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Current Opinion in
Environmental
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Agri-environmental collaboratives for landscape management in Europe

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Collaboration among farmers is increasingly recognised as beneficial for successful agri-environmental management. This paper reviews the recent literature on agri-environmental collaboration in Europe and compiles benefits, limitations and ways to encourage collaboration. Examples presented are situated along a spectrum from coordination to collaboration. While coordination seems to be easier and less costly to achieve than collaboration and may suffice for certain objectives, some benefits such as increasing social capital and the sustainable management of the wider landscape only occur with collaboration. Existing collaboratives have broader goals that may not neatly map onto objectives of agri-environment schemes. This inherent tension may be easier to address through regional or local schemes.

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Current Opinion in Environmental Sustainability 2015, **12**:59–66

This review comes from a themed issue on **Sustainability governance and transformation**

Edited by **Bruce M. Taylor** and **Ryan R.J. McAllister**

For a complete overview see the [Issue](#) and the [Editorial](#)

Received: 29-5-2014; Revised: 30-9-2014; Accepted: 10-10-2014

Available online 29th October 2014

<http://dx.doi.org/10.1016/j.cosust.2014.10.009>

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Introduction

Collaboration among farmers, but also between farmers and other rural stakeholders, is increasingly recognised as beneficial for successful agri-environmental management [1–3]. This is reflected in recent changes to EU rural development policy that makes funds available for different forms of collaboration, for example, for environmental management in agricultural landscapes. The aim of this paper is to review the recent literature on agri-environmental collaboration in Europe, draw out the current knowledge on its socio-economic benefits and limitations, and ways to encourage collaboration.

The management of agricultural landscapes in Europe is shaped to a large extent by the Common Agricultural

Policy (CAP). Part of the CAP funding is designed to support rural development, amongst others through agri-environmental schemes (AES) which represent the most direct instrument for delivering environmental benefits on agricultural land. These schemes have traditionally been delivered at the scale of the individual holding through agreements with the individual land manager. Although AES focus on the agri-environment, associated activities are embedded in the management of the wider landscape and are often discussed in the context of landscape-scale management [4**] or a whole-landscape approach [5].

AES are funded under the European Agricultural Fund for Rural Development (EAFRD) regulation. The EAFRD supports different forms of collaboration involving at least two entities, for example ‘joint approaches to environmental projects and ongoing environmental practices, including (...) the preservation of agricultural landscapes’ (Art. 35, 2g) [6]. The European Union (EU) further recognises that ‘joint actions involve additional transaction costs which should be compensated adequately’ (Art. 5) [6]. In the period 2006–2013, EU rules stipulated that transaction costs may not exceed 20% of the premium paid for the agri-environment–climate commitments. In the current period (2014–2020) this has been increased to 30% where commitments are undertaken by groups of farmers or groups of farmers and other land managers [6]. The specification of measures is the responsibility of individual Member States, allowing for flexibility but also considerable diversity in national schemes. Within the framework of national Rural Development Programmes, each member state specifies its own arrangements for supporting collaborative approaches.

The coordination – collaboration spectrum

There is a distinction to be made between collaboration and coordination, terms which are often used interchangeably but refer to different degrees of joint working (for example, McKenzie *et al.* [7] use the term ‘collaborative’ but refer to individual agreements that do not necessarily entail any collaboration between farmers but could be arranged by a coordinator or advisor). Earlier reports had associated collaboration with bottom up, and coordination with top-down action [8]. This top-down notion is still visible in many coordination approaches currently in use. However, a more nuanced conceptualisation is required. Boulton *et al.* [9] (p. 4) distinguish between a collaborative approach to landscape-scale management (defined as ‘land managers meet, work together

