

# The role of agri-environment measures in promoting co-ordinated land management in large conservation areas

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## Abstract

*Agri-environment schemes (AESs) have been implemented across a substantial number of countries since the mid 1980s. More recently, there has been a major shift of emphasis in biodiversity conservation away from the protection of individual sites towards Large Conservation Areas (LCAs). This implies a requirement for the co-ordination and management of land uses at a scale in excess of that normally managed by individual owners. There is some developing experience of the implementation of collaborative agri-environment agreements but closer integration is also required in some contexts. We identify three degrees of integration between informal co-ordination and full conservation ownership, representing differing degrees to which property may be blended in across ownerships. Large scale initiatives will adopt combinations of these degrees of integration. We discuss the ways in which institutions may be developed in support of this integration and the implications for funding and policy.*

## Key words

*Agri-environment measures, large conservation areas, property institutions, biodiversity, rural environmental policy*

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## **Introduction**

It has become increasingly recognised that effective biodiversity conservation needs to be pursued across larger areas of land than has typically been the case in many countries to date. At the same time, in Europe and elsewhere, agri-environment schemes (AESs) have become an increasingly important source of funds for conservation actions (Kleijn and Sutherland 2003). This paper explores the experience and potential approaches towards the expansion of scale in biodiversity conservation, reflecting on experience in the United Kingdom.

After briefly outlining the development of AESs, we describe the rationale and implementation of initiatives in large conservation areas (LCAs) in Great Britain. While this represents a substantial shift in conservation ambition, it is based on somewhat uncertain foundations especially with regard to its sources of funding and the long term control of land. Agricultural holdings are generally smaller in scale than the area of land over which co-ordinated land management for conservation is required. There is some experience with the implementation of collective agri-environment agreements that can co-ordinate land uses and management at a larger scale and across different land ownerships. We reflect on this experience and identify three degrees of integration, between informal co-ordination across independent ownerships, to collective action, to single conservation ownership in various ways in different contexts. We discuss the institutional requirements for integration and the implications for funding and policy.

## **The development of agri-environment schemes**

Agri-environment schemes (AES) in Europe emerged particularly in response to the problems of surplus production and high government expenditures coupled with growing concerns about the impacts of more intensive farming on the rural environment (Baldock and Lowe 1996). Thus it was possible to use public funds to support voluntary environmental contracts with farmers under which the farmers adopted more environmentally sensitive production practices in return for annual payments. The extent of AES across the European Union was substantially extended in the context of the MacSharry reforms in 1992 when, under the accompanying measures, all member states were obliged to introduce agri-environment measures. The level of spending on AESs has subsequently risen considerably under Pillar 2, the rural development element of the Common Agricultural Policy (CAP) as illustrated in Figure 1.

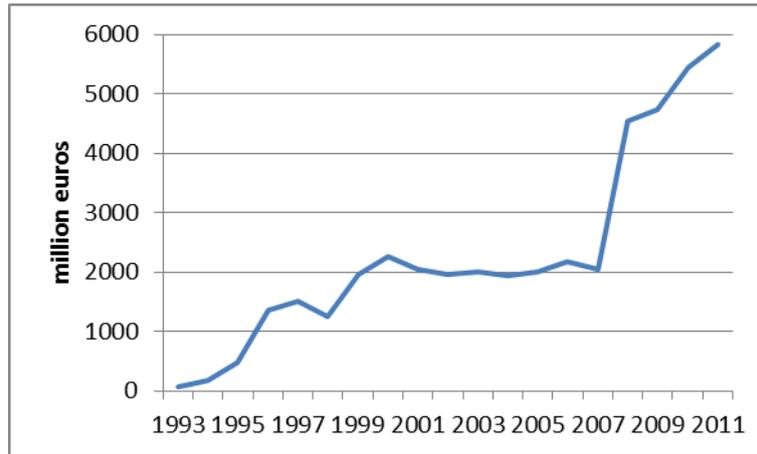


Figure 1: Expenditure on agri-environment schemes in the European Union  
 Source: Hodge (2013b)

Numerous different approaches have been taken to AESs in different countries and over time (Purvis, et al., 2009), but they have a number of predominant characteristics: they are voluntary, based on contracts that last for a fixed period of time and are agreed between an individual landholder and a government agency. The effectiveness of these schemes remains to some degree uncertain, reflecting the underlying conceptual challenges arising from asymmetric information and transactions costs (e.g. Franks, 2011) as well as often vague objectives and difficulties in measuring ecological outcomes (Kleijn et al., 2006). The European Court of Auditors (2011) has quite recently criticised AESs in the European Union for their lack of clear objectives, insufficient differentiation of payments between farmers to reflect local conditions, and a lack of application of procedures to select projects that represent best environmental value for money.

