

# Characterisation of farming in Natural Areas

No. 205 - English Nature Research Reports



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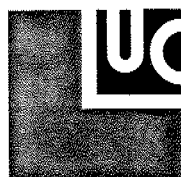
# CHARACTERISATION OF FARMING IN NATURAL AREAS

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The main authors of this report were Richard Knightbridge (Entec) and Tony Kernon (CPM). Other members of the study team were Lyndis Cole, Amy Christie and Paul Gosling (LUC), and Gafyn Blakeway (CPM).

## EXECUTIVE SUMMARY

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Land Use Consultants, with Countryside Planning and Management and Eritec, were commissioned by English Nature (EN) in September 1995 to carry out a study to investigate the characterisation of farming in EN's Natural Areas (NAs). The study was a pilot exercise which aimed to:

- develop and test a methodology to characterise farming in a sample of four NAs (Greater Cotswolds; Lincolnshire Wolds; North Pennines; and Exmoor and the Quantocks);
- identify the measures that are required to achieve nature conservation objectives within these NAs given the prevailing character of farming in the Areas;
- make recommendations on how the methodology that is used may be applied to other NAs by EN's staff.

Our research divided into two stages.

- Stage 1 involved preparing a description of farm character in the four sample NAs. These descriptions were based on analyses of MAFF June Farm Census results for 1975, 1984 and 1994 and on other published and unpublished information.
- Stage 2 involved carrying out ecological surveys and farmer interviews on a sample of between 9 - 12 farms in each of the four NAs. These sample farms were treated as 'case studies', which are illustrative rather than representative of the farm types that had been identified in Stage 1. For each farm, we prepared a 'profile' describing farm character in relation to nature conservation.

We directed our analysis of the findings from Stages 1 and 2 at answering five questions, as set out below.

*Qu. 1: Are the MAFF data that were analysed in Stage 1 a useful reflection of changes in agriculture in the sample NAs?*

Using the results from the Stage 2 work, we concluded that analysis of the MAFF data combined with information from published and unpublished sources gave a generally accurate picture of what was happening to farms within the sample NAs. As such, this information provides a valuable perspective on recent land use change that the relevant EN staff have found very useful for their work on NAs. In the light of this, EN may carry out analyses of MAFF data for other NAs, using the methodology that we developed (this is set out in English Nature Research Report 206 *Identifying and Describing Farm Character and Structure in the Natural Areas*).

*Qu. 2: Have the MAFF data provided a good basis for predicting effects on nature conservation?*

Based on the findings of our research, we predicted what were likely to have been the most important effects on the nature conservation interest of the farm types being sampled. Evidence from our sample farms showed that actual effects often were or appeared to be as we had predicted. This suggests that, with certain caveats, the MAFF data can be used as a reasonable basis for predicting effects on nature conservation.

*Qu. 3: Is 20 years (1975 - 1994) the most appropriate period over which to review trends?*

Our study showed that many major land use changes in the sample NAs had occurred prior to 1975, reflecting farm mechanisation in the 1950s and 1960s. Thus a longer time horizon is needed to understand the main changes that have taken place within the sample NAs. However, statistical data equivalent to that obtained for the period 1975 - 1994 are not available for previous years. Furthermore, many of the pre-1975 changes are already well understood. On this basis we have concluded that 20 years is the most appropriate period over which to review trends.

*Qu. 4: Does the farm survey information from Stage 2 allow us to develop a classification of farm types that reflects the opportunities for protection and enhancement of nature conservation value on different farms (i.e. a nature conservation-oriented characterisation of farms)?*

We used two different methods to investigate whether such a classification can be derived from our findings.

- Method A involved the use of indicators of farm character derived from our comparison between the results of the Stage 1 and 2 analyses (see Qu. 1 above) coupled with the experience of those who carried out the farmer interviews and ecological surveys.
- Method B involved seeking to identify any similarities between different elements of the sample farm data from Stage 2. Statistical hierarchical cluster analyses were used to assist in this.

This work revealed that there are some common factors that influence the opportunities for the protection and enhancement of nature conservation value on sample farms but provided no evidence for there being a means to classify farms at the NA level in the way that EN had hoped. A classification may have emerged if more farms had been included in the sample.