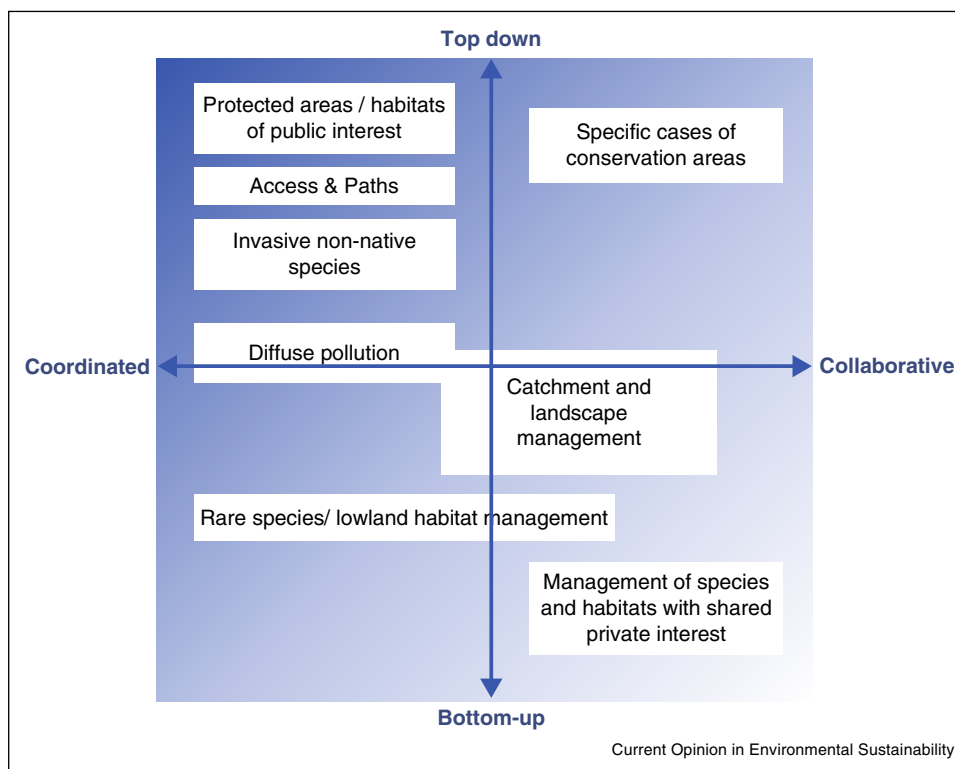
and maintain a dialogue’) and a coordinated approach (defined as ‘land managers working towards the same objective but in isolation’). Both, coordination and collaboration can be ‘bottom up’, evolved, or ‘top-down’. This spectrum is depicted in Figure 1, with examples from Boulton *et al.*’s [9] review of Scottish initiatives placed in the relevant quadrant. Note that projects, initiatives and groups are multi-faceted and hence may not always be clearly allocated to one quadrant. Other examples, especially from other countries, may exhibit a different combination of characteristics.

A top-down approach (initiated by a government agency, NGO or by a government-funded adviser to deliver public policy) is most common in projects with a primarily public benefit, such as managing protected areas (National Park, conservation areas), managing invasive non-native species (rhododendron) and providing public access on private land (upper left quadrant). In areas where there are equal public and private benefit, such as diffuse pollution, projects tend to be top-down or evolved (i.e. activities may start independently, in an ad-hoc manner, but are brought together into a collaborative venture by an adviser). For certain rare species, the impetus for an initiative may come from and is maintained by land managers, making it a bottom-up initiative

(lower left quadrant). Further examples for coordination are targeted schemes, for example, AES that incentivise a certain management practice, relying on the uptake (i.e. the density) of agreements [10], or offering an agglomeration bonus for a scheme option [11]. These schemes tend to work without a facilitator. Other schemes encourage the submission of joint applications, where advisers help to identify neighboring farmers that submit a joint application [2,9]; or conservation project officers from conservation authorities that guide and adjust applications at the planning stage, so they can direct AES applications to locations where they have the most benefit from the landscape-scale perspective [12*].

