservation branches and others target survey work for eggs of the Brown Hairstreak, including Surrey, Sussex, Devon, Dorset and Hampshire and the Isle of Wight and more recently Butterfly Conservation's 'Butterfly Guardians' project in Wales is encouraging survey of this species.

The West Midlands branch have also undertaken detailed surveys and monitoring of the only remaining colony in Worcestershire and provided management advice to a wide range of organisations and individuals (Mabbett and Williams, 1994; Joy, 1997). This work indicates that standardised egg counts allow useful comparisons between different sites and management regimes but it still remains to be tested in terms of its usefulness in assessing the relative size of adult populations.

Butterfly Conservation (West Midlands Branch) have recently published (in conjunction with English Nature) a leaflet on the management of hedgerows and woodland for the Brown Hairstreak (Barker et al., 1998). The Upper Thames Branch have also produced a leaflet on conservation advice for the Brown Hairstreak and continue to liaise with MOD, FE and RSPB over the management of the last stronghold of the species in Oxfordshire, the Otmoor area.

The conservators of Epping Forest are planning, following extensive survey, to re-introduce the species (Corke, 1997). This has yet to be approved by English Nature and is based on the unproven hypothesis that it died out in the region due to air pollution in the 1950s and that its habitat is suitable again.

An introduction was attempted in North Dorset (Ryewater nurseries) in 1997 but it is too early to say if this has successfully established a colony.

A population at Selborne, Hampshire, has been closely monitored for 20 years and is well documented in the Hampshire and Isle of Wight branch butterfly reports (1985-1997).

Part 3 Actions and Work Programme

This section has been divided into the standard headings Policy and Legislative; Site Safeguard and Acquisition; Land Management; Species Protection and Licensing; Advisory; International; Future Research and Monitoring; Communications and Publicity; Review. Actions are given a low, medium or high priority. The lead organisation(s) concerned for each action is/are named.

Definition of Colony Size: Large = >500 adults; medium = 50-500 adults, small = <50.
For key to abbreviations see page 16.

3.1 POLICY AND LEGISLATIVE

**Lead
organisation(s)
concerned**

Action 1 PRIORITY: HIGH

Include habitat requirements of the Brown Hairstreak when drawing up or revising management prescriptions in ESAs and other agri-environment schemes (e.g. to promote appropriate hedgerow management where the species occurs).

**MAFF, CCW,
WOAD.**

Action 2 PRIORITY: HIGH

Improve financial incentives for the retention and conservation management of hedgerows and scrub edges throughout range.

**MAFF, CCW,
WOAD.**

Action 3 PRIORITY: HIGH

Ensure any new legislation to protect hedgerows can include the presence of Brown Hairstreak as a criterion for selection.

DETR, LAs

3.2 SITE SAFEGUARD AND ACQUISITION

Action 4 PRIORITY: HIGH

Encourage protection of key breeding areas of sites (i.e. master trees, core areas of blackthorn on wood edges etc.) through management agreements and/or reserve acquisition.

All

3.3 LAND MANAGEMENT

Action 5 PRIORITY: HIGH

Incorporate needs for the Brown Hairstreak in management plans and site management statements on all SSSIs with colonies. **EN, CCW.**

Action 6 PRIORITY: HIGH

Maintain suitable Blackthorn stands on all known sites and manage to ensure continuity of habitat in the long term (i.e. presence of young growth of Blackthorn). **All**

Action 7 PRIORITY: HIGH

Encourage management that will maintain some large populations or clusters of populations across the butterfly's range. **All**

Action 8 PRIORITY: MEDIUM

Encourage restoration of suitable breeding habitat within former range, where there is potential for re-establishing viable networks of populations (e.g. inclusion of Blackthorn in new hedge and wood margin planting, sensitive hedgerow management). **BC, MAFF, WOAD, EN, CCW, FE.**

3.4 SPECIES PROTECTION AND LICENSING

Action 9 PRIORITY: LOW

Conduct strategic re-introductions of Brown Hairstreak (and any parasitoids that may be identified) into extensive areas of suitably restored habitat, but only if natural colonisation is improbable, and long term viability is likely. **BC etc.**

3.5 ADVISORY

Action 10 PRIORITY: HIGH

Advise conservation agencies and site owners/ managers on practical habitat management for the Brown Hairstreak and how to incorporate this with other management priorities and interests. **BC, ITE, EN, CCW, FRCA, FWAG, WTs.**

Action 11 PRIORITY: MEDIUM

Advise on habitat restoration techniques on potential and former sites.