Our work did, though, suggest that it may be possible to develop a workable classification of farms for 'sub-areas' within NAs on the basis that, by focusing on smaller areas, important physical and historical variables will have been largely controlled. The character of farming in these sub-areas will therefore be influenced by a smaller number of variables, making the task of classification more feasible.

*Qu. 5: What can be learnt from our findings that may be helpful to EN in pursuing its objectives for NAs?*

Based on the common factors referred to above, we have developed a simple analysis of 'susceptibility' of farmers on different types of farms to proposals for changing their management to benefit nature conservation. For example, on a farm ranked as of high susceptibility, the farmer may be open (and willing) or actively seeking changes which may be desirable for nature conservation.

Using this information and applying the concept of targeting, we have developed a methodology to classify farms in sub-areas within NAs and to use this classification to help in achieving nature conservation objectives. In summary, the five steps in this process are:

1. assembling physical and land use information for a NA;
2. using this to define 'sub-areas' where specific nature conservation objectives might be achieved (e.g. areas for heathland re-creation);
3. analysing MAFF statistics and other agricultural information for the sub-areas - this should involve liaison with key people (notably farmer co-operatives and staff of FWAG, CLA and the NFU) thereby initiating a partnership approach that can be carried through into implementation;
4. using the information gathered as part of Step 3 and the assessment of susceptibility to change to develop a simple classification of farm types for each sub-area, with the categories reflecting the likelihood of being able to achieve the desired nature conservation objectives;
5. having selected those sub-areas where there is the best chance of achieving the objectives, to carry out 'market testing' of farmers in order to determine whether the available incentives (financial, advisory or other) are sufficient to stimulate change. If not, new incentives may need to be devised or alternative sub-areas selected for consideration.

We recommend that this methodology should be piloted within one or more NAs in order to test its effectiveness.

# 1. INTRODUCTION

## The Brief

1.1 Land Use Consultants (LUC) was commissioned by English Nature (EN) in September 1995 to carry out a study to investigate the characterisation of farming in EN's Natural Areas (NAs). These are biogeographic zones which reflect the geological foundation, the natural systems and processes, and the wildlife in different parts of England, and provide a basis for setting nature conservation objectives. The study was carried out by a team led by LUC with significant inputs provided by two sub-consultants, namely Countryside Planning and Management (CPM) to provide the agricultural expertise, and Entec.

1.2 The study was a pilot exercise which aimed to:

- develop and test a methodology to characterise farming in a sample of four NAs;
- identify the measures that are required to achieve nature conservation objectives within these NAs given the prevailing character of farming in the Areas;
- make recommendations on how the methodology that is used may be applied to other NAs by EN's staff.

## Approach

1.3 The research that we carried out divided into two stages, each of which is described below.

### *Stage 1*

1.4 EN selected four sample NAs with the objective of representing upland and lowland areas, covering a wide geographical area. The areas chosen were:

- Greater Cotswolds (lowland);
- Lincolnshire Wolds (lowland);
- North Pennines (upland);
- Exmoor and the Quantocks (upland).

1.5 For each of these areas, we prepared a description of farm character detailing:

- physical characteristics;
- current agricultural land use;
- farm business structures within the area;
- changes in agricultural land use and business structure over the period 1975 - 1994;
- anticipated effects, both direct and indirect, on nature conservation in the NA.



- 1.6 This was derived from the following sources of information.
- Analysis of the 1994 June Farm Census results for each NA, which had been assembled for EN by the Ministry of Agriculture, Fisheries and Food (MAFF).
  - A similar analysis, covering the same areas for both 1975 and 1984.
  - Analysis of published data on soils and natural resources for these areas.
  - Extensive reading to assess national, regional and local trends in agriculture and agricultural production.
  - Consultation with the EN staff responsible for each NA.
- 1.7 These descriptions formed the core of the Stage 1 report, which was presented as a draft to the project steering group in January 1996. The report was modified to take on board the group's comments and is included as **Appendix A** to this report. Following subsequent discussions with EN, much of the Stage 1 report has been incorporated into a guidance manual on *Identifying and Describing Farm Character and Structure in the Natural Areas* (published as English Nature Research Report 206).
- 1.8 Based on the analyses of farm character in the four sample NAs and in consultation with EN staff, we identified a number of farm types within each NA that are of high existing or potential value for nature conservation, where EN might focus its effort in working with farmers. This profile of farm types is included within the Stage 1 report in Appendix A.