Boulton *et al.* [9] identified only one example of top-down, collaborative management (upper right quadrant) which was the management of a conservation site. Bottom-up collaborative action (lower right quadrant) occurs mainly where there is a shared private interest in the management of species and habitats. Examples are Scottish deer management groups (private benefit from deer stalking), common grazing and the Pontbren Farmers Group (Table 1). Broader catchment and landscape management (such as riparian owners collaborating in river trusts or fisheries boards, or German Landcare

Figure 1



The coordination – collaboration spectrum, integrating a top-down – bottom up spectrum. Note: Dark blue depicts the influence of EU policy and agri-environmental schemes; light blue depicts the influence of local and regional schemes.

Table 1

Examples of approaches to agri-environmental coordination and collaboration

Name	Description	Reference
Dartmoor Farming Futures, England	Collective agreement, a pilot farmer-designed AES on commons	[17]
Limestone Country Project, England	Spatially targeted project with aim of introducing cattle grazing systems in a particular habitat	[17]
SCaMP/SCaMP II, England	Public/private partnership; spatially targeted scheme funded by United Utilities, RSPB project officer signing farmers up to AES	http://corporate.unitedutilities.com/scamp-index.aspx
Ordinance for Ecological Quality, Switzerland (OQE)	AES scheme using agglomeration bonus payment to encourage ecological networks	[17]
Northeim Project, Germany	Geographically targeted auction (pilot) with an element of local engagement in decision-making	[18]
Common Land Element in Glastir, AES in Wales	Collaborative management through (existing) Grazing Association who can apply for entry into AES	[19]
Pontbren Farmers Group; Wales	Agri-environmental collaborative (10 farmer members) undertaking sustainable farming practices	[20]
Cultural landscape projects, Austria	National or regional programme requiring participation of local stakeholders and citizens with a focus on conservation and landscape co-management	[21,22]
Integrated Local Delivery, England	Facilitation process used to deliver integrated management through a local management group of all stakeholders (evolved from FWAG approach)	[23]
Landcare groups, Germany	Agri-environmental collaboratives involved in landscape management, habitat and species management, using AES and other funding	[24,25–27]
Agrarische Natuurverenigingen (ANV), The Netherlands	Agri-environmental collaboratives involved in landscape, habitat and species management, often via collective agreements, using AES and other funding	[3,28,29]

Note: shaded rows = an approach that is being implemented in a number of places; not shaded = an example of a place which is implementing its own specific approach.

groups) may be initiated bottom up or evolve, but are generally characterised by a collaborative approach.

The traditional realm of AES is the top-down, coordinated approaches (dark blue shading), as they are required to support the delivery of multiple (including public) benefits from agriculture. Objectives tend to be narrowly defined (e.g. specific habitat management prescriptions). Strictly speaking, AES finance measures on agricultural land only. In contrast, for collaboratives that started as bottom-up initiatives, local and regional funding and administrative support (light blue shading) tend to be more important. As collaboratives often use mixed funding, the boundary is fuzzy. More recently, AES and other rural development measures are increasingly utilised by bottom-up collaboratives (such as ANV, Landcare Groups), represented by the darker shading extending towards the lower right quadrant. This may lead to conflicts between the (narrower) objectives of an AES and the (typically wider) priorities of the collaborative.

Table 1 provides further examples of approaches along the coordination — collaboration spectrum identified in the literature from across Europe, including collective agreements within AES, agglomeration bonus payments, spatially targeted projects, facilitated planning and decision making processes, and long-term group working. Approaches closer to the coordination end of the spec-

trum are positioned closer to the top of the table ranging through to those at the collaboration end of the spectrum at the bottom of the table. There is also the notion that the approaches at the top of the table are less costly and those at the bottom are more costly and complex [12*].

In addition to categorising agri-environmental collaboration according to degree of collaboration, initiator and cost, it is useful to consider the membership of collaboratives (in coordinated approaches there is no group membership as such) as it helps to better understand the socio-economic benefits and limitations. Collaborative groups include mainly farmers but also local residents, conservationists, hunters, foresters or other stakeholders who meet, maintain a dialogue and work together. These are referred to as 'mixed membership collaboratives' [13,14].