### Large conservation area initiatives

At the same time, a number of factors have given greater emphasis to the importance of undertaking conservation at a larger scale than has typically been the case to date. This shift of emphasis has been promoted by the recognition in ecological thinking of the importance of the interconnectedness of areas of habitat at the landscape scale. Research on island biogeography (MacArthur and Wilson 1963, 1967; Diamond 1975) has indicated the challenges for conservation on small isolated areas of habitat and this contributed to developments in landscape ecology (Forman and Godron, 1986, Lindenmayer and Fischer 2006). This promoted the idea that conservation should be implemented through sets of protected areas managed as ‘ecological networks’ (e.g. Jongman 1995, Jongman and Pungetti 2004). This approach was given strong support by the Lawton Committee, which commented that existing nature reserves and designated wildlife sites in England did not form a ‘coherent and resilient’ ecological network (Lawton *et al.* 2010 p. v). Valued conservation areas in England were small and widely separated (‘highly fragmented’) and unsuited to coping with pressures such as climate and population change and economic

growth. This situation had been exacerbated by the removal of habitat and the development of more intensive farming systems in the post war period. Lawton stressed that an ecological network containing 'more, bigger, better and joined' areas of wildlife habitat was needed (p. 3). This recommendation for a redirection in conservation management was subsequently given official sanction in the UK government Natural Environment White Paper, *The Natural Choice: securing the value of nature* (DEFRA 2011).

The challenge to co-ordinating land management at a greater scale has been emphasised by institutional fragmentation as the focus of farming has been predominantly on the individual farming proprietor managing his or her separate business (Adams, et al., 1994). A major fragmentation was associated with the decline of the 'great estates' early in the 20<sup>th</sup> century but has continued, perhaps less evidently, with the decline in community farming institutions, such as of local discussion groups. The ambition to manage land for biodiversity conservation at a larger scale thus sets a major challenge for questions of institutions. The ownership and management of rural land is organised primarily with regard to the requirements for agricultural production. And while the average size of agricultural holding has increased through the 20<sup>th</sup> century, the predominant size remains substantially below the scale of area being promoted for conservation land management.

This shift in emphasis has influenced conservation planning and, to a lesser extent, conservation practice on the ground. In recent years, a considerable number of large scale conservation initiatives have been created in the UK (Macgregor et al. 2012). These schemes take a number of different forms, including single large estates managed for conservation, projects that draw neighbouring or adjacent landowners together, to schemes to encourage conservation-friendly management of land over a particular zone. The lead actors in these schemes are not government, but non-governmental conservation organisations, notably the Wildlife Trusts (in their 'Living Landscapes' programme, Wildlife Trusts 2007, 2010), The Royal Society for the Protection of Birds ('Futurescapes', RSPB 2001, 2010), and the National Trust (Harvey 1995). Other organisations pursuing similar goals include the National Trust for Scotland, John Muir Trust, and Butterfly Conservation. They are partnered by government agencies, particularly Natural England, the Forestry Commission and the Environment Agency, and statutory undertakers such as water companies.

Some of the characteristics of these Large Conservation Areas (LCAs) have been revealed in a survey of over 200 such initiatives in the UK (Adams, Hodge and Elliot, 2011). The survey does not claim to be comprehensive and further work is underway to obtain more systematic data. However, it does reflect the general pattern. The total area identified by the organisations as being covered by these initiatives amounts to nearly 8.5 million ha, equivalent to about one third of the total land area in the UK, although there is overlap across some areas. The range in the sizes of project areas was very great: from a minimum

of 500 ha to 257,000 ha, but fewer than a quarter of sites were over 20,000 ha. The mean size across all UK initiatives was 19,405 ha, with 83 initiatives over 10,000 ha and 8 initiatives over 100,000 ha.

LCAs have a variety of aims. The most commonly cited were conservation of species or habitats; all projects cited one or other or both of these. Two thirds of project descriptions (66%) mentioned promotion of cultural ecosystem services as a project purpose (including the improvement of access to nature, recreation and health benefits, sustainable tourism, preservation of scenic beauty, culture, and natural and historic heritage). One third mentioned regulating ecosystem services (improvement of water quality and storage, flood risk management, soil erosion control, carbon storage and improvement of habitat for pollinators). Only 8% of projects listed 'provisioning ecosystem services', such as timber and sustainable local food production, as a conservation purpose, while 21% of projects aimed to 'support the local economy or employment'.