### *Stage 2*

- 1.9 The second stage of the study involved surveys of a sample of between 9 -12 farms in each of the four NAs. It was recognised at the outset that this was too small a sample to be representative of all of the important farm types identified in Stage 1. It was therefore decided to treat the sample farms as 'case studies', which are illustrative rather than representative of the farm types.
- 1.10 The number of case studies selected per farm type was based on the perceived importance of each type for nature conservation. This in turn related to: the number of farms in each farm type within the NA as a whole; the extent to which valuable habitats or opportunities for habitat creation were represented across the types; and the variation within each type, particularly in relation to whether or not farms had been entered into the Environmentally Sensitive Area (ESA) scheme. Given that the sample farms were to be treated as case studies, these criteria were not applied in the rigorous manner that would have been the case if we were seeking to select a scientifically representative sample.
- 1.11 Potential case study farms were selected through the use of lists of farmers' names in the *Yellow Pages* telephone listings. Farmers were selected randomly from these listings and, when contacted, were asked a short list of questions to determine whether their farm was located within the NA and the nature of their farm enterprise (including farm type, size, ownership and whether they were part-time or full-time farmers). From the answers to these questions, we were able to determine whether the farm fitted within one of the farm types that we were sampling. If it did, we asked the farmer whether we could include their farm within our sample. This process was continued until we had selected the required number of farms per farm type, plus a few reserves in the event that some farmers decided to drop out.

- 1.12 The sample selection process proved very time consuming, particularly for the North Pennines. Here, many farmers refused to take part either because they were too busy or because they had had past disagreements with EN over notification of Sites of Special Scientific Interest (SSSIs) and hence were unwilling to become involved in an EN-funded study. These difficulties, together with the fact that a number of farmers changed their minds and decided to drop out of the study, meant that the final selection of farms was slightly different from the original target.
- 1.13 We visited each of the final sample of 42 farms to carry out a Phase 1 ecological survey of the holding (JNCC, 1993) in order to identify areas of existing nature conservation value. In addition, we identified opportunities to enhance the nature conservation value of the holding through either changes in the management of existing habitats or the creation of new habitats.
- 1.14 Following the ecological survey, we interviewed the farmer to obtain detailed information about the farm business and management of the land, including changes that had occurred over the last 20 years. Specific questions were asked about both the management of areas of existing nature conservation value, the opportunities that we had identified for enhancement and the measures or ‘triggers’ needed to encourage the implementation of these opportunities. A copy of our questionnaire is included as **Appendix B**.
- 1.15 Following the site surveys and interviews, we prepared a written ‘profile’ of each sample farm. The profiles for two of the sample NAs (the Lincolnshire Wolds, and Exmoor and the Quantocks) were revised to reflect comments made by the steering group; these are included as **Appendices C and D**. The profiles for the other two sample NAs are included in their draft form as **Appendices E and F**.
- 1.16 The profiles for the Lincolnshire Wolds, and Exmoor and the Quantocks include summary factual information about the holding and a description of ‘farm character’ in relation to nature conservation. This description presents, in an integrated way, information about existing and potential nature conservation value, and the attributes of the farm that have an influence on this (e.g. information about the farm business, farmer attitudes, physical characteristics of the holding etc.).

### **Report Content and Structure**

- 1.17 Our analysis of the findings from Stages 1 and 2 has been directed at answering the following questions which, in consultation with EN, have been derived from the original aims of the study (see Paragraph 1.2).
1. Are the MAFF data that were analysed in Stage 1 a useful reflection of changes in agriculture in the sample Natural Areas?
  2. Have they provided a good basis for predicting effects on nature conservation?
  3. Is 20 years the most appropriate period over which to review trends?
  4. Does the farm survey information from Stage 2 allow us to develop a classification of farm types that reflects the opportunities for protection and enhancement of nature conservation value on different farms (i.e. a nature conservation-oriented characterisation of farms)?

5. What can be learnt from our findings that may be helpful to EN in pursuing its objectives for NAs?
- 1.18 Chapter 2 reviews the farm character assessments developed in Stage 1 against the data collected in Stage 2 in order to answer the first three questions. The remaining two questions are addressed in Chapters 3 and 4 respectively.