





Managing for bespoke species/assemblages within Countryside Stewardship – guidance template

Species/assemblage name	Conservation status
<p>Marsh Fritillary (<i>Euphydryas aurinia</i>)</p>  <p>Image Martin Warren, Butterfly Conservation</p>  <p>Larval web (Butterfly Conservation)</p>	<p><i>Section 41, European Protected Species</i></p>  <p>Chalk grassland habitat (Butterfly Conservation)</p>  <p>Rhôs pasture habitat (Butterfly Conservation)</p>
<p>Introduction</p> <p>Occurs in open grassy habitats where the foodplant Devil's-bit Scabious <i>Succisa pratensis</i> is abundant. There are two main types of habitat – damp grassland dominated by tussock-forming grasses (such as Rhôs pasture or Culm) and calcareous grassland (usually on west or south-facing slopes in southern England).</p> <p>A survey of colonies in England showed a loss of 66% between 1990 and 2000 although the rate of loss has lessened to 9% between 1995-99 and 2005-09.</p> <p>Significant declines due to habitat loss and fragmentation as a result of agricultural intensification and development, and inappropriate grazing or neglect of remaining grassland.</p> <p>The overall aim is to produce an uneven patchwork of short and long vegetation by the end of the growing season, 8-25cm on damp grassland and 5-15cm on calcareous grassland. Extensive grazing by cattle or ponies in spring and summer is ideal; low stocking rates over a longer period is preferable and autumn/winter grazing or all-year grazing can also be suitable. Burning is a traditional management tool on some sites such as Culm grassland. Where burning is difficult, cutting of rank grassland can be considered (e.g. on restoration sites) particularly where soft rush is dominant. Cuttings should be removed and never cut more than 30% of the site in any one year.</p>	

Why a bespoke species/assemblage?

Marsh Fritillary requires extensive grazing by cattle or ponies in the spring or summer with low stocking rates over a longer period. Burning is a traditional management tool on some sites. These methods are not characteristic of routine management based on the 'mosaic' approach.

When and where to apply this guidance

At all sites where the species is present, on historical sites where restoration is undertaken to encourage recolonization or potential new sites. Marsh Fritillary is known to fly up to 2km to colonise new sites. Therefore all potential habitat within this distance from an occupied site should be managed and up to 5km may also be considered.

Developing a Countryside Stewardship agreement

Relevant CS options

GS6	Management of species rich grassland
GS7	Restoration towards species rich grassland
GS13	Management of grassland for target features
SP6	Cattle grazing supplement
SP8	Native Breeds at Risk supplement

Prescription guidance for GS6

P137 – Control dense rush so that stands do not cover more than [20%] of the parcel area. Manage by grazing and/or cutting every year to achieve a sward height of [less than 20 cm by 30 September]. [Do not cut between [15 March and 31 July].] [Cut no more than [a third of the area] of rushes [in each field or XXX]. Do not cut rushes [in wet flushes or XXX].]

P138 - Retain the full extent of well-established scrub [where cover is below 5%]. [Where the cover is 5% or greater, maintain scrub over at least 5% and a maximum of 10% of the parcel area.] It must be retained as discrete small patches, lines and occasional individual bushes scattered across the site. [Do not cut more than a third of the scrub in any one year except on historic and archaeological features. All cuttings should be removed from the site]

P449 - Carry out a controlled burn [as a restoration tool on Culm sites where purple-moor grass dominates which have not been adequately grazed in the summer (not where the species is present) on no more than one third of the site (or any third of one field) in any one year in parcels XXXX (boggy or peaty areas should be avoided and burns should only take place when conditions allow)] during January or February in years [as necessary] following The Heather and Grass Burning Best Practice Guides.

P455 - Manage [dense Bracken stands / deep Bracken litter layers] rotationally in years [1 to X] [by cutting/bruising/spraying/]. Cut bracken by hand on [XXXX] historic and archaeological features.

On Purple moor-grass and rush pasture

P470 - [By year X], [at least 2 moderate/high value indicator species bugle, daisy, marsh thistle for Priority habitat feature Purple moor-grass and rush pasture must be frequent/in flower during May and June and 2 high value indicator species Devil's-bit scabious and XXXX for Priority habitat feature Purple moor-grass and rush pasture frequent (as defined in XXXX (currently the FEP Handbook)]. [By year X], cover of [species Devil's-bit scabious must be frequent].

OR on Lowland Calcareous grassland

P470 - [By year X], [at least 2 moderate/high value indicator species small scabious and bird's-foot-trefoil for Priority habitat feature Lowland calcareous grassland must be frequent/in flower during May and June and 2 high value indicator species XXXX for Priority habitat feature chalk grassland FREQUENT (as defined in XXXX (currently the FEP Handbook)]. [By year X], cover of [species Devil's-bit scabious must be frequent].

P520 - Do not supplementary feed [except:

- o [for the provision of mineral blocks (non-energy based)]
- o [scattering of hay/haylage on areas XXXX identified in XXXX]
- o [concentrates/XXXX on areas XXXX identified in XXXX]].

P667 - [From [year 1] onwards], manage by [grazing with cattle and/or hardy ponies for at least 6 weeks between May and September at a maximum density of 1LU/ha in the first year (if restoring) and thereafter between 0.2 and 0.3LU/ha per annum; stocking rates may need to be adjusted on damp grassland sites if the drier areas become shorter than 8cm or if the ground is too wet; On chalk sites autumn/winter grazing can occur] [to maintain VEGETATION CONDITIONS] [so that sward height is between 8cm and 25cm for wet grassland and between 5cm and 15cm for calcareous grassland in August/September].

