

Notes from a workshop on “Identifying Gaps in the Current Agri-Environment and Climate Scheme” held at Silvan House on 9/3/17.

Attendees:

Bruce Wilson	Scottish Wildlife Trust
Cecile Smith	Scottish Natural Heritage
Chris Bailey	RSPB
Davie Black	Plantlife
Debbie Fielding	James Hutton Institute
Jenni Stockan	James Hutton Institute
Jenny Johnson	Scottish Natural Heritage
Katy Malone	Bumblebee Conservation Trust
Kirsty Hutchison	Scottish Natural Heritage
Robin Pakeman	James Hutton Institute
Scott Newey	James Hutton Institute
Susie Turpie	Scottish Government
Tom Prescott	Butterfly Conservation

By correspondence:

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Introduction

The original aims of the workshop were to:

1. To examine the contents of the report to identify if gap in the current AECS in coverage could be augmented by adoption of options from other agri-environment schemes for use in a future SRDP.
2. To highlight gaps in knowledge where research is necessary to design future options for certain species, species groups or habitats.

The workshop was conducted in two halves, each one focussed on one of the above aims. The discussions relating to the first aim, “**What priorities should we give to “borrowing options” to add to AECS?**”, broadened in scope to encompass wider improvements to AECS – and so are separated into two subsections below “*Priority options for inclusion*” and “*Process related discussion*”. To simplify the presentation of the discussion, the former subsection was divided again to “Short-term options for inclusion” which identifies options that could be adopted quickly and “Longer-term re-evaluation of current objectives” which lists work needed to refine the current AECS.

Similarly the outputs from the second discussion, “**Research needs to target species or habitats not thought to benefit from AECS**”, were divided into research on “*Novel options*”, “*Monitoring associated research*” that is related to ongoing monitoring of AECS and a wider category of “*Other suggestions for research*”.

The discussions briefly covered changing the payment philosophy (e.g. payment for action) but this is the subject of ongoing research elsewhere in the Strategic Research Programme and will not be covered here.

Discussion 1: What priorities should we give to “borrowing options” to add to AECS?

The discussion can be divided into two areas; the part focussing on which options should be a priority for inclusion into future version of AECS, and a part focussing on the application and assessment process.

Priority options for inclusion

Short-term options for inclusion

Pollinator specific options. There was general consensus that pollinator specific management options would be beneficial. It is possible that management for pollinators may benefit other invertebrates – the pollinators may represent umbrella species for other invertebrate groups.

Inclusion of white-tailed sea-eagle and goose schemes. These are excluded from the current AECS, but their integration into future versions would bring together management options into one scheme. For maximum gain management should include a biodiversity element.

Coastal. Coastal species-rich grassland is often not on agricultural land. It needs grazing to maintain its interest and prevent the invasion of rank grasses and scrub.

Peatland. A range of more varied management options for peatlands could be adopted from SNH’s Peatland Action. However, the Peatland Action project functions well as a standalone programme providing one-to-one advice and collaborative work.

Winter stubbles. There should be payment to favour spring-sown rather than winter-sown crops, and this could be integrated with suitable management of stubbles. This could be integrated into options to reduce erosion and nutrient loss from agricultural land.

Invertebrates. Many benefit from small patches of bare ground. This additional action could be introduced into other options.

Fruit growing. Orchards are a niche habitat, though soft-fruit growing is concentrated in some areas. These areas could be targeted for improvements to field margins and for pollinators.

Longer-term re-evaluation of current objectives

Networks. Many ecological processes operate at scales above the farm-scale. There should be more options to support “networks” and “collaboration” between land holdings to create habitat linkages and to ensure that management is done at the appropriate scale.

Uplands. Upland options should focus on wide ranging management rather than attempting to focus on specific species or habitats because of the mismatch in the scale of intervention with the scale of the target.

Waders. Options for wading birds needs to account for both breeding and feeding requirements that cross the enclosure line. This will, in many cases, require collaborative working.

Waders. Options for wading birds should be more species specific. Currently they are treated as one set of species, but they differ in their requirements. Options need to be more flexible to accommodate geographic differences in species ecology, for example breeding time variability between borders and Sutherland.