The consideration of mixed membership groups is relevant because agri-environmental management does not happen independently from the wider rural landscape. The public may also experience benefits (or disbenefits) as part of their local area and landscape, influencing their regional identity and sense of place. Landscape management also needs to take account of the varying preferences of non-landholders, including locals, tourism operators, conservation associations, among others [15]. Mettepenningen *et al.* [16] illustrate an example of collaboration between farmers and a wider

set of rural actors for agricultural landscape management and place branding.

Benefits and limitations

Because of the inconsistent use of terms it is difficult to disentangle which benefits and limitations arise as a result of coordinated agri-environmental action, and which are linked to collaboration. In general, coordination appears to be more straightforward while collaborative management comes with a set of additional challenges, such as the dilemma between individual and collective benefits (also referred to as private and public benefits), trade-offs between different objectives that cannot be simultaneously realised in a given landscape, the choice of appropriate organisational structures, and the prerequisite of building trust and social capital [4**].

Benefits

Benefits of collaborative agri-environmental management have been identified in three areas: environmental, economic and social. With regard to environmental benefits, landscape-scale management can reduce habitat fragmentation and maintain ecological networks [30], thus providing greater benefit to biodiversity and ecological effectiveness [31] because certain ecosystem services operate at a greater scale that requires linkages between separate land management units [32]. Both coordination and collaborative approaches can contribute to protecting and enhancing sustainable agricultural landscapes [33**]. Active coordination is essential for managing core sites (e.g. for raising water-levels), for buffering (e.g. the edges small protected sites) [17], and to achieve the 100% coverage necessary to manage non-native invasive species [9]. Collaboration is necessary where land managers need to negotiate potentially conflicting objectives and appropriate management, for example, regarding livestock ranging across unfenced boundaries (common grazing), wild species with larger range (deer) [9], improving freshwater quality [34], and creating a habitat mosaic for rare species with short range, but also in cases where a group of land managers has broader objectives such as improving the image of farming, providing recreational infrastructure or maintaining a network of landscape elements.

Although environmental benefits have traditionally been in the center of attention for collaborative agri-environmental management, there is recognition of benefits to the land managers as well as wider social and economic benefits for communities, government agencies and the rural economy [3,35] which are the focus of this paper. In terms of economic benefits, Cong *et al.* [36] found that efficiency improved with landscape-scale management, and that all farmers benefitted from it in terms of crop yields. Collaborative management can be more cost-effective because costs are shared and minimized. Franks [31] stated that collective contracts are likely to reduce

transaction costs for both, government and individual farmers, leading to increased participation rates. This is in contrast to the Rural Development Regulation which recognizes that joint action involves additional transaction costs. Mills *et al.* [37*] offer the plausible explanation that costs depend on the capacity and maturity of the group, with higher initial costs for group schemes compared to individual agreements, and lower costs later in the schemes with less government administration, due to significantly fewer individual agreement negotiations.

There is also a suggestion that farmer-led, bottom up initiatives reduce monitoring and enforcement costs, thus making them more cost-effective than approaches that follow legislative requirements [17]. A possible explanation is that group working helps to frame decisions in ways that shift attitudes, values and aspirations among members [31].

In addition, collaborative management can aid the harmonisation of multiple objectives; facilitate the sharing and mobilising of resources; allow flexible, locally relevant responses; and, building capacity to cope with future changes [38–40]. There is also evidence that collaborative groups contribute to the social-ecological resilience of the landscape [41]. Benefits of collaborative working in AES identified by Mills *et al.* [42] included the development of social capital within the groups, resulting in increased social interaction and the ‘feeling of belonging’, as well as increased willingness to provide advice and mutual support. Group membership also opened up new opportunities that would have been impossible to access by the farmers individually. Individuals developed both social and technical skills and increased their business confidence. Many of these benefits are commonly recognized in the literature on environmental co-management and community-based natural resource management beyond Europe [43–46].

