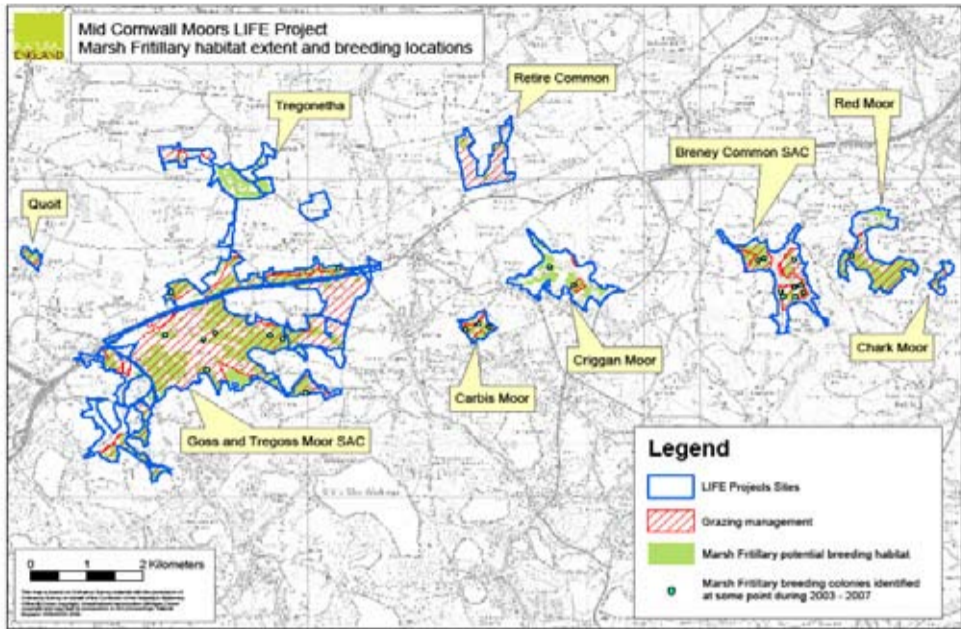




The EU funded LIFE Nature Project has restored the Mid Cornwall Moors to a wildlife super highway.



The map illustrates the distribution of Marsh Fritillary habitat across the Mid Cornwall Moors

Mid Cornwall supports one of the most important populations of the rare Marsh Fritillary butterfly. This butterfly is confined to areas of flower rich damp grassland. Changes in agricultural practice and patterns of land use have greatly reduced the habitat available for this beautiful butterfly. As a consequence its populations across Europe, including the UK have declined rapidly, so much so that it is now extinct over much of its former range.

Mid Cornwall's Marsh Fritillary population is now of national and international conservation significance. Yet even in mid Cornwall this remaining population has been under severe stress, principally as a consequence of the abandonment of traditional grazing management.

The lack of management meant that many colonies of the butterfly became increasingly isolated from each other, inhibiting the ability of colonies to re-colonise suitable breeding areas and thus threatening the long term survival of the metapopulation. In order for Marsh Fritillaries to survive in the long term, enough suitable habitat must be available for colonies to expand in to, should their original breeding habitat patches become unsuitable.

Within the project sites the lack of positive management had increased the fragmentation of many areas of breeding habitat, with encroachment by gorse and willow scrub a particular problem.



(1) Marsh Fritillary (2) Public walk led by Cornwall Wildlife Trust on Breney Common (3) the Exmoor ponies on Carbis

The decline in traditional grazing and burning practices reduced the suitability of large areas of potential breeding habitat. Road development and agricultural intensification has further fragmented the coherence of the landscape, increasing the isolation of individual sites, thereby increasing the vulnerability of their breeding colonies to site specific threats.

The project aimed to restore habitat condition and connectivity across 9 sites totalling 1048 hectares at a landscape level in order to secure the mid Cornwall population of Marsh Fritillary. The project had 3 main phases: (1) conservation management activities including scrub clearance, track improvements and creation, fencing, installing livestock holding pens; (2) establishing restoration grazing; (3) A30 downgrade, hydrological planning and SAC ecological monitoring and analysis.

Phase 1 Traditional Conservation Management 2003 – 2005

The first 18 months of the project saw a considerable amount of traditional conservation management activity, centred around scrub management and the installation of grazing management infrastructure.

The EU funded 'Mid Cornwall Moors LIFE Nature project' was established to bring the network of remaining Marsh Fritillary habitat patches under active conservation management. As a direct consequence the extent of breeding habitat now managed (with the requirements of the Marsh Fritillary in mind) has increased from 38 Hectares to 259 Hectares.