Future proofing. Options need to take account of future climate and potential land use changes.

Mosaics. These are currently not well catered for in the AECS. A more flexible approach is needed to develop more appropriate management for mosaics of habitats.

Wetlands. There needs to be a holistic approach for wetland management that integrates ditches, ponds, wader scrapes and other wetland types.

Restoration v. recreation. There should be more focus on restoring/rehabilitating existing habitats rather than creating new ones. Protecting what is still left is usually more effective than starting from scratch.

Process related discussion

Small farms. The current system restricts accessibility for funding away from smaller farms. It should be focussed on the quality of the application not on how many options can be included to score points. The focus should be on farms still with biodiversity¹.

Local priorities. There should be more local flexibility and targeting. For instance, there should be flexibility in managing stock to account for constraints imposed by farm management (fixed number of livestock over time) and by weather variation between years. This could be extended to help develop local ecological networks.

Training. The scheme should include training for farmers and other land managers in assessing opportunities for conservation action.

Long-term support. There should be long-term commitments on both sides where natural processes mean that it will take years to reach the desired endpoint. For instance, peatland options need funding for long-periods due to the slow rate of development of bog vegetation. Also, areas of newly created species rich grassland should be protected from ploughing, fertiliser and pesticides beyond the five years of a contract. If these commitments are not made, then the resources invested could be wasted.

Scoring. Scoring should be more focussed on outcomes rather than on ticking boxes. The focus should be the spirit of the scheme not on the letter of the regulations.

Eligibility. There are opportunities to support actions that are not on agricultural land. The scheme could be broadened to allow that possibility, but it would need a redefinition of eligible land as land currently needs to be in agricultural production as payment rates are calculated as income forgone. This could include land on the farm not classed as agricultural land, e.g. patches of scrub, but also land outside current farms, e.g. dune systems.

¹ Batáry P, Báldi A, Kleijn D, Tschardtke T (2011) Landscape-moderated biodiversity effects of agri-environmental management: a meta-analysis. *Proceedings of the Royal Society B*, 278, 1894-1902.

Cross compliance. All farms should carry out basic environmental management funded through Pillar 1 before they are eligible for AECS payments. Cross compliance should be employed so that access to more advanced options is only possible when basic standards are met across the farm. Pillar 1 actions, such as Greening, could be improved through a more agro-ecological approach, and there may be an option to use AECS to promote a more agro-ecological approach.

Joined up approach. Actions should be joined up – so if pollinator strips are funded this must be associated with reduced pesticide use in an adjacent buffer zone around the edge of the crop².

Access for monitoring. All land receiving public money should be open to assessment and visits by monitoring teams. This should be seen as a condition of payment. Monitoring could be boosted by availability of data such as IACS, which provides the history for each land parcel. Monitoring by land owners, if designed appropriately, could ensure that monitoring resources could be extended across a wider area.

Agriculture and forestry. These two separate arms of SRDP should come under the same payment scheme to save two separate applications and allow for integration at the farm level.

Forestry. The options need to include more species specific management in forestry. For instance woodland ground flora could be enhanced through thinning and consideration given to excluding livestock from some woodlands. Similarly, forestry management should be integrated with the management of adjacent field margins.

Monitoring. The monitoring budget is too small for data to be of use for scheme assessment.

Scheme assessment. The scheme ought to be analysed to remove perverse incentives; i.e. the aims of one option acting against the aims of another.

Discussion 2: Research needs to target species or habitats not thought to benefit from AECS

Novel options

Pollinators. Development of methods to assess habitat requirements for pollinators (bees, butterflies, hoverflies and moths) across their lifecycle and to assess the impact of management for pollinators on other species groups.

Mosaics. Can appropriate options be developed to manage habitat mosaics?

Hedgerows. Vegetation in linear features has seen large falls in species richness - by 13% since 1998 and by 23% since 1978 (Countryside Survey³). Can improvements in this vegetation be seen if field margin management is compulsory adjacent to hedge management?

² Pywell, R.F., Heard, M.S., Woodcock, B.A., Hinsley, S., Ridding, L., Nowakowski, M., & Bullock, J.M. (2015) Wildlife-friendly farming increases crop yield: evidence for ecological intensification. *Proceedings of the Royal Society B*, 282, 20151740.