The literature on sustainable landscape management focuses on generating ecological benefits from landscape management and a desire to progress the implementation of the European Landscape Convention. Fostering bottom-up approaches [47] and promoting the participation of diverse stakeholders [21,22] are seen to benefit participants by allowing them to influence decisions, contribute to landscape management, share knowledge and build networks. Some authors frame these processes as adaptive multi-level governance [48]. The need for more user orientation, participation, coordination and deliberative decision-making mechanisms in landscape governance is also highlighted from other disciplinary perspectives such as service economics [15].

Limitations

Many authors do not distinguish whether it is co-ordination or collaboration that is needed to achieve landscape scale benefits. In their evaluation of landscape scale

management initiatives within the Scottish Rural Development Programme, Boulton *et al.* [9] (p. 14) conclude that ‘in many cases co-ordination is sufficient for the delivery of the desired [conservation] outcomes and genuine collaboration is not required.’ If, however, the desired outcomes relate to economic and social outcomes as well, collaborative management is required and a number of limitations need to be considered.

In general, collaboration can be incentivized through payments to the individuals concerned. However, if there is mainly a public benefit coupled with no or little private benefits, this strategy becomes expensive. The cost of an application can be a barrier to those considering applying to the scheme [9], hence they may need to be 100% funded making the scheme expensive for the public purse. This is in addition to higher transaction costs for meetings and negotiation. A related point is that collaborative efforts are limited by the amount of time that participants are able and willing to invest. Engel *et al.* [21] highlighted the unequal conditions of participation of professional (e.g. agency staff) and volunteers (e.g. farmers) which lead to a skewed distribution of transaction costs.

Collaboration relies on trust and social capital, which does not exist everywhere to the same extent. Even farmers who have lived and worked closely to each other for many years may not have any common values or shared social or business networks [42]. There are issues around contracting a group for outcomes that individual members are meant to achieve [31] including transaction costs, asymmetry of information, the ‘hold-up’, ‘end-of-contract’ and ‘assurance’ problems and incomplete contracts. Farmers are reluctant to enter into contracts that make them vulnerable to the management decision of a neighbor.

The establishment of a collaborative group takes time. Mills *et al.* [37^{*}] suggest that a group might need a period of 10 years to develop into maturity and then to deliver real change in farming practices and land management. Therefore, some authors suggest the use of existing networks and groups for more sustained efforts [9]. However, the goals of these groups may not exclusively center on AES, or there may be trade-offs between several objectives, leading to tensions within the group and issues around accounting for the funding received.

Encouraging agri-environmental collaboration

Before setting out to encourage collaboration, it should be assessed whether a collaborative approach is indeed required for the objective pursued or whether coordination might be sufficient (Section 3). Boulton *et al.* [9] (p. 12) state that ‘A ‘reactive’ approach to AES applications — setting up a scheme and waiting for applications — does not lend itself to the delivery of landscape-scale public benefits’ and does not encourage the necessary levels of coordination or collaboration.

Recommendations from the literature on how to incentivise collaborative agri-environmental management are combined with those for landscape co-management and presented below.

A prerequisite for collaboration from the land manager point of view is the need to solve a (common) problem or address a threat [4^{**},42]. If the awareness of a problem is not shared, resources will need to be invested to create this awareness [22]. There is recognition that the level of public versus private benefit in a landscape-scale project is a major determinant of the type of approach that is required. The less private benefit (e.g. addressing a perceived problem), the more public funding is required. Boulton *et al.* [9] suggest that landscape-scale projects are only likely to take place where third party facilitation is used. Effective facilitators are essential to provide the group with ideas and advice on securing funding [4^{**},9,42].

Good communication is essential, both horizontally (between farmers, other group members and local stakeholders) [2] and vertically (between group members and stakeholders at higher levels such as agencies, boards, municipalities and companies). ‘Intensive, transparent communication’ was highlighted by Mettepenningen *et al.* [16] as the basis for ‘forming vital coalitions’ between farmers and other rural actors.