**BC, ITE, EN,
CCW, FRCA,
FWAG.**

Action 12 PRIORITY: HIGH

Distribute the existing Butterfly Conservation leaflets on habitat management for the Brown Hairstreak, (e.g. Hedgerows for Hairstreaks and Upper Thames Branch leaflet).

**BC, EN, CCW,
etc.**

3.6 INTERNATIONAL

No action proposed

3.7 FUTURE RESEARCH, SURVEY AND MONITORING

Action 13 PRIORITY: HIGH

Collate all recent records, update national distribution map and determine core regions of distribution.

BC, ITE, etc.

Action 14 PRIORITY: HIGH

Develop a standard monitoring technique for this species and establish an overall monitoring programme for the species.

**ITE, BC, EN,
CCW.**

Action 15 PRIORITY: MEDIUM

Conduct further research on practical methods of maintaining habitat.

**ITE, BC, EN,
CCW, Us, etc.**

Action 16 PRIORITY: MEDIUM

Conduct further research on the population structure and dynamics.

**ITE, BC, EN,
CCW, Us, etc.**

Action 17 PRIORITY: LOW

Identify potentially suitable, unoccupied habitats within 10-20 km of existing populations.

BC, WT's, etc.

Action 18 PRIORITY: LOW

Conduct research on parasitoids and species associated with Brown Hairstreak habitats.

BC, ITE, etc.

Action 19 PRIORITY: LOW

Conduct further research on habitat requirements and ecology.

**ITE, BC, EN,
CCW, Us, etc.**

3.8 COMMUNICATIONS AND PUBLICITY

Action 20 PRIORITY: HIGH

Publicise this Action Plan, the decline of the Brown Hairstreak and the measures needed to conserve it.

All

3.9 REVIEW

Action 21 PRIORITY: HIGH

Review this Action Plan annually and update when necessary.

BC, EN, CCW.

Key to abbreviations

All	All organisations listed
BC	Butterfly Conservation
CCW	Countryside Council for Wales
CoCo	Countryside Commission
DETR	Department of Environment, Transport and the Regions
EN	English Nature
FA	Forestry Authority
FE	Forestry Enterprise
FRCA	Farming and Rural Conservation Agency
FWAG	Farming and Wildlife Advisory Group
ITE	Institute of Terrestrial Ecology
JNCC	Joint Nature Conservation Committee
LAs	Local Authorities
MAFF	Ministry of Agriculture, Fisheries and Food
NT	National Trust
Us	Universities
WOAD	Welsh Office Agriculture Department
WTs	Wildlife Trusts

