

The potential for collaborative agri-environment schemes in England: Can a well-designed collaborative approach address farmers' concerns with current schemes?

Emery, Steven B.; Franks, Jeremy R.

DOI:
[10.1016/j.jrurstud.2012.02.004](https://doi.org/10.1016/j.jrurstud.2012.02.004)

Document Version

Early version, also known as pre-print

Citation for published version (Harvard):

Emery, SB & Franks, JR 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*, vol. 28, no. 3, pp. 218-231. <https://doi.org/10.1016/j.jrurstud.2012.02.004>

[Link to publication on Research at Birmingham portal](#)

General rights

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.

The potential for collaborative agri-environment schemes in England: Can a well-designed collaborative approach address farmers' concerns with current schemes?

Steven B. Emery^{a*} & Jeremy R. Franks^a

- a. Centre for Rural Economy, School of Agriculture Food and Rural Development, Newcastle University, Agriculture Building, Newcastle upon Tyne, NE1 7RU, UK, tel. +44 (0)191 222 6623, fax. +44 (0)191 222 5411.

Email steven.emery@ncl.ac.uk; j.r.franks@newcastle.ac.uk

*Corresponding author

Abstract

There is increasing recognition that whilst agri-environment schemes in England have had discernable benefits, their success in relation to certain species and resources has been inhibited by the piecemeal implementation of Environmental Stewardship (ES) on the basis of single farm agreements. In this paper we examine the receptivity of farmers to the idea of landscape-scale, collaborative agri-environment schemes (cAES) based on semi-structured interviewing in three English case-study areas. Using qualitative socio-cultural interpretation we argue that a lack of communication and mutual understanding between farmers; a cultural imperative for independence and timeliness, and; alternative interpretations of risk amongst farmers present potential barriers to cAES. We also argue, however, that if designed appropriately, cAES have the potential to overcome certain concerns that farmers hold about the existing ES schemes. In particular, cAES are likely to gain support from farmers where it is seen to offer greater flexibility; scope for farmer involvement in scheme design; locally targeted and clearly defined aims, and; demonstrable benefits that can be monitored as a record of success. We provide policy recommendations and suggest that cAES have the potential to deliver greater environmental benefits, whilst at the same time encouraging farmers' participation in, and satisfaction with, agri-environment schemes.

Keywords: cooperation, agri-environment, timeliness, independence, farmers, collaboration

This article has been published by the Journal of Rural Studies and should be cited as:

Emery, S.B. and Franks, J.R., 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.

<http://dx.doi.org/10.1016/j.jrurstud.2012.02.004>

1. Introduction

In June 2011 the English Government launched its Natural Environment White Paper: ‘The Natural Choice: securing the value of nature’. The White Paper places emphasis on protecting and improving the natural environment, growing a green economy and reconnecting people and nature. It advocates ‘joined-up action at local and national levels to create an ecological *network* which is resilient to changing pressures’ (HM Government, 2011:14, emphasis added). The concept of the ecological network is adopted from Lawton et al.’s ‘Making Space for Nature’(2010), which posited 24 recommendations to government to enhance and protect the natural environment under the guiding principles of ‘more’, ‘bigger’, ‘better’ and ‘joined’. They define an ecological network as:

A suite of high quality sites which collectively contain the diversity and area of habitat that are needed to support species and which have ecological connections between them that enable species, or at least their genes, to move (Lawton et al., 2010: iv).

Central to the recommendations related to the improvement of ecological networks is the concept of landscape-scale management (also Webb et al., 2010), which aims to address habitat fragmentation and to enhance the resilience of England’s priority species by making management intervention over a large geographic area (HM Government, 2011: 18).

Whilst a landscape-scale approach necessitates integrated management across a range of sectors and stakeholders, a successful intervention will necessarily incorporate agricultural land and require the involvement of farmers (Natural England, 2011). In England, as with the rest of the European Union, farmland conservation is administered and encouraged via Agri-Environment Schemes (AES). The current system of AES in England is administered through a two-tier Environmental Stewardship Scheme (ES). The Entry Level Stewardship Scheme (ELS) is accessible to all farmers and pays a flat rate of £30/ha for meeting a range of management options that are allocated using points and calculated across the entire farm holding. The ELS is described as a 'broad and shallow' scheme, which aims to implement basic conservation measures across a large part of the farmed landscape. Currently, more than 60% of the farmed land in England is within an ELS agreement. ELS agreements last for five years and the scheme includes variations tailored to organic and upland farming. The upper tier of ES is known as Higher Level Stewardship (HLS) and provides additional financial support for more demanding conservation intervention in targeted high value areas. Unlike the ELS, the HLS is a discretionary scheme with the government's conservation advisory agency - Natural England - deciding which applications to fund. The HLS agreement involves a greater degree

of negotiation between advisor and farmer, offers a much wider range of management options, does not necessarily apply to the entire farm holding and is agreed over a 10 year period.¹