Access to high quality advice and support is an important component of successful landscape-scale projects. Boulton *et al.* [9] also recommend supporting existing groups and networks because they already possess a high level of social capital. When creating new groups, trust has to be created through enhancing the understanding of different viewpoints and partnership working [42]. Nevertheless, established groups still benefit from support, for example, help with how to structure and operate the group (e.g. constitution); business advice; project coordination, contractor management and volunteer training. Financial incentives (e.g. government support) should be provided to cover the additional costs of collaboration and the costs of potentially increased management and risk [9,31,42]. If these are not available, these costs might translate into a time constraint and lead to participant dropout [22].

The literature emphasises that monitoring the impact of activities (outcomes) and feeding results back to the group has a positive influence on participant motivation and fosters a sense of shared responsibility and ownership [9,22]. Ideally, funding should be provided for monitoring or land managers should be trained to monitor outcomes [26]. It may also be useful for groups to buy-in expert advice [31].

If collaboration is to be encouraged under AES, it is important to allow flexibility in scheme design [37^{*}], that is, land managers can decide on the detail to suit their

respective context. If formal collective contracts are set up they should allow some autonomy, enabling groups of farmers to determine the allocations of costs and activities amongst themselves. While some authors find it beneficial if payment systems are administered by the groups so that they can develop their own equitable distribution of funds to members [37*], others highlight a number of contractual issues facing the groups [31]. Based on experiences in Wales and the Netherlands, some authors suggest that self-regulation or self-governance can create environmental benefits (e.g. de-stocking, reducing diffuse pollution) and creative solutions, but current arrangements have yet to be fully developed to substantiate claims [37*,49]. In general, collaborative scheme options should be prioritised for continuation at the end of five year contracts and allow more flexibility in contract lengths [9].

Group and group member characteristics are highlighted because they may function as success factors for farmer collective action for environmental outcomes, including key individuals with the skills and determination to move the group forward, as well as small, manageable group size which makes it easier to maintain and develop good personal connections between members [37*].

Options that are most costly and complex but could be explored in future include: first, making some degree of landscape coordination among land managers a compulsory requirement of participation in AES; second, allowing groups of farmers to tender for predesigned landscape-scale environmental plans; or third, allowing them to submit their own landscape-scale environmental plans, which need to conform to but could also develop local and regional landscape-scale objectives [12*]. To some extent, the latter is already being implemented by Dutch ANV for meadow bird management on a small but cross-boundary scale [50].

Conclusions

In light of the growing interest of European governments to adjust their AES to deliver landscape scale outcomes, this review identified benefits, limitations and success factors for coordination and collaborative management. It emphasised the importance of distinguishing conceptually between coordination from collaboration to better understand the range of socio-economic benefits for the individual and wider society. In practice, projects and initiatives may combine a mix of coordinative and collaborative elements depending on the local context. For clearly defined agri-environmental objectives (such as maintaining the habitat of less mobile species in a delineated area), a coordination approach might be sufficient to increase the environmental effectiveness. However, if the focus is broadened beyond the effectiveness and efficiency of AES implementation and if objectives are more complex, contested and interlinked with develop-

ment in the wider rural landscape, a collaborative approach is needed to negotiate the interests of a multiplicity of actors. Collaborative approaches are likely to require more effort and funds to achieve a fair process of involvement and the desired outcomes. Current EU regulation sets the objectives at higher levels with little flexibility to take local specificities into account and brings with it considerable accountability constraints. It is therefore important that national specifications (Rural Development Programmes, AES) create the necessary space to accommodate local issues and that countries offer additional regional or local schemes that are more conducive to support existing collaboratives. To conclude, greater attention needs to be paid to the selection of not only the mode of collective action (coordination or collaboration) but also to the scale at which support for these approaches is designed, implemented and evaluated within a multi-level governance system.

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