



Butterfly Conservation Wales  
Gwarchod Glöynnod Byw Cymru

Rhôs Pasture with  
Marsh Fritillary.



# Marsh Fritillary in Wales

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A practical guide to managing  
grassland for Marsh Fritillary in Wales





## The Marsh Fritillary – a flagship species of Welsh grasslands

In Wales, the Marsh Fritillary butterfly is typically found on wet grassland (Rhôs pasture) but also occurs on wet slacks in sand dunes, on fens and on limestone grassland on the Pembrokeshire Coast.

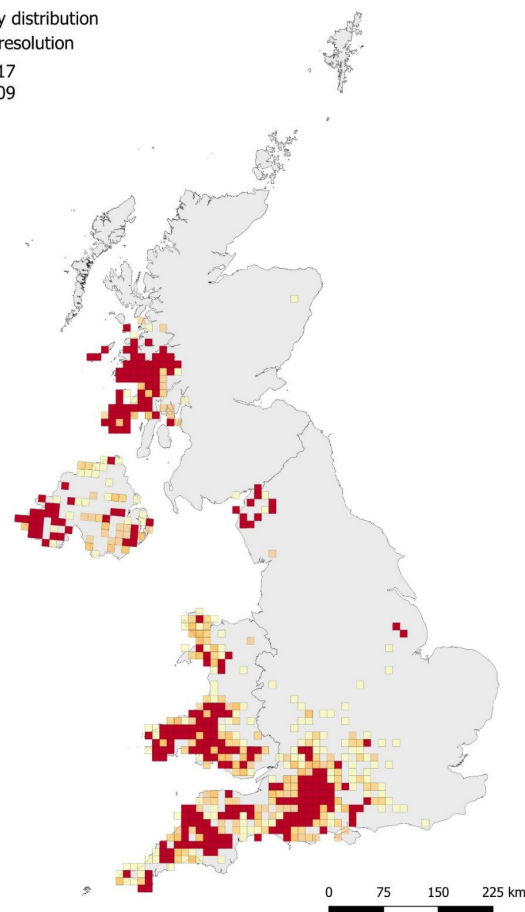
This butterfly is declining in Wales due to habitat loss, degradation and fragmentation. It has suffered a 40% decline in distribution and 60% decline in abundance over the last 30 years. Urgent action is needed to halt and reverse the decline of this butterfly and other animals and plants that depend on these habitats.

This leaflet describes the habitat in which the Marsh Fritillary occurs and explains how to manage this land to safeguard the butterfly.

*Map: the decline in distribution of Marsh Fritillary in the UK since 1970. Light yellow squares show the 1970–1990 distribution overlaid with orange for the 1990–2009 distribution and red for the 2010–2017 distribution.*



Marsh Fritillary distribution  
10km square resolution  
■ 2010 - 2017  
■ 1990 - 2009  
■ Pre 1990



## Marsh Fritillary life cycle and requirements

The Marsh Fritillary flies from mid-May until the end of June. The female lays eggs in large batches on the underside of large Devil's-bit Scabious plants. Small, brown, spiny caterpillars emerge a month later and can be easily seen feeding together on Scabious leaves inside a silken web. Prior to the winter months a dense hibernation web is spun, tucked down in grass tussocks to protect the caterpillars from the weather and predators. The caterpillars emerge in February to early March and often separate in search of fresh Scabious plants. By late April the caterpillars pupate and emerge as adults two to three weeks later.

The Marsh Fritillary exists as **metapopulations**, comprising groups of local populations connected by occasional dispersal. This means that the butterfly needs **networks of well-connected habitat**. Research suggests a minimum of 70 hectares of suitably managed habitat in a landscape is needed for it to survive.

All suitable and potentially suitable habitat in landscapes where the butterfly occurs should be targeted for management. Sites within 2km of occupied sites are a priority, with up to 5km being important. Not all sites are occupied in all years, but are still valuable; these sites can offer habitat in 'boom' years for the butterfly, and then provide source populations if those on core sites crash, improving network resilience.





**Rhôs pasture with Devil's-bit Scabious.**



**Narrow-bordered Bee Hawk-moth**

## Damp grassland

Rhôs pasture is a distinctive, Welsh marshy grassland habitat. It is rich in wildlife with characteristic plant species such as Meadow Thistle, Devil's-bit Scabious and Whorled Caraway growing among vegetation dominated by Purple Moor-grass and various rush species. The habitat typically occurs as part of a patchwork with wet heath, drier grassland, and scrub habitats.