Although 18 different organisations led LCA initiatives (if the 42 Wildlife Trusts are collectively considered to be one organisation), 86% of the projects are led by the just three organisations, the Wildlife Trusts (46%), Butterfly Conservation (24%), and RSPB (16%). A wide range of types of organization are involved as partners in LCAs. They include central government departments, non-departmental public bodies, local authorities, private businesses, non-profit organisations or charitable trusts, educational institutions, and utility companies. The most common partners were non-governmental organisations, with many of the lead organizations involved in LCAs collaborating with each other in complex projects with overlapping (but not identical) spatial extent and branding. Three quarters of all projects involve an approach that 'encourages landowners to manage' (74%), and only slightly fewer involve land management by the lead organisation itself (70%); many involve both (45%). While initiatives can be centred around property owned by a conservation organisation, fewer than half of the initiatives used this approach and the proportion tends to decrease as project size increases. A larger proportion of projects, around three quarters, emphasise encouraging landowners to manage their land in ways supportive of the conservation objectives.

A major challenge facing LCAs relates to them finding a secure and continuing source of funding. Initiatives draw on funds from a variety of sources, including private donations and grants, lottery funding, commercial companies and various types of public funding. These may be awarded for the implementation of specific projects, but a major factor enabling the development of LCA initiatives to date has been the availability of agri-environment measures under the Common Agricultural Policy. This enables landowning organisations and farmers to apply for funding that can be consistent with the requirements of the LCAs. Government has provided some additional funds specifically in support of LCAs, but the amounts nominated for this are very considerably less than those provided

under agri-environment policy. For instance, currently over £400 million per annum is being provided for AESs in England<sup>3</sup>, as compared with the contribution of £2.5 million per annum offered in the Natural Environment White Paper to support LCAs through the creation of Nature Improvement Areas.

However, the reliance on agri-environment funding challenges the flexibility and resilience of LCAs. The rules governing the implementation of AESs may be inflexible and fail to match the purposes of an LCA. But probably the greatest risk relates to the potential implications of reform of the Common Agricultural Policy that may redirect funding away from targeted agri-environment measures and the danger that increasing financial returns to agriculture might encourage farmers to withdraw from agri-environment contracts completely and return to more intensive farming. Further, agri-environment funds are primarily paid to cover the direct costs of land management. More generally, there are limits to the extent to which current AESs are well designed in order to support LCAs. AESs are generally prescriptive and 'action-oriented'. The assumption is that potential participants lack knowledge and motivation in addressing conservation land management. An AES therefore has to specify and to set out in contractual form the actions that need to be or not to be taken. This lack of flexibility may deter farmers from participating. But it also acts against entrepreneurship; there is little scope for AES participants to select the objectives or methods that they may feel are best suited to their specific context.

### **Collective action in agri-environment schemes**

Thus there is a divergence between the approaches generally adopted towards AESs and the direction and approaches increasingly being promoted in biodiversity conservation initiatives. One way in which the aims of the two approaches may be brought closer together is through the development of collective agri-environment contracts under which groups of land managers within a particular locality are funded collectively to implement co-ordinated land management measures. Some opportunities for collective action are available within existing AESs. Franks and Emery (2013) have undertaken case studies of a number of collaborative Environmental Stewardship agreements implemented in England. Mills et al. (2011) have evaluated schemes in Wales. Collective agreements have the potential to compensate collaborators for the transactions costs of bringing stakeholders together and drafting contracts. These authors argue that such agreements have a number of potential advantages. They enable conservation to be implemented at a larger scale, but they can also address some of the problems of asymmetric information that are associated with individual contracts. Under a collective agreement funds may be allocated to individual landholders through a collective body so as to be more directly related to the costs incurred. Members of the group will understand each others' costs and monitor each others' performance. This reduces the transactions costs to government, although it increases the

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<sup>3</sup> Natural England, *Land Management Update*, April 2012, p. 8.

farm level transactions costs. The collective approach also promotes social learning and provides peer group support.

These agreements need to be formalised. Contracts need to specify the conditions and payments involved and to clarify actions to be taken in specific circumstances. Funding is centralised and may be allocated through an existing organisation, such as a Local Commoners Association or a specifically established conservation grazing trust. A similar role may be played by an Environmental Co-operative (Franks, 2010). It is necessary for there to be trust amongst the members of the group and this is likely to take time to develop, especially where a group is newly established. Franks and Emery (2013) propose that the English Environmental Stewardship Scheme should include an additional collaborative strand providing funding to local groups of farmers who share an interest in managing their land for particular environmental benefits. Emery and Franks (2012) have found evidence of some willingness in principle amongst farmers to participate in appropriately designed collaborative AESs.