Sites	Project site surface area (Ha)	Total available Ha of breeding habitat	Area of breeding habitat brought under management by project
Goss & Tregoss Moors	701.9	208	187
Breney Common	113	21.87	21.36
Carbis Moor	3.0	7.13	4.61
Criggan Moor	40.2	21.72	3.94
Red Moor	89.1	34.66	32.85
Chark Moor	6.0	2.03	1.72
Quoit Heath	8.3	3.86	3.86
Retire Common	61.8	3.37	3.3
Tregonetha Downs	25	23.29	0.52
TOTAL	1048.3	325.93	259.16

For the long term survival of this population a minimum habitat resource of 90 Hectares needs to be available. Delivering this minimum habitat requirement was the main aim of the Mid Cornwall Moors LIFE project.

Each year the survey and monitoring results have revealed a mixed picture. While no clear population trends have been demonstrated the fluctuations recorded in colony size and location are consistent with a functioning meta population (a number of separate but interconnected breeding colonies). This supports the project rationale for managing for Marsh Fritillaries at a landscape scale, across a number of sites

The Breney Common and Goss and Tregoss Moors Special Area of Conservation (SAC) is of strategic importance for the rapidly declining Marsh Fritillary. The population of the Mid Cornwall Moors represents 5% of the UK population and approximately 1% of the European population.

Conservation management across all 9 project sites
26.5 Hectares gorse scrub clearance
31.5 Hectares willow scrub clearance
25 Hectares controlled burning each year
10 Hectares bracken treatment
> 2km on Goss & Breney new track
600m Goss reinstated track
9 livestock pens installed
10.3km new fencing
3 River crossings on Goss
2 Vehicle bridges on Goss
Livestock purchased– Roving project stock - 7 Belted Galloways (now 10 including calves born during the project)
Livestock purchased - Breeding herd on Goss Moor - 27 pedigree British White cattle plus pedigree British White bull
6 Exmoor ponies leased
2 New Marsh Fritillary public trails over 2km with waymarking and interpretation



(1) Controlled burning (2) track clearance (3) vehicle bridge installation (4) project Belted Galloways

On completion of the major scrub and grazing infrastructure works, establishing restoration grazing on all the LIFE sites was the next priority.

Phase 2: Establishing restoration grazing 2005-2007

Central to the long term success of the project was the restoration of appropriate grazing regimes on all the project sites. The 9 sites vary in size, ownership and tenure requiring an individual grazing solution to be sought. Some sites are privately owned and grazed, others Common Land and a number of the sites are managed by conservation organisations.

Through a range of grazing strategies, including purchasing a pedigree breeding herd for Goss Moor National Nature Reserve, a roving project herd, leasing Exmoor ponies, and developing individual grazing agreements with private graziers, long term appropriate grazing arrangements have been established on all the project sites. It took the first 3 years of the project to deliver this phase.



The challenge has been and will continue to be getting the right levels of grazing, at the right time of year to generate the best conditions for the Marsh Fritillary to thrive. Some of the sites had not been grazed for decades and the presence of livestock on the sites generated a lot of positive local interest. This interest has directly assisted the project, for example through the establishment of a volunteer network who assisted in checking project stock.



(1) The Goss Moor herd of British Whites (2) a Mid Cornwall LIFE Site grazer visiting the British Whites (3) Graziers training day on Goss Moor

The number of private graziers involved in managing cattle on the project sites increased each year of the project. Establishing a different approach to grazing on Goss Moor was one of the biggest challenges of the project. The solution was to work with the remaining active commoner to set up a new breeding herd of British White cattle. These traditional breed animals are hardy enough to range across the whole moor all year round. In July 2007 the LIFE Project hosted a meeting of 50 graziers and conservation organisations to discuss the costs and practicalities of different grazing options and what opportunities may exist for future marketing of the beef they produce. The proceedings of this workshop are available on the project website.

Phase 3: SAC ecological monitoring and analysis, hydrological planning and A30 downgrade 2007 – 2008

The project monitored the populations (individual breeding colonies) of Marsh Fritillary across the nine project sites each year from 2003 – 2007. The

monitoring programme comprised of annual surveys of both adults during their flight period in May/June and the larval webs in September. Habitat condition surveys formed part of the survey programme. Habitat condition monitoring showed that during the lifetime of the project the habitat condition across the project had generally improved particularly in relation to the structure of the breeding habitat.

