



# Effects of an agri-environment scheme on farmland biodiversity in Ireland

Jane Feehan<sup>a,\*</sup>, Desmond A. Gillmor<sup>b</sup>, Noel Culleton<sup>c</sup>

<sup>a</sup>European Environment Agency, Kongens Nytorv 6, DK-1050 Copenhagen K, Denmark

<sup>b</sup>Department of Geography, Trinity College, Dublin 2, Ireland

<sup>c</sup>Teagasc Research Centre, Johnstown Castle, Wexford, Ireland

Received 14 May 2003; received in revised form 21 October 2004; accepted 26 October 2004

## Abstract

Agri-environment measures cover at least 20% of the EU's farmland, a proportion rising to approximately 30% in Ireland. A study, investigating effects on biodiversity of Ireland's Rural Environment Protection Scheme (REPS) is described. Field margin flora and Carabidae (ground beetle) fauna were surveyed on 60 paired agreement and non-agreement farms. Greater variation was observed amongst surveyed non-agreement farms: the most species-rich and species-poor farms were all non-agreement. On surveyed grassland farms, average plant species richness was significantly higher on non-agreement than on agreement farms. Otherwise, few differences between average species richness and abundance on agreement and non-agreement farms were revealed. In ordination analysis of the flora and carabidae data factors largely independent of recent management, such as hedge age and gappiness, were most important in explaining observed variation. The study concluded that the scheme has not significantly benefited the groups surveyed, and suggests that the generic measures in such horizontal schemes may be better suited to addressing landscape-level issues such as water pollution, with biodiversity objectives for high nature value areas being more effectively achieved by targeted zonal schemes. Baseline data and long-term monitoring of measurable objectives are essential for effective evaluation, both to better tailor these innovative schemes to their aims, and to clearly demonstrate their benefits.

© 2004 Elsevier B.V. All rights reserved.

**Keywords:** Agri-environment schemes; Monitoring and evaluation; Biodiversity assessment; Field margin; Rural Environment Protection Scheme (REPS); Carabidae

## 1. Introduction

The 2003 Mid-Term Review (MTR) of the Common Agricultural Policy (CAP) places more emphasis on

rural development, the so-called Second Pillar of the CAP, an important element of which is the suite of agri-environment schemes in place across the EU (Knickel, 2002; European Commission, 2003). In 1998 one farmer in seven had an agri-environment management contract and more than 20% of EU farmland was covered by agri-environment measures (European Environment Agency, 2002). CAP Mid-Term Review

\* Corresponding author. Tel.: +45 3336 7281; fax: +45 3336 7293.

E-mail address: [jane.feehan@eea.eu.int](mailto:jane.feehan@eea.eu.int) (J. Feehan).

proposals recommended an increase in the aid intensity for agri-environment programmes from 50% to 60% in the better-off regions, and from 75% to 85% in Objective 1 areas (Knickel, 2002). Furthermore, agri-environment schemes are being developed and implemented in the new EU member states, where it is hoped that they will play an important role in the mitigation of specific environmental challenges. Despite the substantial and increasing expenditure on agri-environment schemes, monitoring and evaluation have been insufficient and published data on the environmental—particularly the biodiversity—effects of agri-environment programmes are scarce (Petersen, 1998; Kleijn et al., 2001; Kleijn and Sutherland, 2003; Primdahl et al., 2003). In a comprehensive review of published studies testing the effectiveness of agri-environment schemes in protecting or enhancing biodiversity, Kleijn and Sutherland (2003) found only 62 evaluation studies originating from just five EU countries (UK, Netherlands, Germany, Ireland and Portugal) and Switzerland.

In the Republic of Ireland, agri-environment scheme coverage is higher than the EU average: in 1999, membership peaked at approximately 37% (45,553 farms, covering an area of 1,575,000 ha), although it has since fallen to about 30% (36,000 farms) (Rath, 2002). However, this is set to rise if the official minimum target of 60,000 farmers (48% of the total) in the Rural Environment Protection Scheme (REPS) by 2006 is achieved (Dept of Agriculture, Food and Rural Development, 2000).

The objective of this study was to evaluate the effects of the REPS on farmland biodiversity. The aim was to examine the impact of measures that apply to the majority of agreement farms, whether or not they are located in an area of particularly high nature value. The sampling methodology related biodiversity impacts directly to particular measures, unlike many other evaluations (Petersen and Bennett, 2001). For a discussion of recommendations for changes to the scheme that arise, see Feehan et al. (2002).

### 1.1. Biodiversity monitoring of agri-environment schemes

The wide variety of agri-environment schemes, although a good example of subsidiarity in action,

mean that evaluation is a difficult task (Primdahl et al., 2003). Currently there is a small, but increasing, number of peer reviewed papers examining the impact of agri-environment schemes on biodiversity. They include the study on a Dutch agri-environment scheme by Kleijn et al. (2001), the proceedings of a British Grassland Society conference on the monitoring of grasslands in Environmentally Sensitive Areas (ESAs) in the UK (Sheldrick, 1997), a multi-disciplinary evaluation of the Countryside Stewardship Scheme (CSS) in England (Carey et al., 2003) and a methodological approach distinguishing between the performance effects and outcome effects of agri-environment schemes (Primdahl et al., 2003). Kleijn and Sutherland (2003) reviewed the literature in this area and there is a substantial quantity of so-called grey literature, including a number of important reports on the results of ESA monitoring in Northern Ireland (McAdam et al., 1994; Millsopp et al., 1997).

Although the REPS has been subject to several studies examining aspects of its ecological impact (Dunford and Feehan, 2001; Flynn et al., 2001; Aughney and Gormally, 2002), there is no system of ongoing monitoring in place. Two of these studies focused on specific regions of the country: the Burren in County Clare (Dunford and Feehan, 2001) and the Annaghmore area in County Galway (Aughney and Gormally, 2002), providing valuable information on the traditional farming practices in these regions and making recommendations for how the past can be used to inform the future in applying agri-environment measures in these areas. Flynn et al. (2001) studied the effects of REPS measures on birds, concluding that bird species richness was similar on REPS and non-REPS farms.

### 1.2. The Irish Rural Environment Protection Scheme (REPS)

Following the implementation of Council Regulation (EEC) 2078/92, the Irish Rural Environment Protection Scheme (REPS) was introduced in June 1994. The REPS is a voluntary, horizontal scheme, farmers in any part of the Republic of Ireland may apply. By contrast, some other member states have adopted a zonal approach in the development of their agri-environment schemes, whereby only farmers in certain designated areas may apply. Farmers who wish

Download English Version:

<https://daneshyari.com/en/article/8970801>

Download Persian Version:

<https://daneshyari.com/article/8970801>

[Daneshyari.com](https://daneshyari.com)