

APPENDIX 3

WORKSHOP REPORT

This appendix contains documents relating to the workshop held on 13 May 2002. These are:

1. Workshop Briefing Document supplied to attendees in advance of the workshop.
2. Workshop Programme
3. Report on Workshop Discussion Groups
4. List of Attendees

1 WORKSHOP BRIEFING DOCUMENT

This workshop is being carried out as part of a project funded by DEFRA, in a contract to ADAS, CEH and Imperial College at Wye.

1.1 BACKGROUND TO THE PROJECT

1.1.1 Aims & scope

Agri-environment (AE) schemes in England have been run by DEFRA (previously MAFF) since 1987, when the first Environmentally Sensitive Areas (ESAs) were introduced under the 1986 Agriculture Act. Since then, further ESAs have been introduced along with other schemes such as the Habitat Scheme and Moorland Scheme. Agri-environment schemes now come under the England Rural Development Programme (RDP), along with the Countryside Stewardship Scheme (CSS), the Arable Stewardship Pilot Scheme (ASPS), Organic Farming Scheme, Farm Woodland Premium Scheme and Hill Farming Allowance Scheme.

Since their first introduction, DEFRA has been committed to monitoring the performance of agri-environment schemes in relation to objectives. As part of this monitoring programme, botanical data have been collected from a number of schemes. The methods for sampling, field data collection and data interpretation have varied. However, in addition to reporting of scheme performance per se, there is now a requirement for DEFRA to report within a wider policy context.

The aim of this project is to make recommendations for the future botanical monitoring programme of AE schemes, scheduled to run from 2002-2005, for reporting of scheme performance in 2005-2006. Future monitoring will need to be scientifically valid, but also economical. There is a requirement to optimise the use of existing botanical samples and time series data, whilst also taking account of recent developments in botanical monitoring methods.

In the first stage of the project, a review was carried out. This covered current AE botanical monitoring methods, methods for analysing and interpreting change in the context of policy objectives, and recent developments in approaches to botanical monitoring. Statistical power testing has been applied to existing data to help to determine the relative benefits and costs of different sampling, data collection and interpretative methods.

1.1.2 Summary of review

Key findings were:

- In England, grassland botanical monitoring programmes have been established in CSS, the Habitat Scheme and 19 ESAs. Field methods used for grasslands were mostly based on fixed quadrats or plots. Heathland monitoring in ESAs and the Moorland Scheme have focussed on heather grazing, abundance and burning, and change in species composition. Arable habitats, including field margins, have been monitored in the ASPS, Habitat Scheme and Breckland ESA. Other more limited studies have also been done for ditches, banksides, saltmarsh and woodland.

- Comparison of monitoring methods between the four UK countries showed that strategies for site selection varied widely, being dictated by the specific objectives of each monitoring programme. There was some consistency between countries in the field methods used for grasslands. On heather moorland, a range of methods has been used to measure grazing intensity, species composition and vegetation structure. Field methods used for other habitats varied according to the monitoring objectives.
- Literature searches revealed relatively few examples of research specifically directed at botanical monitoring methods. However, there are clear advantages of using nested systems compared to cover or frequency estimation at single scales. Currently, there does not appear to be a single ideal method for direct measurement of grazing intensity on plants such as heather. Different methods for measuring sward height and structure will be appropriate depending on the objectives of the monitoring. Few novel techniques were identified in the review, and although some show promise, they need further development.
- In England, a range of indicators and methods were used to detect and interpret change, depending on objectives of the monitoring programmes. Quantitative floristic data were reduced to community variables that indicate different attributes (e.g. suited species scores, Ellenberg values, diversity indices, functional groups), and indicators such as individual species and measures of vegetation structure were used. Indices of grazing and biomass utilisation were also applied to heather moorland. Most samples were classified by National Vegetation Classification or the Countryside Vegetation System. In other UK countries, similar interpretation methods to these were used in many cases.
- Suited species scores and Ellenberg values can be related to scheme objectives and management, and indicate the underlying environmental conditions. The FIBS approach is potentially powerful but requires expert interpretation and data are lacking for some species. Species richness is widely used but requires careful interpretation. Community variables can potentially be compared with control data, and calibrated into JNCC condition categories. Current methods for measuring heather condition require further research.
- ‘Control’ datasets can be used to compare vegetation condition against external standards, and trends with those in the wider countryside. Sources that have been used for AE scheme botanical data include Countryside Survey, survey datasets from EN, CCW and SNH, non-agreement land within ESAs, and results from other independent research.
- Environmental data have been collected to assist in interpreting monitoring results. These include data on soil properties, management, meteorology and physical parameters. Quantitative analyses were not always possible and environmental data were often used as background information. Climate change and atmospheric deposition are also potentially important external drivers of vegetation change.
- Rapid methods of condition assessment are currently being developed, mainly by the statutory conservation agencies. These are working towards common standards of assessment, within the existing JNCC framework. Ten studies were identified in various stages of development, covering a wide range of habitats. A common model has been adopted, using generic attributes and site specific targets. The methods have been evaluated and an initial exploration done of their applicability to AE schemes.

