

Pearl-bordered Fritillary (*Boloria euphrosyne*)



Pearl-bordered fritillary on bugle (Ajuga reptans)
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The pearl-bordered fritillary is a medium-sized butterfly with a wingspan of about 40 mm. Like many other fritillaries, the upper wing surface has black markings on an orange background. Underneath the hindwing there are two silver spots and, on the outer border, seven silvery 'pearl' markings. The adults are on the wing in May/June. There are several similarities in the lifecycle of this species and of that of the high brown fritillary, a species that is also covered by a SAP in this Plan:

- The caterpillars feed upon violets;
- The caterpillars require very warm microclimates to develop properly.

One important difference is that the high brown fritillary overwinters as an egg and caterpillars first emerge in the spring. The caterpillars of the pearl-bordered fritillary emerge first in autumn, overwinter in this stage and then re-emerge in the spring.

The similarities mean that the pearl-bordered and high brown fritillaries share many of the same habitats and they are found at many of the same sites. For these reasons, the two species tend to be affected by the same environmental factors. Most of the sections in this Species Action Plan (SAP) are identical, therefore with their counterparts in the high brown fritillary SAP.

Main Habitat(s): Open deciduous woodland; scrub or coppiced woodland on limestone outcrops; well-drained grassland with either scattered scrub or abundant bracken.

National status

The species has declined very rapidly during the present century, most notably in woodland in the last 50 years, and is now extinct in large parts of its former range. Current rates of loss stand at c.40% per decade in places ⁽¹⁾.

The species is nationally scarce in Britain and is listed as a UK BAP Priority Species. It is included on Schedule 5 of the Wildlife and Countryside Act 1981 (for sale only).

Regional status

In North West England 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 ⁽²⁾.

Local status

Important sites in Lancashire are Gait Barrows NNR, Silverdale; Eaves Wood, Silverdale; Yealand Hall Allotments, Yealand Storrs; Warton Crag LWT/LCC/RSPB sites; Carnforth. Smaller populations occur at Silverdale Golf Course, Jack Scout, Three Brothers Allotment, and Heald Brow.

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 pearl-bordered 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. In addition to working towards the conservation of the high brown fritillary, the HBFAG addresses the pearl-bordered fritillary as well

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 pearl-bordered 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 pearl-bordered 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, Land-owners, tenants, managers, MAFF	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. (Low)	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 pearl-bordered 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 area and elsewhere within the former range.	1. By the end of 2003 assess feasibility of habitat creation / restoration measures to facilitate natural colonisation or introduction of the species to new sites. (Medium).	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. Include habitat requirements of the fritillary in prescriptions for Woodland Grant Scheme, Countryside Stewardship and other agri-environment schemes targeted at appropriate sites within the natural dispersal range of the butterfly in the Morecambe Bay area. (Medium)	FA, MAFF	M	P
Broad Objective:	D. Promote the pearl-bordered 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 pearl-bordered	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:

- High Brown 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. Pearl-Bordered Fritillary SAP p.126.
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.

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