There is considerable synergy here between the development of collective agri-environment approaches and the potential for the development of 'result-oriented' schemes (Burton and Schwarz, 2013). Groups of farmers and landholders can be expected to be better informed and motivated in identifying appropriate objectives, especially where they are working with other stakeholder interests such as a conservation organisation or local community group. A group of landholders has greater capacity to benefit from the flexibility of a results-oriented approach in determining the best methods for delivering conservation benefits. They can potentially benefit from economies of size in biodiversity provision and allocate management tasks differentially amongst different landholders depending on their resources and interests. In both contexts, social learning is important both in building trust amongst participants and in developing the necessary knowledge and skills. There will be better communication amongst landholders and hence more scope for learning from experimentation and experiences. It is also likely that risks associated with the delivery of an output often dependent on external factors will be lower when management is implemented at a larger scale. This gives greater scope for the planned conservation of mobile species that move across the boundaries of individual holdings. Both approaches can be expected to take longer to develop and implement as groups enhance their skills and management approaches and improve their internal communications and trust. But both also can be expected to take a longer time horizon that is appropriate for the sustained delivery of improvements in ecosystem services. A collective approach thus addresses a number of the stumbling blocks to a results-oriented approach identified by Burton and Schwarz (2013). It is also more compatible with the planned approach towards LCAs.

### Three degrees of integration

Conservation management that demands action across relatively large areas of land thus requires some institutional arrangements in order to co-ordinate land management measures amongst different ownerships. In effect, landholders need to manage a common-pool resource collectively and to adapt their management accordingly. This thus needs to be addressed through co-ordinated actions amongst groups of landholders. The experience of collaboration in AESs and in LCAs illustrates the different ways in which the co-ordination of land management at a larger scale may be implemented. There are different levels of collective action. Utake (2012) differentiates between co-operation, referring to bottom-up farmer-led collective action, and co-ordination, referring to top-down, often agency-led collective action. Along similar lines, we may differentiate collective action in terms of the degree of institutional integration that occurs amongst the participants engaged in coordinated action.

A first degree of integration operates at one extreme as simply co-ordination, while all participants remain as fully independent bodies. The proprietor of each organisation remains as the residual claimant, receiving the residual return that remains after all returns have been received and costs paid, and bearing the residual risk. A degree of co-ordination of land management can be achieved through a top-down approach, such as through all land managers within a given area being offered voluntary contracts to manage their land in particular ways or complying with a standard regulation imposed from above. This is how spatially-targeted Higher Level Stewardship Schemes work in the UK, for example on Culm Measure grasslands in Devon and Somerset. Thus for instance, an AES scheme might be introduced under which all landholders are offered payments in order to create areas of wet grassland on their properties so that in aggregate there will be a sufficient area to support a sustainable population of a particular species or to create a characteristic landscape. But this option will only be taken up to the extent that the offer made is regarded as attractive by the individual landholder, consistently with her individual goals and values. The pattern of uptake will therefore depend on the circumstances of adjacent farms and farm businesses. Where all farmers adopt a standard contract or comply with a standard regulation, they are essentially pursuing the same approach to management and, for instance, alignment of management measures on contiguous properties would be unlikely to be achieved. Some greater degree of co-ordination may be achieved through voluntary and informal arrangements amongst a group of individuals and organisations. It may be possible for an external organisation to provide advice and guidance to landholders in order to persuade them to operate in certain ways. The development of a sense of community amongst them may inform and encourage them to implement conservation land management in particular ways. But ultimately contracts and management will reflect each farmers' independent choices.

This is the most common approach towards the management of LCAs in the present circumstances. It is substantially facilitated by the availability of agri-environment funding, so that LCA initiatives can seek to provide advice or guidance and exert influence over what sorts of agri-environmental agreements farmers choose to seek such that they can contribute towards the overall objectives of the LCA. They can also encourage and assist landowners to complete the bureaucratic process of application. External organisations may also lobby to influence sorts of agreements government offers. But the agreements remain between the individual landholder and the government agency. Farmers entering agri-environment contracts are bound by the conditions of those contracts, rather than to the purposes of the LCA. And to the extent that they do choose to follow approaches that support the LCA, this remains vulnerable to changes both in the operation of the scheme and in external circumstance, such as commodity prices or the ownership of particular landholdings.

A second degree of integration can be achieved through the establishment of a separate organisation, such as a co-operative, in which the individual landholders can participate. In this context, an agri-environmental contract might be taken up by a co-operative and then subcontracts agreed with the individual landholders. This represents the degree of integration attained within the existing collaborative AESs discussed above. The landholders decide collectively to apply for funding and then agree internally the details of how the funds should be allocated. An example here is the successful application by 41 farmers in the Marlborough Downs in Wiltshire in the UK to establish a Nature Improvement Area over 41,000 ha of their land. This enables the benefits of collective action outlined previously to be achieved. However, the individual landholders remain as separate residual claimants. Thus the motivations behind the engagement will vary between the individual farmers. Some may personally value the public good environmental outputs, while others will tend to see the benefits from delivering environmental goods in terms of the financial return that they bring. This latter seems likely to be a more common perspective, where environmental goods are viewed in much the same ways as conventionally marketed goods, i.e. as a means of generating farm income.