³ Norton, L.R.; Murphy, J.; Reynolds, B.; Marks, S.; Mackey, E.C. (2009) Countryside Survey: Scotland Results from 2007. NERC/Centre for Ecology & Hydrology, The Scottish Government, Scottish Natural Heritage, 83pp. (CEH Project Number: C03259).

Pollinators in grassland. Can we integrate pollinator management into grassland options? For example, is grassland diversification a good option to benefit pollinators⁴ and can it benefit production by improving animal performance through enhanced nutrition.

Haymaking. Making hay is marginal in an increasingly wet Scotland. Is it possible to mitigate the impacts of silage management to deliver wider benefits?

Forestry. Forestry options need ground-flora management to reap significant benefits. Added value from woodland planting could come from action to improve woodland biodiversity, not just plant trees.

Agro-forestry. Is this a feasible option to integrate into farming operations for the benefit of biodiversity (both silvo-arable and silvo-pasture)?

Rare habitats. Have they been forgotten in the focus on main agricultural habitats?

Integrating terrestrial and aquatic environments. Can agricultural management be adapted to benefit aquatic biodiversity directly, rather than indirectly by reducing nutrient losses and sediment flows?

Monitoring associated research

Rare species. Are current options benefitting common species but not rare ones? Or are there knock-on benefits of species-specific management in that the focus of options act as umbrella species.

Monitoring design. It is possible to develop monitoring that captures details of the effectiveness of individual options rather than broad-brush impacts?

Data. Environmental and agricultural data collection could be improved to provide the context against which to assess change.

Indicators. Most monitoring focusses on easy to assess groups: plants, birds, butterflies, bees. However, do these groups reflect underlying impacts of agricultural change and the effects of different AECS options? It is possible that indicators of improvement may not be the same as indicators of decline. For instance, specific action for some species, e.g. skylark plots, under current schemes may not impact on other species that have seen declines in agricultural landscapes. In other words, addressing the symptom may have a different effect than addressing the causes of change.

NCAI and EHI. Could these monitoring programmes deliver information that could help in the operation of agri-environment schemes?

Other suggestions for research

Evidence review. Regular and ongoing evidence review is necessary to ensure best advice is used in option design.

⁴ Orford, K.A., Murray, P.J., Vaughan, I.P., & Memmott, J. (2016). Modest enhancements to conventional grassland diversity improve the provision of pollination services. *Journal of Applied Ecology*, 53, 906-915.

Targeting. Can targeting be refined to small-scale identification of appropriate targets for each land parcel? Specifically, is it possible to develop fine-scale targeting methods to enhance networks of species-rich grasslands? Or woodlands?

Climate change. Do gradients of climate and land use impact on the appropriateness of specific scheme options? In other words, should options vary across the country to take into account different growing seasons and farming practices? As the climate is changing, can we account for changes like increasing summer wetness to reduce its impact how will it impact on pollinators like Great Yellow Bumblebee. Climate change may also impact indirectly through the choice of crops of management – how will this impact on species of concern.

Ecological networks. To build functioning meta-populations we need to ensure that habitat networks are present in the landscape. To address this properly we need to understand dispersal vectors and animal movements so as to refine structural connectivity measures (superficial assessment of landscape connectivity) into functional connectivity measures.

Population effects. The more mobile the species, the higher the possibility that management influences the distribution of individuals in the population but not affect population size. Is it possible to assess how local action scales up to population level effects? Or can we identify limiting factors for populations to identify key management activities that can be adapted to improve survival and recruitment, and hence increase population size?

Farmer training. Research is needed into the best way to train farmers and contractors in best practice. This could also look at how attitudes of farmers are changing and how best do we communicate research. Can farmer attitudes change through a greater understanding of an agro-ecological approach where Integrated Pest Management is seen as a benefit of managing for biodiversity?

HNV. Whilst it is not possible to return to historical, low intensity, mixed farming, is it possible to redesign intensive farming operations to capture some aspects of High Nature Value farming?

Soil. What is impact of different AECS options on the soil, and in particular the role soil fungi and other micro-organisms play in soil processes, compared to existing agricultural management?