

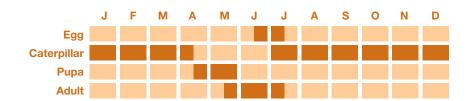
The wings of this beautiful butterfly are more brightly patterned than those of other fritillaries, with more heavily marked races being found in Scotland and Ireland. The larvae spin conspicuous webs that can be recorded quite easily in late summer. The Marsh Fritillary was once widespread in Britain and Ireland but has declined severely over the last century, a decline mirrored throughout Europe. Its populations are highly volatile and the species probably requires extensive habitats or habitat networks for its long term survival.

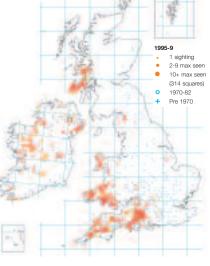
## Life cycle

Eggs are laid in large batches of up to 350 eggs. Larvae are gregarious and spin a protective web that becomes conspicuous by the end of August. The nests, which are easy to count, occur in intermediate length swards (8-25 cm), although shorter swards (5-15 cm) can be used where foodplants are very abundant (e.g. on downland). The larvae overwinter in a small web close to the ground, usually within a dense grass tussock. They emerge in early spring and can be seen in clusters of up to 150 small black larvae when basking in the weak sunshine. They eventually become solitary and can disperse widely over the breeding habitat. Pupae are formed low down in grassy vegetation, either deep within grass tussocks or amongst dead leaves.

## **Population structure**

The butterfly forms close-knit colonies on discrete patches of habitat (typically 5 - 20 ha). Adults rarely fly more than 50-100m but a small proportion seem to disperse further. The butterfly is renowned for its large fluctuations in population size that make it highly prone to local extinction, but in "good" years enable it to spread and colonise new sites as well as patches of less suitable habitat. It is known to exist as metapopulations comprising groups of local populations connected by occasional dispersal.





## **Foodplants**

Devil's-bit Scabious Succisa pratensis.
On calcareous grassland, it occasionally uses Field Scabious Knautia arvensis and Small Scabious Scabiosa columbaria.
Females select larger, more prominent foodplants, or patches of shorter vegetation where the foodplant is very abundant.

## **Habitat**

# Open grassy habitats with Devil's-bit Scabious of two main types:

- Damp or heathy grassland dominated by tussock-forming grasses;
- Calcareous grassland (usually on west or south-facing slopes in England).

Temporary colonies can also exist in large (>1 ha) woodland clearings and in other grasslands.

## **Habitat management for the Marsh Fritillary**

The overall aim is to produce an uneven patchwork of short and long vegetation by the end of the grazing period, between 8 and 25 cm high on damp grassland and 5-15 cm on chalk grassland.

#### Grazing

Extensive grazing by cattle or ponies in spring and summer is ideal on wetter sites, although autumn/winter grazing or all-year grazing can also be suitable. In general, a low stocking rate over a longer period is preferable.

Stocking rates may also need to vary between different sites and between years. On most low productivity sites, stocking rates should not exceed 0.2-0.3 livestock units/ha/year. On seasonally grazed sites, roughly 1 cow every hectare (2.5 acres) for three months per year is recommended. Grazing animals should be removed if the drier areas become shorter than 8cm or if the ground is too wet.

Proven systems include: hardy breeds of suckler cow, either pure bred or crossed with continentals; Holstein Friesian dairy replacements or stores; hardier beef stores, such as Welsh Black or Belted Galloway; and native ponies, such as Exmoor or Dartmoor. Sheep grazing is generally unsuitable because they quickly remove large food-plants used for egg-laying. However very extensive or occasional sheep grazing may be acceptable though requires careful monitoring. Winter and early spring grazing by sheep has been successfully used to maintain suitable habitats on some chalk downland.

## **Burning**

Burning is used to maintain some sites but it can kill Marsh Fritillary larvae. To minimise impacts on Marsh Fritillary populations and other insects:

- 1 Only burn on sites with a recent history of burning;
- 2 Burn between January/March;
- 3 Avoid burning more than one third of a field in a year;
- 4 Cool, quick fires are best but are difficult to control so cut firebreaks or use natural fire breaks such as wet areas or ditches.

Any burning undertaken must be in line with 'The Heather and Grass burning Code'.

#### Mowing

Mowing is unsuitable for Marsh Fritillary breeding areas. However, it may be used as a restoration tool particularly where tussocky Purple Moor Grass or rushes have become dominant.

### Scrub cutting

Some scrub cutting is necessary on most sites. It is best to cut a little each year, between October - February. When necessary treat the stumps with a suitable herbicide to prevent re-growth. Avoid clearing all the scrub as other insects and birds use it for shelter and breeding.

#### **Restoring neglected sites**

Re-introduce management gradually to neglected sites and ensure that there is sufficient grass available for the livestock. This spreads the work, enables you to assess how your stock are responding and ensures that the Marsh Fritillary will survive.

## **Habitat networks**

The butterfly requires extensive habitat networks in order to survive (probably comprising many tens of hectares) and all potentially suitable habitat in a region should be targeted for management. In regions where habitat loss has been severe, habitat restoration should be given a high priority.



above Ideal habitat in chalk grassland, showing short-medium height vegetation below Ideal habitat in cattle-grazed damp grassland, showing tussocky vegetation





Saving butterflies, moths and their habitats

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The scheme includes Higher Level Stewardship, which supports management for targeted butterflies, moths and other biodiversity.