In this context, the benefits of collective provision of environmental goods are often regarded in terms of the potential to exploit economies of scale in their production (Polman and Slangen, 2010) or to benefit from economies of configuration (Franks, 2011). In fact, from the farmer's perspective, it may well be that the potential economies of size associated with the application for a grant are seen as more critical. The organisations here can best be categorised as 'clubs' (e.g. Cornes and Sandler, 1986) established to meet the objectives of their members, rather than as Conservation, Amenity and Recreation Trusts (CARTs) (Dwyer and Hodge, 1996), set up to provide a public good. The potential benefits for the increased efficiency in the provision of the public good is of value socially, but the

potential to work collectively to generate a new source of income may be more significant to most farmers.

This implies that the resolution of problems of asymmetric information will only be achieved to the extent that the appropriate incentives are clearly written in the relevant contracts, even if the contract is written between the collective group and the government. Thus for instance, mutual enforcement of conservation land management requirements will be directed by the terms of the contract. The collective will face a penalty for failing to deliver on the terms specified in the contract, whether or not this reflects the actual delivery of the environmental goods. So individual members have an incentive to monitor each others' actions. However, if the payment is results-oriented, i.e. it is written for the delivery of the environmental good, rather than being action-oriented for undertaking specified land management actions, then the incentives are better aligned in monitoring and enforcement for the delivery of the environmental good. However even here the motivation is still towards delivering the specific environmental indicator on which payment is based rather than the environmental public good per se.

The third and highest degree of integration is attained when the interested agents combine to establish a single independent body with the primary purpose of delivering the conservation outcomes. This creates a Conservation Recreation and Amenity Trust (CART) (Dwyer and Hodge, 1996) or similar organisation. The arrangement effectively pools property rights and establishes a single separate residual claimant that values the environmental good in its own right rather than as a means of obtaining income from its provision. In this case what in other situations has been treated as an external benefit here becomes internalised as the primary purpose of the organisation. This establishes a different motivational context for the implementation of conservation land management. The mission of the organisation will be likely to more closely match the objectives of policy in seeking to promote environmental goods, establishing a basis for a much closer partnership with government. With this objective, the organisation can act more entrepreneurially, seeking new methods of delivering the environmental good more cost effectively. It may be able to raise funds from donations and to attract volunteer labour. Its mission will be attractive to potential employees who share these goals and this may motivate them in their work and make them willing to work for lower financial returns (Besley and Ghatak, 2003; 2005). These characteristics may increase the efficiency of the provision of environmental goods.

Private landowners will not generally want to pool their property into this type of organisation. Clearly they would lose control of the land and the income. But it can happen. Some landowners place a high priority on conservation values and wish to ensure their conservation in perpetuity by transferring land into a conservation trust. (eg Elmley Conservation Trust in Kent, UK). A number of private estates in Scotland are managed in

this way, with a strong conservation focus across the entire range of activities (e.g. the Rothiemurchus Estate Maintenance Trust, or the Glen Tanar Charitable Trust). Some family estates are converted into charitable trusts in order to ensure long term continuity and protect against high levels of taxation (Dwyer and Hodge, 1996). The issue here is whether the trust can demonstrate sufficient public rather than family benefit in order to justify a charitable status, but even so, the charitable purpose may not be environmental. Such organisations need to gain control over land. They may be given land and property or they may purchase it. But they do not need necessarily to be freehold landowners. In principle, they will choose the means of gaining a sufficient control in order to promote their objectives at minimum cost. This may be by leasing land, entering into a contract with a landowner or potentially using a conservation covenant (Law Commission, 2013). At the same time, they may contract out the management of land that they do own to be farmed within defined conditions. The National Trust, for instance, places requirements and conditions in the tenancy agreements of tenants on its property to promote higher environmental standards.

### **Institutional arrangements**

Institutions are needed in support of

- stakeholder co-ordination in formulation of the desired objectives for conservation management,
- establishing incentives for land management in support of this in the long term,
- promoting collaboration and social capital amongst the landholders and the wider range of stakeholders, and
- supporting the administrative capacity and continuity of lead organisations in LCAs.

Development of institutional arrangements within particular localities involves a variety of stakeholders. A range of organisations and individuals will have interests in setting objectives including different types and scales of landholders as well as non-governmental organisations, private companies, local government and state agencies. LCAs commonly involve large numbers of partners who bring different skills and resources to the project, potentially offering scientific advice, support for monitoring, financial support, voluntary labour or land or other support. In this respect, the governance of LCAs may be seen in terms of co-management (Carlsson and Berkes, 2005).

The intensity of conservation management needed for good ecological outcomes will vary from context to context and place to place. This will influence the level of integration amongst landholders demanded for conservation management over the area. Some individual sites will require management that precludes any form of commercial use, while others may simply require relatively minor modification to commercial uses. These are likely to be best managed under different institutional arrangements. The former is most likely to be under public or conservation trust ownership, i.e. the third degree of integration,

while the latter is more likely to be owned by a farming entity, whether individual or corporate, i.e. under first or second degrees. This is reflected in the complex pattern of LCAs in practice, although many LCAs have yet to reach a degree of control over land that the leaders of the initiatives aspire to. The further advancement of conservation objectives is likely to involve a generally higher degree of integration across the initiative areas. This implies a greater institutional blending (Hodge and Adams, 2012) across these different degrees of integration. Closer collaboration will be attained through institutional development in support of the conservation land management initiatives.