There are current provisions within the HLS and the upland version of ELS that provide a financial supplement for applications from groups. These provisions, however, have been principally designed to facilitate applications on common land, rather than to address landscape scale environmental issues *per se* (Franks et al., 2011). Outside of this small number of cases the vast majority of stewardship agreements are implemented on an individual farm holding. If the government's objectives for enhanced ecological networks are to be achieved, however, and if agri-environment schemes are to be one of the principal means of delivering a landscape-scale approach, then it seems very likely that collaborative Agri-Environment Schemes (cAES) will be extended to incorporate farmland and farmers that have hitherto entered into AES on an individual basis, or, perhaps, that have not entered AES at all. Given this scenario, and given British farmers' general reluctance to cooperate beyond informal reciprocal relations (Davies et al., 2004; Mills et al., 2006), the purpose of this paper is to examine and report on farmers' receptivity to the idea of cAES and to identify the potential barriers and opportunities for the more widespread implementation of such schemes. It is not our purpose here to explore and elaborate specific landscape-scale approaches (but see Goldman et al., 2007). Each approach will be tailored to its particular geographic location and present its own opportunities and drawbacks. Our purpose here, rather, is to provide a first look at farmers' views on the potential for cAES and to understand this in terms of their existing views on working with other farmers and on participation in AES. In doing so, and by adopting a principally socio-cultural approach to interpretation, we also aim to make a broader theoretical contribution to debates regarding the cultural, normative, value-based and symbolic influences on farmers' behaviour in relation to agri-environmental and wider conservation practices (Burton, 2004a; Burton et al., 2008; Burton and Paragahawewa, 2011; Emery, 2010; Gravsholt-Busck, 2002; Setten, 2004; Siebert et al., 2006; Silvasti, 2003).

Rather than viewing cAES as presenting a range of additional barriers to AES participation over and above current AESs, we consider whether cAES can actually overcome some of the problems that farmers have with current AES, encourage further participation and favourability toward AES, whilst at the same time achieving greater environmental benefits. The paper is organised as follows: Section 2 outlines the methodology of the research; Section 3 briefly outlines the ecological rationale for a landscape-scale approach and previous experience of environmental collaboration between farmers;

¹ Further details about Environmental Stewardship are available at www.naturalengland.org.uk

Section 4 presents the main results and discussion, whilst Section 5 draws conclusions and provides recommendations.

2. Methods

The findings presented in this paper are based on semi-structured interviews with 33 English farmers in three separate case study areas. The interviews were conducted in January and February 2011. The approach to interviewing included quantifiable elements, as well as more open-ended discussion topics that could be analysed qualitatively. This approach ensured that information on various structural variables (such as farm size and type) was consistently collected, whilst also providing scope for an unrestricted and fluid discussion of the key topics following the principles of active interviewing (Holstein and Gubrium, 1995).

The interviews included the following elements: i) background information about the farm and the farmer; ii) existing cooperation and views on cooperation; iii) existing AES involvement and views about the schemes; iv) 'in principle' favourability to the idea of cAES; v) favourability to a series of hypothetical landscape-scale AESs with different management requirements; vi) broader views on the merits, drawback and constraints of cAES, and; vii) conceptions of 'good farming', to give an indication of potential cultural influences on decision-making (Burton, 2004a; Silvasti, 2003).

In addition to the semi-structured interview, each interviewee was asked to provide likert-type scores against a series of different behaviours based on the principles of the Theory of Planned Behaviour (TPB) (Ajzen, 1985, 1991). The TPB was not used to test the theory itself and nor was it thoroughly applied to allow statistical testing of respondents' likely future behaviours. Instead, the *principles* of the theory were applied as an alternative way of eliciting responses to the same issues that were discussed during the interviews using an established theory (see Beedell and Rehman, 1999 for the basic elements of the theory). On this basis, and against five different behaviours, each respondent was asked to score (from 1-7) their favourability towards behaviour x (indicating attitude); difficulty and level of personal control for them to do behaviour x (indicating perceived behavioural control); how favourable other farmers are towards behaviour x and the extent to which other farmers' views matter to oneself (indicating subjective norm) and intention to do behaviour x (indicating intent). Scores were elicited against five potential behaviours, namely: i) cooperating with other farmers; ii) undertaking environmental work outside of AES; iii) participating in ELS iv) participating in HLS, and finally; v) participating in a cAES.

The quantifiable data was collated in a spreadsheet, whilst the interviews were transcribed and coded. Our interpretation follows what is best described as a socio-cultural approach in acknowledgement of

its anthropological underpinnings. Modern socio-cultural anthropology arose out of the merging/interpenetration of the traditional disciplines of social anthropology and cultural anthropology and incorporates analysis of the cultural, normative, value-based and symbolic influences on human behaviour, as well as the distinctive features of social organisation in and through which such behaviours permeate. Our interpretation might be better referred to as what Geertz (1973) has famously called “thick description”, in that it interprets what farmers say, do or imply through the lens of a deeper understanding of the socio-cultural milieu in which they operate, as informed by the author’s own long-term ethnographic fieldwork amongst English farmers (Emery, 2010) and a growing body of similarly grounded research. As noted, the Theory of Planned Behaviour is employed here as an additional means of eliciting responses, rather than as a theoretical framework and analytic tool *per se*. Nevertheless, socio-cultural insights were used to inform this elicitation tool and, whilst not our purpose here, efforts have been made elsewhere to more strongly integrate cultural factors into the more typically psychological Theory of Planned Behaviour (Burton, 2004b).

