Restoration of habitats in marginal, coastal agricultural land for the marsh fritillary butterfly (Euphydryas aurinia) - DK

1. Policy Objective & Theme

- SUSTAINABLE USE OF RESOURCES: Preserving coastal environment (its functioning and integrity) to share space

2. Key Approaches

- Integration
- Participation
- Socio-economic
- Technical

3. Experiences that can be exchanged

Management measures, in conjunction with the farming community, of more than 500 ha of marginal, coastal, agricultural land to restore a favourable conservation status for an endangered species.

4. Overview of the case

In two coastal areas of northern Denmark, local authorities have been working with the local farming communities to restore habitat for an endangered species of butterfly. This insect is not only a rare butterfly, it is also an indicator organism of a healthy natural environment.

5. Context and Objectives

a) Context

The marsh fritillary butterfly (Euphydryas aurinia) has undergone rapid decline in Denmark due to the fragmentation of its habitats and populations. Together with a continuing decline in the quality of existing and potentially suitable habitats, the marsh fritillary is now considered an endangered species. Only eight small sub-populations remain, and it is crucial to reverse this negative trend if the butterfly is to continue to exist in Denmark.

On paper, the Marsh Fritillary is subject to strict protection afforded by the Habitats Directive (Annex II), the Berne Convention on the protection of European wildlife and natural habitats, the Danish Red List (as critically endangered). The species is protected by national law and in areas with Natura 2000 status where most of the Marsh Fritillary's habitats are part of their designation. However, the Marsh Fritillary has turned out to be so endangered that it depends for its survival on nature management, including grazing or mowing.

The Marsh Fritillary is very fastidious. Its larvae only feeds on the Devil's-bit Scabious (Succisa pratensis Moench). A healthy population of Devil's-bit Scabious is therefore essential for the Marsh Fritillary's survival in a specific habitat. The habitat should also be sunny, provide shelter and many of other flowering plants where the adult butterfly can feed. The Devil's-bit Scabious is a perennial plant that grows on damp, open and nutrient-poor soils, the latter being particularly important. The plant is clearly associated in areas where extensive grazing or hay harvesting contributes to keeping the vegetation relatively low. And as these light open natural habitats are rapidly declining due to overgrowing caused by changes in the use of rural areas, it has a negative impact on the Devil's-bit Scabious, and therefore also on the Marsh Fritillary.

b) Objectives

The overall objective was to bring the threatened and isolated population of Marsh Fritillary in Denmark into a favourable conservation status. In order to reach this objective, the project aimed to preserve and strengthen existing sub-populations through a range of conservation measures. Each sub-population should be stable or increasing and have a minimum size of 500 individuals or approximately 125 observed spins. It was also intended to create opportunities for the establishment of at least three new sub-populations from the existing localities through restoration of potential habitats. Raising awareness of the marsh fritillary amongst land users to ensure appropriate management of its habitats in the future was also planned.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

After the structural reform, the Forest and Nature Agency started working closely together with two coastal municipalities in North Jutland that have assumed responsibility for the future condition of the Natura 2000 areas where the Marsh Fritillary is found: Frederikshavn and Aalborg.

b) ICZM tools

A targeted approach in and around the few remaining Natura 2000-protected habitats of the Marsh Fritillary was used. Nature management regimes were launched in three major areas of which two were coastal: the Tolshave, Jerup, Råbjerg, Napstjert area and the Strandby meadows. Agreements were made with the affected landowners. The large Tolshave, Jerup, Råbjerg, Napstjert area is a marginal area for agriculture. It is characterised by closely spaced old beach ridges that are dry, overgrown by forest or covered with heath and intersected by damp depressions with bogs or meadows or drained and cultivated areas. The Devil's-bit Scabious grows on the edge of the depressions. The area has always been extensively used for peat extraction, grazing, hay harvesting, shooting, etc., and intensive farming occurs only sporadically. The local authority of Frederikshavn cleared 131 ha of overgrown natural areas to enable grazing or hay harvesting. 92 ha were fenced in and grazed down, and on 77 ha, drains and ditches were abandoned to increase the areas of distribution of the Devil's-bit Scabious. Experiments with controlled burning of smaller areas were conducted but the effort was limited by weather conditions. The Strandby area consists of the meadows north of the estuary of the Elling river. Parts of the area are characterised by newer beach ridges. The Devil's-bit Scabious and the Marsh Fritillary are found mainly on the edge of growths that provide shelter, and along fence lines where the vegetation has the right height. Here, 5 ha were cleared, and a minor but important over-grazed area (1 ha) was fenced off.

7. Cost and resources

The total budget was €566,568 of which there was a Life contribution of €283,284.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The project achieved its overall objective of attaining a favourable conservation status for the endangered target species through the strengthening of habitats: it secured more than 500 ha of existing and potential marsh fritillary butterfly habitats in favourable condition within two coastal Natura 2000 sites and one inland site, boosting survival prospects of the population in northern Jutland. In the short term, the number of larval webs in the four-year period of the project has doubled and four new sub-populations at Bruså, Napstjert Mose, Napstjert Enge and Strandby have been added. The work also improved the understanding of the species' ecology and dynamics. This information was distributed to around 500 landowners and civil servants responsible for carrying out nature restoration. Awareness-raising among the involved landowners as well as the general public formed a substantial part of the project. Meetings and excursions with direct contact between landowners, NGOs, the general public, politicians and administration officers were held. The website, layman's report, newsletter and pamphlets have helped stimulate interest and furthered participation in the conservation work.

9. Success and Fail factors

The local authorities have continued to work with the methods developed. The farming activities needed for the conservation of the habitat have also been included in a Code of Best Practice with respect to agricultural management.

10. Unforeseen outcomes

The re-introduction of the Marsh Fritillary in previous sites where the species is extinct was a much debated issue. Eventually, no re-introduction was made because current conditions are not suitable for the Marsh Fritillary, and extensive management measures are needed before such reintroduction is possible.

11. Prepared by

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12. Verified by

It has not been possible to verify this case.

13. Sources

- Marsh Fritillary (2008) P. A. Larsen, Danish Forest and Nature Agency.

Life 05 - 151 - Laymans report (1.57 MB)