As indicated by Franks and Emery (2013) some groups of farmers have developed independent legal arrangements to handle the introduction and implementation of collective contracts. It will be important to develop more detailed models of the alternative institutional approaches taken and their strengths and weaknesses in alternative situations. It is not clear, for instance, where such organisations sit with regard to the second and third degrees of integration. Do they set up a primary objective for the provision of environmental goods as a CART, or, more pragmatically, is their purpose the administration of an environmental contract in the interest of the farmer members, as a club?

However, at the same time, there does need to be some overall direction of the land conservation approaches across an LCA as a whole. Some organisation needs to have an influence over landholders in order to guide land management in the area in the longer term. We may envisage an LCA lead organisation that seeks a high degree of control over the core areas of the LCA, and with some but lower levels of control over a larger area. This is likely to involve the highest degree of integration in managing the most critical areas of land. This may be by means of landownership. However, as noted above, this does not necessarily require landownership, although landownership may give it a degree of experience and credibility amongst local landowners helping it to influence the landowners' actions. It may gain control through some form of contractual arrangement with other landowners. In order to ensure long term security, a property instrument may be preferable such as a conservation covenant. At present it is not possible for private non-landowning organisations in England and Wales to use conservation covenants in order to secure long term conservation management, but this is currently under review (Law Commission, 2013).

Other types of institutional development will involve the promotion of common interests amongst stakeholders within LCAs. Organisations already exist that can help to develop this type of social capital in some locations. Thus for example, National Park Authorities, commons councils (Natural England 2010), Co-operatives (Franks and McGloin, 2007) or Internal Drainage Boards (Hodge and McNally, 2000) can have influence within their individual areas of interest. In areas where such collective organisations are absent, then new organisations may need to be established, such as in the form of environmental co-

operatives or local landowning trusts, but recognising the challenges involved in establishing effective collective organisations from scratch (Mills, et al., 2011).

### **Funding arrangements**

Resources are required in support of payments for the on-going direct and opportunity cost of conservation land management, funding for the costs of administration, facilitation, social learning and collaboration. Funds may also be required for the acquisition of property, either as land or separate property rights in order to secure biodiversity and ecological gains in the long term. A primary factor in the need for policy is that the financial returns for the desired forms of conservation land use are lower than the returns from managing the land commercially. On the assumption that this is to be achieved on a voluntary basis, funds are thus required to support land management costs.

The different degrees of integration across different ownerships indicate different requirements for funding. Agri-environment funding may support low levels of integration with relatively little change from the general approaches adopted in some current schemes, although it may be appropriate to allow greater flexibility in the ways in which funds may be used. Thus current AESs may be largely sufficient as a basis for the first degree of integration, although even here there will be benefits from greater targeting and flexibility in terms of what management measures can be funded. Results-based payments and tendering may increase commitment and cost-effectiveness. In addition to support for the direct costs of land management, there will also need to be some capacity within an LCA to provide facilitation and advice that can be used to guide and support farmers in the development of management approaches that promote the overall aims of the LCA. Effective co-ordination across farms will rely on the goodwill of local farmers, and thus on the development of social capital. This aspect also needs to be funded.

The second and third degrees of integration imply a need for somewhat different funding arrangements. At the second degree, funds are assembled by the collective organisation. The expectation here is that payments will derive primarily from AESs, although the collective may also operate commercial enterprises where there are potential economies of scale from doing so. This thus leaves decisions as to what funds to seek and how they should be distributed amongst the members to be determined within the organisation. Franks and Emery (2013) discuss alternative approaches and the ways in which the Environmental Stewardship Scheme might be extended in support of collaborative approaches.

The third degree of integration requires direct support for the conservation organisation. The study of LCAs demonstrates that one of the major challenges lies in securing continuing financial support to cover the cost of working towards a long term conservation objective.

This typically has to be on the basis of implementing a sequence of relatively short term projects. This incurs very high transactions costs as conservation organisations have to invent 'new' projects for which funding can be applied from a wide variety of potential sponsors, all with differing criteria and priorities. Employees working in lead LCA organisations often have to devote a large proportion of their time applying for funds rather than attending to the conservation activities. From the funders' perspective, they need to be able to set clear criteria and targets in order to demonstrate that their funds are well used and accounted for. The problem is that there is no source of funds that is specifically established to cover the long term running costs of administering and managing LCAs. It is right that administration should be efficiently implemented, but good administration can increase the output and reduce the costs of delivering environmental goods. Thus there is an optimal level of investment in administration in the same way as an optimal investment in conservation land management. It is not clear that the short term project funding approach does either improve the targeting or accountability of the operation of LCAs.