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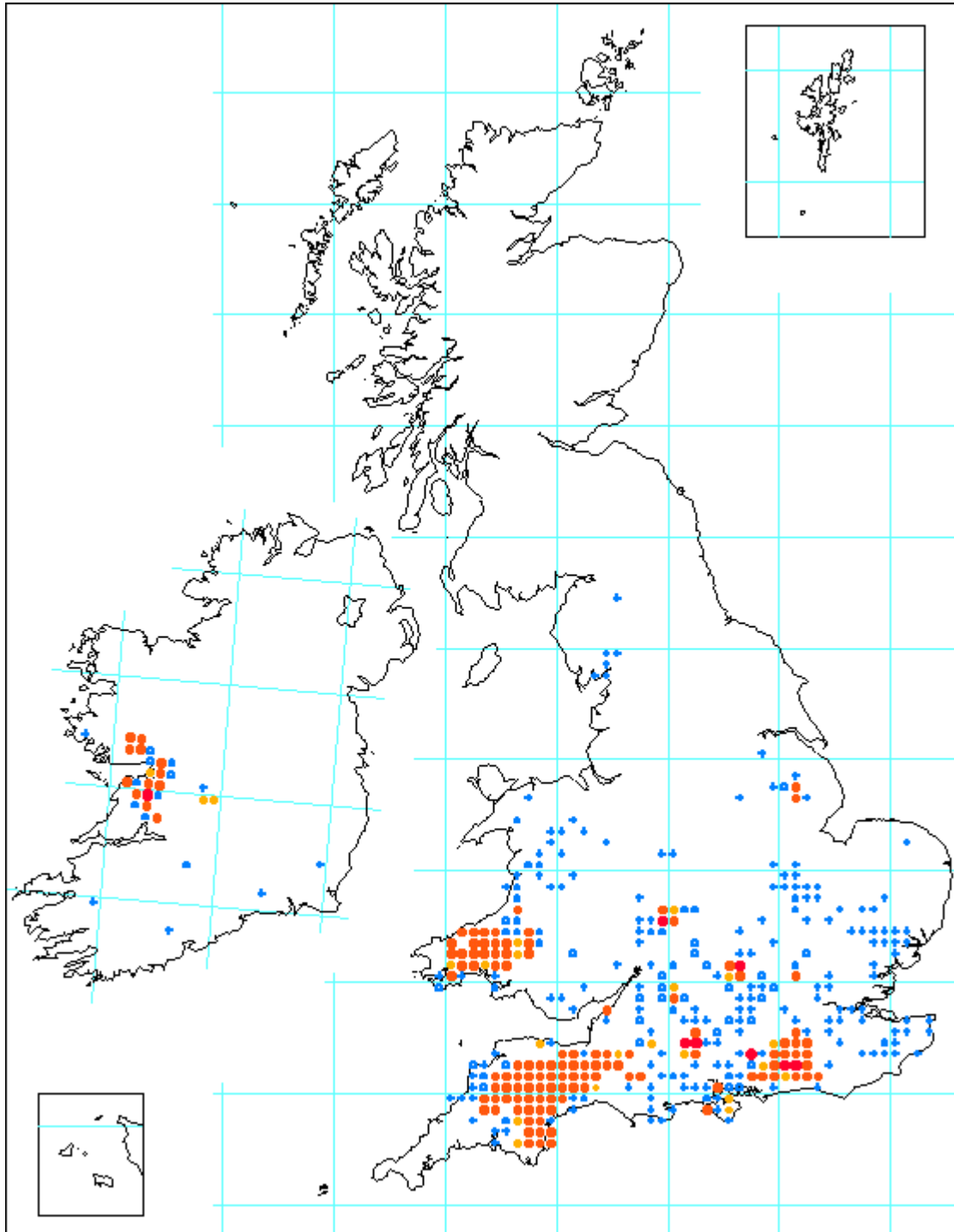
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Appendix 1 The historical distribution of the Brown Hairstreak
(produced with kind permission of the Biological Records Centre).

Appendix 2 The distribution of the Brown Hairstreak

Butterflies for the New Millennium project (2001). Copyright of Butterfly Conservation/Biological Records Centre. (This species remains under-recorded in Ireland and possibly Wales, see text).

(Dark full spot all records from 1995-1999; open circles all records between 1970-1982; cross all pre 1970 records).



Appendix 3 Conservation requirements of the Brown Hairstreak

Habitat requirements

The Brown Hairstreak requires extensive networks of hedgerows, scrub and woodland edges where the larval foodplant, Blackthorn, occurs in abundance. Sites are typically on heavy soils on low lying land but the species can occur on other soils including chalk downland. The butterfly requires substantial uncut sections of hedgerow (several kilometres) and scattered woodland or scrub where there are suitable 'master trees'. The number and type of master trees required is poorly known, but Ash appears to be a favourite.

Management

Management of hedgerows should ensure that the majority of a site is not cut in any one year, the most practical system that will maintain populations appears to be a 3 year rotational cut. Hedgerows should be cut so that they are kept quite tall (>3 metres), and any hedgerow trees retained.

Longer rotations, hedge laying or coppicing will also sustain suitable conditions for the maintenance of Brown Hairstreak colonies if only a proportion of the hedgerows are cut in any one year. Cutting should be in the winter/autumn although a proportion of the population will clearly be damaged by this action. While cutting in August is occasionally recommended to minimise damage to Brown Hairstreaks, this may not be suitable for other hedgerow wildlife and should only be done in areas where the Brown Hairstreak is the main interest of the hedge.

All broad-leaved woodlands and woodland edges should be retained and potential master trees, especially Ash should be encouraged.

Conservation headlands and grasses or uncropped field margins around the edge of woodlands and suitable hedgerows and scrub in Brown Hairstreak areas are also highly desirable and should help prevent the drift of chemicals that may otherwise harm the butterfly or its habitat. The maintenance or establishment of such permanent grassy margins not only protects the hedge but also allows low growing or suckering blackthorn which can help maintain populations of Brown Hairstreak

A colour leaflet on Hedgerow Management for Brown Hairstreaks is available from Butterfly Conservation, P. O. Box 444, Wareham, Dorset, BH20 5YA. (Please enclose an A5 SAE).