

# Small Pearl-bordered Fritillary Action Plan

*Boloria selene*

**UK List of Priority Species:**

**Yes**

**Scottish Biodiversity List:**

**Yes (watching brief only)**

## Summary

The Small Pearl-bordered Fritillary is widespread locally but restricted to sites where its favoured larval food plant, Marsh Violet, grows. The number of known colonies identified in North Lanarkshire has increased from 25 in 1996 to about 50 in 2014. Other than at a few sites, the health of colonies and their habitat is not known, and obtaining this data will be a key action of this plan. More survey is required to identify a more up to date picture of this species in North Lanarkshire.

The butterfly is identified as a high priority for Butterfly Conservation at the UK level, and a medium priority for conservation action in Butterfly Conservation's Scottish Conservation Strategy. The Small Pearl-bordered Fritillary has also been rated as vulnerable in the revised Red List of British butterflies (Fox, R. et al, 2022).

## Species Profile

In Scotland, Small Pearl-bordered Fritillaries are usually found in flushed rushy grassland, wet rides, glades within or at the edges of woodland and moorland edge. The larvae feed at night on the leaves of violets, particularly Marsh Violet, which typically grows on the margins of raised bogs or in wet flushes on acid soils. The adults fly from early June until late July or early August, when they often feed on the flowers of Marsh Thistles.

It is thought that the species may exist as larger metapopulations (many smaller colonies making up a larger population as butterflies move between them) within which adults concentrate around favoured breeding areas. This could explain why there are many small colonies found in our area, and is a good reason why conservation action for this species should occur at a landscape level.

## Legal Status

The Small Pearl-bordered Fritillary is not currently listed under Schedule 5 of the Wildlife and Countryside Act (1981), and therefore has no statutory protection.

## **Current Status**

The Small Pearl-bordered Fritillary is found across central and northern Europe and through Asia to Korea. Its population appears stable through much of Europe, though it has declined by more than 75% in the Netherlands and by over 50% in Luxembourg and Belgium, in the last quarter of the 20<sup>th</sup> century (Asher et al., 2001).

At a UK level, the butterfly's range has strongly contracted with an estimated -76% occurrence trend between 1976 and 2014 (Fox, R. et al 2015). The most recent population trend across the UK also showed a worrying -68% decline in abundance between 1976 and 2021 (UKBMS data 2021). Severe declines have occurred in south, central and eastern England. In Scotland the butterfly remains widespread and locally abundant, particularly in the Highlands and other areas north of the central belt. It is also thought to have declined in parts of eastern Scotland during the last 50 years.

There are small breeding colonies of the Small Pearl-bordered Fritillary scattered throughout North Lanarkshire, from the Kilsyth Hills to the West Lothian border by Harthill. There appear to be concentrations around Croy Hill/Dullatur; to the south of Cumbernauld; and in the Caldercruix-Hillend Reservoir area, where there are more extensive patches of the preferred habitats. Small numbers still occur in, or close to Strathclyde, Drumpellier and Palacerigg Country Parks.

Several new colonies were confirmed in the early 2010's, and it is likely that there are more sites to be found. This does not indicate the species is spreading, simply that it has been better recorded. The butterfly has been found in 44 one-kilometre squares since 1989, but it is not certain how many of these squares still support the species. Overall the population size of these colonies is poorly known, though most sites are thought to have single figure populations. Survey and monitoring has been irregular, mainly because of the insect's relatively short flight period and the localised habitat requirements.

Monitoring has been carried out at Commonhead Moss (east); the population is the largest known in North Lanarkshire, with counts of 130 adults in May 2004. Commonhead Moss (west) holds the record for the highest numbers recorded in west central Scotland of 182 in 1997. Unfortunately these two sites are bisected by the M73.

Only 6 other sites in North Lanarkshire have had records of ten or more adults since 2004. There are no recent records from some other sites which previously had large numbers of individuals, such as Auchinbee Quarry, Dullatur (25 in 1992).

## **Future Status**

With better information on the distribution of this species it will be easier to minimise the impacts of development and degradation of habitats. However, facilitating adequate habitat management for this species will be difficult because of varying land-use and ownership.

## **Current Factors Affecting This Species**

The main threats to this species are loss of breeding habitat from agricultural improvement or afforestation, persistent burning of grassland and bogs, and on some sites, scrub regeneration (of birch and willow), which may occur due to agricultural abandonment. Built development, mining and quarrying have also eliminated or affected North Lanarkshire sites, one of which is between a busy motorway and an A-class road.

## **Current Action**

Efforts have been made to ensure the protection of suitable habitat within the development planning process and the Woodland Grant Scheme consultation arrangements.

