

# Monitoring of organic hay meadows to provide feedback for public access, biodiversity, and crop management

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## ABSTRACT

The use of monitoring to provide feedback into the decision making of a management plan for a farm and nature reserve is described.

*Keywords: organic farming; monitoring; grasslands; Cirsium arvense; nature reserves; management plans*

## INTRODUCTION

Management of organic farms and of nature reserves often share objectives to encourage both sustainable agriculture and wildlife. A criticism of some nature reserve management plans is that they take the form of a series of unconnected actions with no overview. Jones-Walters (1990), and Crofts and Jefferson (1999) argued that management plans should be part of a system with feedback used in the decision making. The essentials of a site management plan consists of the Objectives, Management, and Monitoring, with feedback from the monitoring used in the decision making process.

## MATERIALS AND METHODS

The study site, Fryent Country Park, is a 103 hectare public Open Space located in the London Borough of Brent in north-west London. Though now surrounded by suburbia, the park landscape is of lowland countryside. The hay meadows comprise about 55 hectares on neutral soils. They are registered with the Soil Association Organic Standard. The Park is a Local Nature Reserve; and a Site of Metropolitan Importance for Nature Conservation. The management plan takes into account the multifunctional role of the Park and of the grasslands for public access, recreation and landscape; biodiversity; and crop production.

Monitoring has been undertaken annually between mid- June and early July in each of 23 hay meadows since 1985. The frequency of each species is recorded by the use ten quadrats in each meadow, located by stratified random sampling. Once on site, sampling takes approximately 45 minutes per meadow. Management records for each meadow are maintained. Monitoring of butterflies (2 transects, 26 times a year), Common Frog populations (spawn counts during the breeding season) and of hedgerows (once per decade) are also undertaken.

## RESULTS

Monitoring provides data for feedback into the decision making process of the management plan for the Park. Examples include:

- Control of *Cirsium arvense* (Creeping Thistle). Species frequency has been analysed in comparison with the management of each meadow in the preceding year. This has enabled decisions for aftermath flail cutting in the autumn, in those meadows found to have high frequencies of thistle.
- Restoration of hay meadows from rough grassland, following comparison of the species richness of the sward with management records. See Williams, Fowler and Jarvis (1999, 2000).
- Conservation of scarce species and of grassland communities.
- Ecological information has been obtained on *Maniola jurtina* (Meadow Brown butterfly) in relation to harvesting dates (Williams 1999), on *Bromus commutatus* (Meadow Brome) in relation to meadow management and harvesting date, and of some species of annual legume (*Vicia sativa*, *V. tetrasperma*, and *V. hirsuta*).
- Information for educational use, e.g. on guided walks.

## DISCUSSION

Monitoring provides information for the Country Park and farm management plans. Feedback is also used for a Countryside Stewardship agreement, Biodiversity Action Plans, and for the Environmental Management System (ISO 14001) operated by the Council service.

## ACKNOWLEDGEMENTS

This project has been assisted by Brent Council Parks Service, Jill Connolly (Service Development Manager), Shaun Faulkner (Head of Service); and by the volunteers of Barn Hill Conservation Group including Simon Mercer. I would also like to thank Caroline Williams.

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**From: Powell et al. (eds), *UK Organic Research 2002: Proceedings of the COR Conference, 26-28<sup>th</sup> March 2002, Aberystwyth*, pp. 93-94.**