In Wales, Rhôs pasture is the main habitat used by the Marsh Fritillary, along with other characteristic species including Small Pearl-bordered Fritillary, Narrow-bordered Bee Hawk-moth, Dormouse and Snipe. Barn Owls and Short-eared Owls also use it for hunting. Habitat management for the Marsh Fritillary will benefit many species, and thriving populations of the butterfly indicate a healthy natural environment.

## How to manage Rhôs pasture for the Marsh Fritillary

To benefit Marsh Fritillary and other characteristic species, aim for:

- An uneven, tussocky, structured sward at the end of the grazing season (normally end of September) between 12–25cm high (5–10"). These conditions provide suitable breeding areas, a plentiful supply of food for the larvae and somewhere to shelter through the winter months. Some dead grass or leaf litter is important for the larvae to bask on.
- Frequent flowering plants present, such as thistles, Devil's-Bit Scabious and Marsh Violet, providing important larval food plants and adult nectar sources.
- Scrub species covering a maximum of 5–10% of the total area, to provide important shelter.

This is best achieved by:

- Extensive grazing in the period May–September with cattle and/or ponies. Native breeds such as Welsh Black cattle and Welsh Mountain ponies are hardy and well-suited but other more mainstream breeds can also be suitable. Some poaching, especially of tussocky patches, creates pockets of bare ground for plants to germinate.
- Checking the site regularly. A rough guideline is one cow or pony per hectare (2.5 acres) for three months, but stocking rates may need to vary according to site conditions; it may be necessary to move the stock off early in a dry year, or to stock later in a wet year (September–November) to achieve suitable habitat conditions.



**Rhôs pasture – well managed.**



**Rhôs pasture – rank/undergrazed.**



**Rhôs pasture – overgrazed.**



- Occasional cutting (March and June or late July if Snipe or Curlew are likely to breed) or burning in late winter (January–early March) might be useful in areas of the site ignored by the livestock, to control patches of dense rushes, young scrub or rank grasses, and if a litter layer has built up. All cut material should be removed. Avoid burning or cutting more than one-third of the site in any year. Mowing and burning are both unsuitable for Marsh Fritillary breeding areas.



Please avoid:

- Extensive poaching or overgrazing where the sward is grazed tightly; this leads to the loss of suitable Devil's-bit Scabious plants and the shelter provided by a tussocky sward.
- Undergrazing or abandonment, leading to encroachment of coarse grasses; dead litter will build up, smothering flowering plants including Scabious. Scrubby species will invade the site.
- Sheep are generally unsuitable, as they eat the Scabious plants and produce a 'tight' sward.

Because of natural variation in site conditions and grazing preferences of stock it might not be feasible to achieve ideal habitat conditions across the whole site all of the time. However, aim to maximise the amount of ideal habitat by adjusting stocking levels and the grazing period to the site conditions during that year. If necessary, encourage grazing of under-grazed areas by burning or cutting tracks into the vegetation.



## Scrub works

Regular scrub management is often necessary in grassland habitats. However, scrub provides important habitat for insects (e.g. Green Hairstreak) and nesting sites for birds, and should therefore never be eradicated; levels of 5–10% across the site are desirable. When carrying out scrub control, avoid damage to the habitat by heavy machinery. Always remove cut materials from the site, or burn cut materials in a few designated areas, preferably on galvanised iron sheets so that the nutrient-rich ash can be easily removed from the site. Treat stumps with an appropriate herbicide to prevent regrowth immediately after cutting.

## Restoration of Sites

In general the litter layer should be removed prior to restoring grazing, by either cutting (one-third of field annually and removing arisings) or burning, and grazing reintroduced gradually. 'Blitz grazing' will destroy much of the invertebrate interest of the site. The aim is to gradually open up the vegetation to encourage the spread and density of Scabious and other smaller plants. This spreads the work and enables the grazier to assess how the stock are responding and adjust the stocking rates accordingly.

## Further help and advice

For further information and advice, please contact Butterfly Conservation below. Financial support may be available through Wales' agri-environment scheme to enable sympathetic management of environmental features on your holding. This grant scheme is administered by the Welsh Government.

Visit [gov.wales](http://gov.wales) or contact your local office for more information. Natural Resources Wales should be consulted regarding designated sites.

## About Butterfly Conservation

Butterfly Conservation is a national charity dedicated to saving butterflies, moths and their habitats.

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