- \* Ongoing collation, by the NLC Greenspace Development, Glasgow Natural History Museum and Butterfly Conservation, of Small Pearl-bordered Fritillary distribution data.
- \* Submitting records of this and other species to Butterfly Conservation and accessing their database of butterfly records from North Lanarkshire.
- \* Site Stewardship programme within NLC Greenspace Development monitoring NLC owned sites, some of which include Small Pearl-bordered Fritillary populations.
- \* The presumption against development of SINC's in the NLC local plan. The majority of Small Pearl-bordered Fritillary sites are designated as SINC's.
- \* Appropriate mitigation on sites where development or land-use change threatens the species, is ongoing through NLC Greenspace Development.
- \* Environmental statements from developments identifying new or prospective sites for this species.
- \* An identification guide to the butterflies and some of the day-flying moths of Falkirk, North and South Lanarkshire was published by BC and NLC in 2009 and is still available.
- \* Volunteer habitat maintenance work party held Butterfly Conservation at St. Maurice's Pond in March 2017 to remove tussocks of grass and rushes to make more room for violets
- \* Ongoing UK Butterfly Monitoring Scheme transects at Kingshill, Commonhead Moss (west) and Greenhead

## **Proposed Objectives, Targets and Actions**

1. To maintain and enhance the population and distribution of Small Pearl-bordered Fritillaries in North Lanarkshire.
2. Survey populations and monitor all known sites.

Action	Meets objective number:	Action by	Target
<b>Site Safe Guard and Management</b>			
1.1 Enter into simple management agreements with owners of sites from where the butterfly is known, particularly where protection of breeding wetlands may be achieved through SRDP.	1	NLC, BC, landowners.	Three targeted management agreements by 2027.
1.2 Press for appropriate mitigation on sites where development or land-use change threatens the species	1	BC, NLC (Planning), SWT, private landowners	Include in Biodiversity Guidance.
1.3 Apply appropriate management prescriptions on areas adjoining sites to be managed within Glasgow City, i.e. Garnkirk Moss and Gartosh Road Mire/Drumpellier Country Park	1	GCC, NLC, NS, private landowners	a) Prescriptions agreed b) Prescriptions implemented at one site annually from 2026.
1.4 Protect habitat corridors between colonies to maintain metapopulations. Ensure known SPBF localities do not become isolated as a result of planning procedures and developments	1	NLC	Identify habitat corridors, map these out and share them with NLC Planning.
1.5 Investigate possibilities of a green bridge over M73 to link Commonhead Moss (east) and Commonhead Moss (west).	1	NLC, GCC	Renewed connection between the two sites
1.6 Further SPBF sites to be designated as SINCs	1	NLC, BC	New sites designated within a year of identification.
<b>Species Management and Protection</b>			
2.1 Reintroducing the marsh violet at sites where it has become extinct, if sufficient suitable habitat exists.	1	NLC, BC	'Assess 3 sites annually for Marsh Violet planting opportunities and undertake where needed'
2.2 Monitor known sites for growth and spread of birch and other invasive trees into key habitat areas, and remove these if necessary	1	NLC, BC	Annual management of sites. Potential project at St Maurice's Pond.
<b>Advisory</b>			
3.1 Advise site owners / managers on practical management for fritillaries.	1	BC, NS NLC	Identify and approach land owners to offer advise by 2026

<b>Survey, research and monitoring</b>			
4.1 Survey all populations at known sites	2	NLC, BC	Draw up timetable and list of sites to survey by end of 2023.  Survey all sites by end of 2024.
4.2 Continue monitoring at least 3 sites. Greenhead, Commonhead Moss (east) and Palacerigg.	2	NLC	Annually
4.3 Maintain 3 existing butterfly transects as part of the UK Butterfly Monitoring Scheme	2	NLC, BC	Ongoing
4.4 Track down missing records for SPBF in NL, and create and maintain distribution maps of this species on GIS	1	NLC, BC	By end of 2025 and update annually.
<b>Communications and publicity</b>			
5.1 Include members of the public in surveys and provide training with the aim that members of the public can survey sites independently and feed back results.	2	NLC, BC	1 survey annually to include public involvement and training element.

## References

Asher J, Warren M, Fox R, Harding P, Jeffcoate G and Jeffcoate S (2001): The Millennium Atlas of Butterflies in Britain and Ireland. OUP. Oxford.

Butterfly Conservation UK Strategy 2025 [https://butterfly-conservation.org/sites/default/files/2018-11/bc\\_2025\\_conservation\\_strategy.pdf](https://butterfly-conservation.org/sites/default/files/2018-11/bc_2025_conservation_strategy.pdf)

Fox, R., Dennis, E.B., Brown, A.F. & Curson, J. (2022) A revised Red List of British butterflies. Insect Conservation and Diversity, 1–11. Available from: <https://doi.org/10.1111/icad.12582>

Fox, R., Brereton, T.M., Asher, J., August, T.A., Botham, M.S., Bourn, N.A.D.; Cruickshanks, K.L., Bulman, C.R, Ellis, S., Harrower, C.A., Middlebrook, I.; Noble, D.G., Powney, G.D., Randle, Z., Warren, M.S.. Roy, D.B. 2015 *The State of the UK's Butterflies 2015*. Butterfly Conservation and the Centre for Ecology & Hydrology, Wareham, Dorset.

Sutcliffe, R Species Action Plan for the Small Pearl-bordered Fritillary in Glasgow City, Glasgow City Council 2000

Thomson G. The Butterflies of Scotland, Crook Helm 1980

UKBMS data 2021 [https://ukbms.org/sites/default/files/Country-level%20Summary%20Tables%202021\\_updated.pdf](https://ukbms.org/sites/default/files/Country-level%20Summary%20Tables%202021_updated.pdf)

## Authors:

David Hill (Butterfly Conservation), Laura McCrorie (North Lanarkshire Council).