1.1.3 Objectives of workshop

There is a considerable pool of expertise and experience on botanical monitoring within a range of organisations in the UK. This includes specialist knowledge from different perspectives such as policy, ecology, conservation and field survey. In the workshop we hope to draw on some of this experience to ensure that issues relating to botanical monitoring strategies in AE schemes are fully explored. It will also be an opportunity for any new issues to be raised.

1.2 DISCUSSION GROUPS

1.2.1 Policy background

The UK Biodiversity Action Plan (BAP) sets out objectives and targets for Priority Habitats. These include

- the *re-establishment* of priority habitat where it has been severely degraded or destroyed, such that the current vegetation is not recognisable as a priority habitat type (e.g. re-establishment of a priority habitat grassland type on arable land or agriculturally improved or semi-improved grassland)
- the *rehabilitation*¹ of vegetation that is recognisable as a priority habitat, but where its condition is currently unfavourable
- the *maintenance* of the condition and extent of a priority habitat that is in favourable condition.

The BAP also specifies a ‘conservation direction’ for Broad Habitats, which acts as a framework within which targets for Priority Habitats and Species are set. The aims for Broad Habitats refer to their protection, maintenance of extent and quality, and improvement. These objectives therefore apply to vegetation that is of conservation value, even if it does not fit the definition of any priority habitat.

In 2000 the government published the England Rural Development Plan. Biodiversity goals are to be achieved through the Environmentally Sensitive Areas Scheme (ESAs) and the Countryside Stewardship Scheme (CSS). A large number of the published BAPs contain explicit actions for DEFRA and other agriculture departments to consider and address through the agri-environment schemes that they operate. The major contribution of the ESA and Countryside Stewardship schemes to biodiversity will be through measures to address the priority habitats, with benefits for priority species being largely indirect through the habitat measures. However, individual agreements might be tailored to address species requirements where appropriate. In CSS, quinquennial policy reviews and county targeting will have a significant effect on the achievement of BAP habitat and species objectives, but this does not reduce the primary importance of evaluating the wildlife value of each application on its own merit.

The CSS has overall scheme objectives, plus more targeted objectives relating to local biodiversity in different landscape types and counties. Each ESA has its own objectives that are related to local landscape and biodiversity objectives. The objectives for both CSS and ESAs were originally written before the national and local BAP targets were developed and therefore are not linked directly.

¹ equivalent to ‘restoration’ as used elsewhere in this report (see Table 4.1).

Individual CSS agreements should include objectives tailored to the land under that agreement. These individual objectives usually come from a generic stock of phrases but some agreements have objectives for particular species or features. Only the most recent ESA agreements have individual objectives, which are encompassed within management plans.

DEFRA is currently reviewing AE schemes. It is likely that the current schemes will be modified or new schemes will be created. There is debate as to whether these schemes will be “narrow and deep” or “broad and shallow”. Narrow and deep schemes would highlight priority habitats and species with detailed and expensive management on a few sites, whereas broad and shallow schemes would have basic management to improve the countryside as a whole. Potentially, future AE schemes could be of one or other type, or a combination of both.

1.2.2 Scenarios for discussion²

In future, it will be necessary to measure the contribution being made by AE schemes to meeting BAP objectives and targets. The strategy for botanical monitoring will need to be designed with this as the primary aim. Different strategies might need to be adopted for broad & shallow and narrow & deep schemes. There is a range of issues that need to be addressed across a range of habitats. During the workshop, these will be considered under four different scenarios. It won't be possible to consider all possible combinations, but discussion groups will focus on a particular scenario, using one or more habitat types as examples. The four scenarios are:

1. Rehabilitation of Priority Habitat or improvement of Broad Habitat in a broad & shallow scheme
2. Maintenance of Priority or Broad Habitat in a broad & shallow scheme
3. Re-establishment or rehabilitation of Priority (or Broad) Habitat in a narrow & deep scheme
4. Maintenance of Priority Habitat in a narrow & deep scheme.

Issues

For each of the four scenarios, the following general issues need to be considered:

- a) How might the stock and condition (with respect to JNCC categories) of a habitat be measured
- b) How might change in its condition over time be measured
- c) How might the drivers of change be assessed

² scenarios were altered after production of the briefing document. Three discussion groups were held (see Report on Workshop Discussion Groups).