It would seem feasible in principle to establish a central fund, potentially from within the agri-environment budget, although whether or not this would be consistent with WTO or EU rules is unclear (e.g. Burton and Schwartz, 2013). Conservation organisations could apply for grants to cover their core operating costs over a sustained period of time. At the end of this period they could then reapply to the same fund. Progress would be monitored towards the LCA's long term conservation objective and applications for renewal of funds would be assessed against this progress. LCAs would also have to demonstrate their engagement with stakeholders and the wider support for their conservation objectives. The central fund would thus have oversight of the LCA's operation and so maintain a check on its accountability. LCAs could of course seek other funds in order to further develop their work, but the aim would be to increase the efficiency of these LCAs by reducing the level of transactions costs without reducing incentives to set appropriate conservation objectives or to work cost-effectively.

## **Conclusions**

There have been two rather different developments in programmes in support of biodiversity conservation in the UK. The first has been the development of AESs under the Environmental Stewardship in England since 2005. The second has been the ambition for larger scale conservation being led by non-profit conservation organisations with support from government and other stakeholders. While there has been considerable linkage between these two programmes on the ground, there has been less co-ordination and complementarity in their design and implementation at higher levels. This must substantially reflect their different origins: the former emerging from European policy discussions and the exigencies of the Common Agricultural Policy reform and the latter as a domestic initiative particular adopted through civil society organisations. A closer linkage

between the two approaches offers a prospect of using public funds better to promote the goals of biodiversity in the longer term, especially if funds can be transferred from the direct farm payments made under Pillar 1 of the Common Agricultural Policy (Hodge, 2013a). But if anything the prospects for the reform of the CAP beyond 2014 seem to be taking things in the opposite direction, securing support for general farm payments distributed evenly across the member states of the EU rather than directing them towards targeted initiatives in response to biodiversity and ecological priorities. There is though almost certainly more that could be done within the UK through the Rural Development Programmes. This is an aspect that deserves more detailed attention.

## References

- Adams, W., Hodge, I. and Bourn, N. (1994) Nature conservation and the management of the wider countryside. *Journal of Rural Studies* 10 (2) 147-157.
- Adams, W.M., Hodge, I.D. and Elliott, L. (2011) Survey of largescale conservation areas. Unpublished report, Department of Geography, University of Cambridge.
- Baldock, D. and Lowe, P. (1996) The development of European agri-environment policy, Chapter 2, pp 8-25 in M. Whitby (ed.) *The European Environment and CAP Reform*, CAB International, Wallingford.
- Besley, T. and Ghatak, M. (2003) Incentives, choice and accountability in the provision of public services. *Oxford Review of Economic Policy* 19 (2) 235-249.
- Besley, T. and Ghatak, M. (2005) Competition and incentives with motivated agents. *American Economic Review* 95 (3) 616-636.
- Burton, R. and Schwarz, G. (2013) Result-oriented agri-environment schemes in Europe and their potential for promoting behavioural change. *Land Use Policy* 30, 628-641.
- Carlsson, L. and Berkes, F. (2005) Co-management: concepts and methodological implications, *Journal of Environmental Management* 75, 65-76.
- Cornes, R. and Sandler, T. (1986) *The theory of externalities, public goods and club goods*. Cambridge University Press.
- DEFRA (2011) *The Natural Choice: securing the value of nature* Natural Environment White Paper, [www.defra.gov.uk/environment/natural/whitepaper/](http://www.defra.gov.uk/environment/natural/whitepaper/).
- Diamond J. M. (1975) The island dilemma: lessons of modern biogeographic studies for the design of nature reserves. *Biological Conservation* 7 129-146.
- Dwyer, J. and Hodge, I. (1996) *Countryside in Trust, Land Management by Conservation, Amenity and Recreation Organisations*. John Wiley and Sons, Chichester
- Emery, S. and Franks, J. (2012) The potential for collaborative agri-environment schemes in England: can a well-designed collaborative approach address farmers' concerns with current schemes? *Journal of Rural Studies* 28 (3) 218-231.
- European Court of Auditors (2011) *Is agri-environment support well designed and managed?* Special Report No. 7, European Court of Auditors, Luxembourg.
- Forman R. and Godron, M. (1986) *Landscape Ecology* Wiley, New York.

