

High Brown Fritillary (*Argynnis adippe*)



High brown fritillary

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The high brown fritillary is a comparatively large butterfly with a wingspan of about 60 mm. The upper wing surface is orange with black markings similar to several related fritillaries. The underneath usually has silvery dots and a distinctive row of orange spots on the hindwing.

The adults fly in July/August and lay eggs near to the larval food plant. Because the egg overwinters the female butterfly usually selects sites for depositing her eggs where there is little risk of the substrate becoming rotten over the winter. Dead bracken stems or woody sticks on the ground are often chosen, although, in limestone areas, it is not uncommon for eggs to be laid in moss overlying rocks. The larval food plants are violets, usually common dog-violet or hairy violet. Eggs will always be laid within a few centimetres of violets.

The eggs hatch in spring. To thrive the caterpillars require warmth and access to abundant violets. These conditions are found in Lancashire in two main habitats.

Bracken beds in sunny locations can develop a simple spring flora (including violets) that mimics that found in coppice woodland. Abundant leaf litter helps to trap warm air and allows a hot microclimate to develop under the bracken.

The second habitat is on limestone outcrops where woodland has recently been coppiced or scrub cleared. This management encourages a suitable ground flora, while the moss-covered rock retains heat and creates warm conditions at ground level for basking caterpillars.

Main Habitat(s): Scrub or coppiced woodland on limestone outcrops; bracken-dominated areas of calcareous grassland.

National status

In Britain the species has suffered a contraction in range of 94% over the past fifty years and is now extinct from most of the country ⁽¹⁾. It has three main strongholds – the Morecambe Bay region, Exmoor and Dartmoor, and the Malvern Hills.

The species is listed in the British Red Data Book as vulnerable. It appears as a priority species in the UK BAP. It is included also on Schedule 5 of the Wildlife and Countryside Act 1981.

Regional status

North West England is the national stronghold but even here it is rare (in only 2% of recorded tetrads) ⁽²⁾. The species occurs in suitable habitat in the limestone hills of the Morecambe Bay region, and in adjacent bracken rich-habitats in North Lancashire and South Cumbria. Generally, these populations are regarded as stable at present.

Local status

In Lancashire, important populations occur at Gait Barrows NNR, Silverdale; Eaves Wood, Silverdale; Yealand Hall Allotments; Yealand Storrs; and Warton Crag, Carnforth. Smaller populations occur at: Silverdale Golf Course; Jack Scout; Three Brothers Allotment and Heald Brow in Silverdale.

Current factors affecting the species

The continued careful management of habitat to benefit the species is crucial to its survival in the county.

In the butterfly's bracken habitats, for example, it is vital that bracken beds contain a dead litter layer that is not so dense that it prevents violet growth in the spring, but dense enough to suppress grass growth. This may be compromised by cessation of grazing or by inappropriate grazing regimes.

Winter and spring grazing by cattle is essential to prevent bracken stands becoming too dense and shading-out or smothering violet growth. Some light summer grazing may be beneficial as well. Trampling of actively growing bracken fronds can help to reduce the density of the bracken bed canopy, making it more favorable to violets and other ground flora. The replacement of heavier stock (cattle) with lighter animals (sheep) may result in development of over-dense stands and loss of violets.

In woodland on limestone, the species is dependent on the continuation of regular management by coppicing. Yet, even where coppicing is practised, a lack of deer management (by appropriate population control and exclusion measures) can threaten the long-term viability of coppice management.

Wide rides with sunny glades linking coppice plots are needed to provide breeding, feeding, and movement opportunities within sites. The cessation of such types of habitat management, particularly in small or isolated sites may cause individual populations to fail.

In an ideal situation, there should be a widespread network of several coppice rotations over an area to allow interaction between different breeding colonies and promote genetic diversity.

Current Action / Mechanisms

Within its range in north Lancashire, the high brown fritillary's preferred habitats of bracken, and coppice woodland on limestone are being actively managed by several agencies and organisations, including English Nature, RSPB, Wildlife Trust, Lancaster City Council and National Trust. Much of this habitat is on nature reserves, but several sites remain in commercial agriculture and forestry.

English Nature, the Farming and Rural Conservation Agency and Forestry Commission are developing and applying a protocol for advising landowners/managers of non-nature reserve sites.

A High Brown Fritillary Action Group (HBFAG) has existed since 1989. It is a partnership of statutory agencies, conservation groups, landowners and other key sectoral interests. HBFAG co-ordinates annual monitoring of most known breeding sites. (Gait Barrows NNR; Yealand Hall Allotment; Eaves Wood; Warton Crag). This data is supplied to Butterfly Conservation nationally to contribute to monitoring progress with the UK SAP for this species.