Habitats

There is a wide range of Priority and Broad Habitats subjected to AE scheme management. However, the above scenarios need to be considered for three generic vegetation types:

- (i) lowland grasslands (includes 'upland hay meadows')
- (ii) upland heaths, mires and rough grazing
- (iii) arable land and linear habitats

2 WORKSHOP PROGRAMME

DEFRA, Nobel House (Conference Room B), Smith Square, London
Monday 13 May, 2002

10.00h coffee

10.30h Introduction Alan Hooper, DEFRA RDS

Part 1: The project so far

10.35h Scope of project & objectives of workshop Nigel Critchley, ADAS

10.45h Overview of existing data John Fowbert, ADAS

11.00h Rapid condition assessment Jonathan Mitchley, IC

11.15h Summary of review Les Firbank, CEH

11.30h Clarification of points Andy Parkin (chair)

Part 2: Issues for a monitoring strategy

11.45h Objectives for discussion groups Nigel Critchley

Discussion groups

13.00h lunch

13.45h Report back from discussion groups Nigel Critchley (lead)

14.45h General discussion Andy Parkin (chair)

15.15h Concluding remarks Alan Hooper, DEFRA RDS

15.30h tea & finish

[15.45h – 17.00h consortium meeting]

3 REPORT ON WORKSHOP DISCUSSION GROUPS

3.1 PRELIMINARY COMMENTS FROM GEOFF RADLEY (DEFRA)

There have been concerns about the current schemes, particularly with reference to their administrative complexity and their effectiveness. The Curry report recommended that existing schemes be maintained and broad and shallow schemes introduced.

It is likely that a narrow and deep approach will continue to run, though ESA and CSS might not continue to run as such, but might be combined – particularly to build in a framework for rewarding existing good stewardship.

It is also likely that a broad and shallow scheme will be developed. This should be simpler to set up and simpler to ensure compliance.

Monitoring will be required to ensure that the schemes are effective.

The Biodiversity Action Plan (BAP) is likely to play a key role in the new monitoring program; because BAP wasn't in existence when the previous monitoring program was set up, it is difficult to assess how current schemes contribute to BAP targets.

The new monitoring programme should be carefully designed to answer the pertinent questions. Also, it should fit in around timescales and reports and should feedback into existing management. Ideally monitoring methods should be simple enough to be used to provide site by site feedback and inform decisions by project officers.

3.2 DISCUSSION GROUPS

Because of the uncertainty about the type of AE schemes that might exist in the future, the four discussion topics in the Workshop Briefing Document were amended. Instead, each of three discussion groups was given one of the following topics:

- Re-establishment of Priority or Broad Habitat
- Rehabilitation (= restoration) of Priority Habitat or improvement of Broad Habitat
- Maintenance of Priority or Broad Habitat

It was suggested that each group discussed some or all of the following points:

- How should stock and condition be measured?
- How should change over time be measured?
- How can the drivers of change be determined?

Discussion groups were also asked to consider one or all of the following general habitat types:

- Lowland grasslands
- Upland habitats
- Arable and linear habitats

3.3 RE-ESTABLISHMENT OF PRIORITY OR BROAD HABITAT

chair: Jonathan Mitchley (IC).

rapporteur: Sarah Gardner (ADAS)

It was considered that re-establishment of Priority or Broad Habitat would be a relatively small part of the agri-environment scheme and that to obtain random, representative samples would be difficult. It would be sufficient for monitoring to take place on a case study basis.

How should stock and condition be measured?

Since the habitat would inevitably be in poor condition, it was felt that there was no need to monitor stock and condition.

How should change over time be measured?

The outcomes of the restoration are likely to be variable. A monitoring tool that would determine whether a site is suitable for restoration prior to treatment being applied, would be valuable. It would also be useful to have a decision tree/tool to assist analysis of the outcome, not just in terms of BAP targets, but also in terms of other elements of biodiversity.

Because restoration work would probably involve a considerable amount of intervention, and change is likely to be rapid, it was felt that the Rapid Condition Assessment (RCA) approach might be all that is necessary. JNCC categories, however, are currently too crude; categories should be added so that, for instance, 'unfavourable but improving' sites might be recognised. As time progresses, the rate of change might slow down. It was suggested that, at this point, collection of data at a quadrat scale might be required in order to detect smaller scale changes. The data should be disaggregated so that progress against different objectives can be assessed.

How can the drivers of change be determined?

The attributes that determine whether a site is favourable or unfavourable should be linked with drivers of change e.g. grazing pressure, nutrient levels.

Discussion

- The restoration sites might, in fact, be the most appropriate sites at which to carry out detailed quadrat scale monitoring. The results might help to understand processes and the link with environmental data and so assist in future site selection.

Alternatively, this sort of detailed monitoring might be better suited to specific experiments.

- Each site should have an individual, specific target.