Within the project timeframe there have been noticeable improvements in some individual colonies, though the picture is mixed reflecting in part the boom and bust nature of Marsh Fritillary population cycles. Poor results in any one year are not regarded as a direct response to the management carried out under the LIFE Project, as the data suggests habitat conditions have continued to improve. Continued monitoring into the future will help identify those management activities and habitat variables which are of particular importance in supporting a healthy Marsh Fritillary population. However, even at this early stage the initial results are valuable in informing other projects and management strategies.

Additional Biodiversity Action Plan (BAP) targets in terms of habitat and species which have benefited from the project include:

BAP Habitat	Area of Restored (Ha)	Habitat	% National BAP Target	% Regional BAP Target
Fen	186		5.1	21
Lowland heathland	131		0.2	0.7
Purple moor grass and rush pasture	272		4.6	5
Wet Woodland	216		0.04	0.2

BAP Species: Which have benefited include, Pennyroyal (mint family), Pillwort (an aquatic fern), Hornet Robberfly, Silver-studded Blue butterfly, Narrow-Bordered Bee Hawk moth, Nightjar, Otter and the common Dormouse.

A National Marsh Fritillary 'sharing best practice' workshop was held in October 2006 to bring managers of Marsh Fritillary habitat together. The purpose of the workshop was to share the data and experience of the mid Cornwall LIFE project, identify common issues associated with the management of habitat and identify

possible solutions for the long term conservation of the Marsh Fritillary. The summary of the workshop is available on the project website.

Hydrological planning

A key activity for the project was to identify the water level management requirements for Goss Moor SAC. The site has a long history of surface mining, gravel extraction and drainage works, the most recent of which altered the natural course of the River Fal. As the project progressed the water level management requirements of the site were further investigated and reviewed with the Environment Agency. As a consequence a much more extensive water level strategy has now been completed which includes a river restoration proposal for the River Fal where it crosses through Goss Moor. The strategy aims to restore the functioning of the old flood plain, improving the quality and quantity of wet grassland and wet heath habitats for the benefit of the marsh fritillary and other vulnerable species associated with these habitats.

A30 downgrade

The LIFE project created a strong partnership between nature conservation interests and the Highways Agency (HA) – the national agency responsible for maintenance and construction of the strategic road network. Following the completion of the HA's A30 trunk road improvement scheme the LIFE project was able to work with the HA in designing the downgrading requirements of a section of the original A30 route where this crossed the SAC.

Prior to these downgrading works Goss Moor SAC was bisected by the main trunk road to the far west of England. The volume of traffic on this road made access and management of part of the site very difficult. Downgrading of this road allowed the HA to narrow sections and create a new access track onto the SAC. This has facilitated grazing management of areas of breeding habitat that were previously difficult or impossible to access and so were left unmanaged.

Building on this downgrading work Natural England and Cornwall County Council have developed a multi-use trail on Goss Moor National Nature Reserve. This has improved amenity access for walkers, cyclists and horseriders. This new trail also connects directly to the Goss Moor Marsh Fritillary trail, one of two dedicated marsh fritillary trails opened by the project.



(1)The old A30 bisecting the Goss Moor SAC & new A30 being constructed
(2) Downgrading the old A30 from a major trunk road to an access track.

Final note: The most significant successes of the project have been (1) increasing the area of potential breeding habitat under appropriate grazing management from 38 Hectares to 259 Hectares; (2) establishing restoration grazing by local graziers; (3) generating a substantial body of survey data and analysis to inform ongoing management of the project sites and other Marsh Fritillary projects; and (4) restoring the Mid Cornwall Moors to a level of habitat condition and public appreciation which provides a solid foundation upon which other initiatives have already begun to build (e.g. amenity access and the multi use trail, local wildlife and recreation businesses, marketing of the beef from traditional breeds grazed on the sites).

The meta population landscape approach is highly transferable and the results of the project have demonstrated this approach to contribute to delivering a viable population of Marsh Fritillaries in mid Cornwall in the long term. Through sharing best practice with other Marsh Fritillary habitat managers, graziers and regional policy makers a wealth of knowledge, expertise and appreciation of the species has been developed to ensure the long term management of these sites.

The future: The conservation gains achieved under the project will continue to be taken forward by Natural England working with local graziers, land managers and local communities. Monitoring of the breeding colonies will be continued by Natural England, Cornwall Wildlife Trust and Butterfly Conservation. Finally the restoration of the River Fal on Goss Moor SAC will implemented by Natural England working in partnership with the Environment Agency.

For more information about the project please visit: www.midcornwallmoors.org.uk