- Franks, J. (2010) Boundary organizations for sustainable land management: The example of Dutch Environmental Co-operatives. *Ecological Economics* 70, 283-295.
- Franks, J. (2011) The collective provision of environmental goods: a discussion of contractual issues. *Journal of Environmental Planning and Management* 54 (5) 637-660.
- Franks, J. and Emery, S. (2013) Incentivising collaborative conservation: Lessons from existing environmental Stewardship Scheme options. *Land Use Policy* 30, 847-862.
- Franks, J. and McGloin, (2007) Environmental co-operatives as instruments for delivering across-farm environmental and rural policy objectives: lessons for the UK. *Journal of Rural Studies* 23 (4) 472-489.
- Harvey H. J. (1995) The National Trust and nature conservation: prospects for the future. *Biological Journal of the Linnean Society* 56 Suppl. 231-248.
- Hodge, Ian (2013a) Agri-environment policy in an era of lower government expenditure: CAP reform and conservation payments. *Journal of Environmental Planning and Management* 56 (2) 254-270.
- Hodge, Ian (2013b) European agri-environmental policy: the conservation and re-creation of cultural landscapes. Chapter in In Joshua M. Duke and JunJie Wu (eds.) *The Handbook of Land Economics*, Oxford University Press (forthcoming).
- Hodge I.D. and Adams W.M. (2012) Neoliberalisation, rural land trusts and institutional blending *Geoforum* 43 (3) 472-482.
- Hodge, Ian and McNally, Sandra (2000) Wetland restoration, collective action and the role of water management institutions. *Ecological Economics* 35 (1) 107-118.
- Jongman RHG (1995) Nature conservation planning in Europe: developing ecological networks *Landscape and Urban Planning* 32: 169-83.
- Jongman RHG and Pungetti G (2004) (eds.) *Ecological Networks and Greenways: Concept, design, implementation* Cambridge University Press, Cambridge.
- Kleijn D. and Sutherland W. J. (2003) How effective are European agri-environment schemes in conserving and promoting biodiversity? *Journal of Applied Ecology* 40 947-969.
- Kleijn, D. et al. (2006) Mixed biodiversity benefits of agri-environment schemes in five European countries. *Ecology Letters* 9, 243-254.
- Law Commission (2013) Consultation on conservation covenants. Law Commission, London.
- Lawton JH Brotherton PNM Brown VK Elphick C Fitter AH Forshaw J Haddow RW Hilborne S Leafe RN Mace GM Southgate MP Sutherland WJ Tew TE Varley J and Wynne GR (2010) *Making Space for Nature: a review of England's wildlife sites and ecological network*. Report to DEFRA
- Lindenmayer D. B. and Fischer J. (2006) *Habitat Fragmentation and Landscape Change: An Ecological and Conservation Synthesis* Island Press, Washington.
- MacArthur R.H. and Wilson, E.O. (1963) An equilibrium theory of insular zoogeography, *Evolution* 17 373-387.
- MacArthur, R.H. and Wilson, E.O. (1967) *The Theory of Island Biogeography*. Princeton University Press, Princeton.

- Macgregor, N. A., Adams, W. M., Hill, C.T., Eigenbrod, F. and Osborne, P. E. (2012) Large-scale conservation in Great Britain: taking stock, *Ecos* 33 (3/4) 13-23.
- Mills, J., Gibbon, D., Ingram, J., Reed, M., Short, C. and Dwyer, J. (2011) Organising collective action for effective environmental management and social learning in Wales. *Journal of Agricultural Education and Extension* 17 (1) 69-83.
- Natural England (2010) An introduction to commons councils. Natural England.
- Polman, N., Slangen, L. (2010) Collective approaches to agri-environment management. Chapter in Oskam, A., Meester, G. and Silvis, H. (eds.) *EU policy for agriculture and rural areas*. Wageningen Academic Publishers.
- Purvis, G., Louwagie, G., Northey, G., Mortimer, S., Park, J., Mauchline, A., Finn, J., Primdahl, J., Vejre, H., Vesterager, J.P., Knickel, K., Kasperczyk, N., Balazs, K., Vlahos, G., Christopoulos, S. and Peltola, J. (2009) Conceptual development of a harmonised method for tracking change and evaluating policy in the agri-environment: The agri-environmental footprint index, *Environmental Science and Policy*, 12, 321-337.
- RSPB (2001) *Futurescapes: large-scale habitat restoration for wildlife and people*, The Royal Society for the Protection of Birds, Sandy, UK.
- RSPB (2010) *Futurescapes: space for nature, land for life*. [online] Available at: <[http://www.rspb.org.uk/images/futurescapesuk\\_tcm9-253866.pdf](http://www.rspb.org.uk/images/futurescapesuk_tcm9-253866.pdf)> [Accessed 08.07.11]
- Wildlife Trusts (2007) *A Living Landscape: a call to restore Britain's battered ecosystems, for wildlife and people* The Wildlife Trusts, Lincoln.
- Wildlife Trusts (2011) *The Wildlife Trusts: A Living Landscape* [online] Available at: <<http://www.wildlifetrusts.org/alivinglandscape>> [Accessed 07.07.11].