3.4 REHABILITATION (= RESTORATION) OF PRIORITY HABITAT OR IMPROVEMENT OF BROAD HABITAT

chair: Nigel Critchley (ADAS).

rapporteur: Lisa Norton (CEH)

How should stock and condition be measured?

There appears to be difficulty in measuring stock, as a random sample would inevitably miss many BAP habitats, and it would be useful to know how many BAP sites there are. Also, there is a need to identify the type of habitat that has the potential to become a BAP habitat. An inventory of all sites is possibly required, though this would be time consuming.

RCA methods might be appropriate to get an initial handle on condition, though RCA should be validated using quadrat data.

How should change over time be measured?

RCA and quadrat data could both be used; quadrat data are more useful for long term monitoring. The data should be disaggregated. RCA needs to be developed to include more habitats as most of the habitats currently in the scheme are not Priority habitats.

Along with BAP targets it would be good to have some more general conservation oriented targets.

RCA data could be linked with compliance data e.g. spring sowing of arable crops.

Results from the monitoring should be fed back into the scheme if possible, to influence future management.

How can the drivers of change be determined?

Methods of collecting management information from farmers should be carefully considered in order to ensure the data are usable, standardised and relatively easy to collect.

Soil data should also be collected.

Discussion

- Results should not be fed back into the scheme as then there is a danger of the monitoring driving the scheme rather than assessing it. The results could become biased.
- Currently farmers receive about two visits in ten years. Some sort of training which would help farmers understand conservation processes and aims could be

incorporated into the scheme. This might make them feel more actively involved and interested in the outcome.

- It would be useful to get at least a small amount of information from every site.

3.5 MAINTENANCE OF PRIORITY OR BROAD HABITAT

chair: Les Firbank (CEH).

rapporteur: Francis Kirkham (ADAS)

How should stock and condition be measured?

Extent and quality of the habitat need to be measured. Site management data should be collected and judgements made as to whether the land is in an appropriate agreement tier.

How should change over time be measured?

It is hoped that, on these sites, changes would not take place, or if they did, they would be improvements and probably minor. Monitoring is required to ensure that sites are not degrading, although by the time changes are detected, it might be too late to reverse the process. Indicator species (not necessarily botanical) need to be identified which will help detect early signs of degradation. Farmers could become more involved with assessing the condition, recognising these indicator species and then have more input into management decisions. Management should be tailored to individual sites and this could be based on outcome (e.g. sward height) rather than stocking rate

Change could also be monitored on a more formal basis. The data should be disaggregated so that they remain useful if the aims of the scheme change. RCA methods could be used in order to collect a lot of data quickly, though it is argued that the collection of data at a quadrat level takes no longer than RCA and that it is difficult to collect disaggregated RCA data. If RCA is used, the thresholds have to be very carefully considered. Although the existing monitoring programme using quadrat data has not detected much change, it has been useful in identifying vulnerable habitats.

How can the drivers of change be determined?

We do need to understand what the drivers of change are, and so we need to collect or obtain environmental data. In some cases we may have little or no control over the changes (e.g. atmospheric pollution), whilst in others (e.g. management data) we may be able to use the information to affect policy.

Discussion

- It might be useful to collect other quantitative data as well as species composition, (e.g. bare ground).
- Data should be collected at a wide range of scales.

3.6 OVERALL DISCUSSION

- RCA and quadrat data can take a similar length of time in the field; travel to a site is often the biggest cost. RCA takes a long time to develop to ensure indicators, thresholds and objectives are appropriate. Quadrat data can take a long time to analyse. It is not really known as yet whether a RCA method could be developed which is effective and cheap.
- Modelling tools could be developed using existing and future data, though this could be costly. Management data would be needed for this, although management data can be of variable quality. Farmers could be compelled to keep standardised management data as part of the scheme requirements, but this is unlikely to be successful.
- We need to use existing data to confirm and improve our knowledge of indicator species e.g. *Prunella vulgaris* indicates a site might be suitable for restoration.
- The new monitoring scheme should fully exploit existing data.

4 ATTENDEES:

i) consortium

Andy Parkin, Nigel Critchley, Sarah Gardner, Francis Kirkham, John Fowbert & Helen Adamson (ADAS)

(Peter Carey – n/a), Les Firbank, Lisa Norton, Colin Barr & Roger Cummins (CEH)

Jonathan Mitchley & Frances Burch (Imperial College)

ii) DEFRA

Alan Hooper, Iain Diack, Andrea Turner, Andrew Cooke, David Glaves, (DEFRA Rural Development Service)

Geoff Radley, Paul Smith, Mark Baylis (DEFRA Conservation Management Division)

Deborah Jackson (DEFRA European Wildlife Division)

iii) others

Kevin Austin (WAGARAD)

Joanna Drewitt (SEERAD)

Heather Robertson (EN)

John Harvey (NT)