A leaflet 'Bracken for Butterflies' was produced in 1997 by Butterfly Conservation and English Nature ⁽³⁾, outlining action for positive bracken management, and is available free to all.

Objectives, targets and proposed actions for high brown fritillary in Lancashire

Broad Objective:	A. Maintain and enhance all known colonies.			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Continue systematic monitoring of all known colonies in Lancashire.	1. Continue annual monitoring of population size on existing transects. (High)	HBFAG, BCL, EN, WT, RSPB, Lancaster CC	O	RM
2. Ensure that appropriate management is carried out on all sites with high brown fritillary.	1. By end of 2001 review management plans for all nature reserves with colonies to check that prescriptions and programmes of work take adequate account of the species. (High)	EN, WT, RSPB, Lancaster CC	S	LM
	2. Implement positive management for this species on all nature reserves with fritillary colonies through appropriate grazing and/or scrub clearance / coppicing. (High)	EN, WT, RSPB, Lancaster CC	O	LM

	3. Liaise with landowners, managers and tenants of non-nature reserve sites to ensure needs of the species are taken into account, where possible through agri-environment incentives, in management of sites with populations of the fritillary. (High)	EN, MAFF, Land-owners, tenants, managers	O	A, LM
3. Look for opportunities to increase patches of suitable habitat on existing sites.	1. By end of 2001 review management plans for all nature reserves with colonies to assess feasibility of linking and increasing areas of suitable habitat. (High)	EN, WT, RSPB, Lancaster CC	S	LM
4. Seek protection for all known breeding sites through the planning system.	1. Ensure that all relevant planning authorities are aware of current sites by 2001. (Medium).	EN, LCC, BHS P/ship, Lancaster CC	S	SS
	2. Notify all breeding sites as SSSIs by 2005. (High)	EN	M	SS
Broad Objective:	B. Promote ecological research that assists conservation of the species			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Confirm status of high brown fritillary in Morecambe Bay limestone area.	1. Annually collate results from all existing transects to assess population trends at north Lancashire sites (High)	HBFAG, BCL, EN, WT, RSPB, Lancaster CC	O	RM
	2. Using BHS data, identify possible sites in north Lancashire and complete systematic survey for existence of undiscovered colonies by autumn 2003. (Medium).	HBFAG, BCL, LCC, BHS P/ship	M	RM
2. Encourage research on Morecambe Bay sites into aspects of species' ecology	1. Seek support for more research on Morecambe Bay sites into species' ecology (e.g. precise management habitat requirements). (Medium)	BC, HBFAG, EN, HE/FE	O	RM

Broad Objective:	C. Expand the current range and population size of the species.			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Identify opportunities to restore suitable habitat in the Morecambe Bay and elsewhere within the former range.	1. By the end of 2003 assess feasibility of habitat creation / restoration measures to facilitate natural colonisation of the species to new sites. (Medium).	HBFAG, BCL, LCC, BHS P/ship	M	RM
	2. By the end of 2003 assess feasibility of habitat creation / restoration measures to facilitate introduction of the species to new sites. (Low).	HBFAG, BCL, LCC, BHS P/ship	M	RM
2. Ensure incentives are available to land managers to create appropriate conditions that encourage natural colonisation of new sites.	1. Ensure that high brown fritillary is considered in the setting up of new agri-environment agreements and the revision of existing agreements to in the Morecambe Bay area so that, where possible, habitat is brought into management that is favourable to the species. (Medium)	MAFF	M	P
	2. Include habitat requirements of the fritillary in prescriptions for Woodland Grant Scheme targeted at Morecambe Bay area. (Medium)	FC	M	P
Broad Objective:	D. Promote the high brown fritillary as a flagship species in the Lancashire BAP			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Produce material aimed at the general public that explains the importance of the high brown	1. Include information about the fritillary in news-letters, site leaflets and interpretative material. (Low)	MBP, EN, WT, RSPB, Lancaster CC, Arnside / Silverdale AONB CMS	O	PR

fritillary populations in the limestone areas of north Lancashire and south Cumbria				
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Related Action Plans:

- Pearl-bordered Fritillary SAP
- Northern Brown Argus SAP
- Limestone Pavement HAP
- Calcareous Grassland HAP

References & additional reading:

1. HMSO (1995) Biodiversity: The UK Steering Group Report. Volume 2: Action Plans. High Brown Fritillary SAP p.122.
2. Ellis, S. & Bourn, N. (2000) Butterfly Conservation Regional Action Plan North West England. Butterfly Conservation, Wareham, Dorset.
3. Joy, J. (1998) Bracken for butterflies. A leaflet published by West Midlands Branch of Butterfly Conservation.
4. Barnett, L.K. & Warren, M.S. (1995) Species Action Plan for High Brown Fritillary (*Argynnis adippe*). Butterfly Conservation, Wareham, Dorset.

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