P464 - Maintain the extent of [Marsh Fritillary breeding area xha] of interest within the [grassland/scrub] as identified [XXXX].

P706 - Keep a monthly record of stock numbers grazing on [Parcel(s) XXXX]. Make the record available on request.

IoS for GS6

[in all years], cover of wildflowers in the sward (excluding undesirable species but including rushes and sedges), should be between [20% and 90%]. At least [40%] of wild flowers should be flowering during [May-July].

[In all years], the average sward height [between August and September] should be between 8-25cm on damp grassland and 5-15cm on calcareous grassland.

[By year X/ in all years], species [Devil's-bit scabious should be frequent], and flowering during [July-September]

[By year X/ in all years], cover of [Devil's-bit scabious should be >5%]

[In all years] [Marsh Fritillary] [should be maintained] on the site

Prescription guidance for GS7

See GS6

P423 – Establish [Devil's-bit scabious by seeding/planting in parcels XXXX / in the areas identified in XXX.]

IoS for GS7

[By year 2], cover of wildflowers in the sward (excluding undesirable species but including rushes and sedges), should be between [20% and 90%]. At least [40%] of wild flowers should be flowering during [May-July].

[By year 2], the average sward height [between August and September] should be between 8-25cm on damp grassland and 5-15cm on calcareous grassland.

[By year 2], species [Devil's-bit scabious should be frequent], and flowering during [July-September]

[By year 2], cover of [Devil's-bit scabious should be >2%]

[In all years] [Marsh Fritillary breeding habitat] [should be present and maintained] on the site.

Prescription guidance for GS13

If managing adjacent parcels to existing colonies

P135 – Only top [between [1 August] and [30 September]][except][in patches to control injurious weeds, areas dominated by rushes]. [Do not top more than [33%] of the total area.]

P138 - Retain the full extent of well-established scrub [where cover is below 5%]. [Where the cover is 5% or greater, maintain scrub over at least 5% and a maximum of 10% of the parcel area.] It must be retained as discrete small patches, lines and occasional individual bushes scattered across the site. [Do not cut more than a third of the scrub in any one year except on historic and archaeological features.]

IoS for GS13

See GS6

[By year X/ in all years] outside of dense rushes the cover of tussocks of grass or sedge (year-round) should be between 5 and 60%. (A tussock is a single plant or a clump of plants at least 15cm wide, that is more than 5cm taller than the surrounding vegetation.)

Prescription guidance for SP6/SP8

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. 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. Hardier stock fare better on wet pastures on Dartmoor and Exmoor. Improved land should be used for supplementary feeding where necessary to avoid damaging breeding habitats.

Monitoring:

Timed count/transect/ Larval web survey

Further information

The butterfly is single brooded with adults flying from mid-May to mid-July, usually with a peak around the end of May to mid-June. The larvae form conspicuous webs that can easily be recorded in late summer to identify breeding areas and monitor populations. The Marsh Fritillary was once widespread in Britain but has declined severely over the last century (60% loss of range). Its populations are highly volatile and the species probably requires extensive habitats or habitat networks for its long term survival.

The main foodplant is Devil's-bit Scabious (*Succisa pratensis*). On calcareous grassland, it occasionally uses Field Scabious (*Knautia arvensis*) and Small Scabious (*Scabiosa columbaria*). Females lay eggs in large batches: the first may contain up to 350 eggs but subsequent batches are smaller (c. 50–150). Females select larger, more prominent foodplants, or patches of shorter vegetation where the foodplant is abundant. The larvae are gregarious and form a protective web that becomes conspicuous in August to September. The larval webs occur in intermediate length swards where the turf is 8–25 cm tall, although shorter swards of 5–15 cm can be used where foodplants are abundant (for example on downland).

The larvae overwinter in their fourth instar, 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 black larvae, basking in weak sunshine. They eventually become solitary and can disperse widely over the breeding habitat. They pupate low in grassy vegetation, either deep within grass tussocks or amongst dead leaves.

The Marsh Fritillary forms compact colonies, often on small patches of habitat. Marking studies have shown that most adults rarely fly more than 50–100 m but a proportion seem to disperse further. Initially females rarely move far, but they become more mobile after laying their first egg batch and have been known to colonize sites 10–15 km away. The butterfly is renowned for the large fluctuations in population size that make it highly prone to local extinction, but in good years it can spread and colonize new sites as well as less suitable habitat. It is therefore known to exist as metapopulations comprising groups of local populations connected by occasional dispersal. It is essential that the species is conserved at a landscape scale, by managing networks of suitable habitats.

Management – Aim to produce an uneven patchwork of short and long vegetation by the end of the grazing period (August/September), between 8 and 25 cm high on damp grassland and 5-15 cm on chalk grassland.

Grazing

Stocking rates may 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.

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.

Mowing

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

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.

A Factsheet (with ideal habitat management photographs) is available from Butterfly Conservation's website which can be given to landowners.

http://butterfly-conservation.org/files/marsh_fritillary-psf.pdf

Authorship/version control

Katie Cruickshanks (Butterfly Conservation), Caroline Bulman (BC) & Jenny Plackett (BC)
April 2015 2nd draft