The three case study areas were in Peterborough; Grafton, Worcestershire, and; Tamar valley, Devon/Cornwall (Figure 1). Between 10 and 12 interviews lasting between 45 minutes to 2 hours were conducted in each case study area.



Figure 1: Case study locations in England.

The case study areas were selected and their boundaries defined according to a number of selection criteria. Firstly, the three areas present differences in terms of their geography and agricultural system. The Peterborough sample comprised wholly arable farmers, which were modally large (>200 ha); the Grafton sample comprised mixed arable and livestock farming with modally medium-sized

farms (100 – 200 ha); whereas the Tamar sample comprised mostly livestock farms on modally small-sized holdings (<100 ha). Secondly, the three areas were ecologically and policy-appropriate. This was achieved by overlaying the boundaries of Natural England’s HLS target areas (valuable areas where HLS support is targeted), with the boundaries of the newly proposed Integrated Biodiversity Delivery Areas (IBDAs).² The HLS target areas represent areas that are deemed appropriate for conservation intervention through AES, whilst the IBDA overlay incorporates areas specifically recognised as likely to benefit from a landscape-scale approach. Thirdly, the three areas are relatively small to ensure sample farmers within close geographical proximity. Fourthly, areas were selected with a diverse range of current levels of AES participation so as to allow comparison. Finally, the areas were selected in principally lowland locations so as to avoid areas of upland common where there is a history of collective land management and where provisions for cAES already exist (Franks et al., 2011).

Interviews were arranged with farmers utilising databases held by conservation NGO's.³ The majority of interviews, however, were arranged by using publicly available farm business listings (Following Morris and Potter (1995), but see Errington (1985) and Burton and Wilson (1999) for potential bias). The use of business directory listings prevented a bias in favour of conservation-oriented farmers and, unlike previous studies, ensured an even distribution of AES non-participants, lower tier participants and higher tier participants (see Section 3).

3. cAES in Context

Webb et al. (2010) argue that most habitats require ‘structural variation’ at the small-scale, whilst generalist species such as birds and mammals require landscape-scale diversity which provides different habitats for different functions such as foraging, roosting and nesting. In addition to the landscape-scale needs of individual species and habitats at any one moment in time, the benefits of landscape-scale conservation have also been promoted as a means of enhancing the long term viability and resilience of species by enhancing their mobility through the provision of connecting features (such as wildlife corridors or stepping stones) (Lawton et al., 2010). This additional mobility is important in the long-term to allow migration and adaptation according to changing environmental

² See <http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/integratedbiodiversitydeliveryareas/default.aspx> for details of the IBDA’s.

³ Farming and Wildlife Advisory Group (FWAG), Linking Environment and Farming (LEAF), and the Game and Wildlife Conservation Trust (GWCT).

conditions and, in particular, to climatic change (Eycott et al., 2008; Hopkins, 2009; Lowe et al., 2009).

The current piecemeal approach to AES in the EU, and its failure to address a broader spectrum of habitat and species' needs has attracted recent criticism in the ecological literature (Concepción et al., 2008; Dallimer et al., 2010; Kleijn and Sutherland, 2003; Merckx et al., 2009; Tschardt et al., 2005; Whittingham, 2007). This literature suggests that the successes of AESs are difficult to quantify, and that the fragmented and farm-scale approach to conservation reduces the effectiveness and financial efficiency of the schemes. The problem represents what Cumming et al. (2006) have referred to as a 'scale mismatch' between the scale of administrative management (typically the farm scale) and the scale of the ecological processes being managed (such as species mobility and ecosystem services). As mentioned in Section 1, the current provisions within the English Environmental Stewardship schemes for landscape-scale AES were principally included to facilitate commons management, rather than to address landscape-scale principles *per se* (Franks et al., 2011). There is a recognised ecological requirement and political expediency, therefore, for an increased role for landscape scale AESs.

Whilst environmental collaborations involving farmers have been successfully developed, and analysed, overseas (notably the Australian Landcare Program (C.R.E.R. and C.J.C. Consulting, 2002; Curtis and De Lacy, 1998; Wilson, 2004), the German Landschaftspflegeverbände groups (Prager and Vanclay, 2010), and Dutch Environmental Cooperatives (Franks and McGloin, 2007; Renting and van der Ploeg, 2001)) there remains a relative lack of such examples in the UK (Franks and McGloin, 2006).

The Australian Landcare Program, in particular, has been examined as a contrasting approach to the European model of agri-environmental policy implementation. Whereas in the EU AES payments are provided under the auspices of compensation to individual farmers for loss of productive capacity, in Landcare landowners are encouraged to address local environmental issues by joining locally funded groups with a distinct emphasis on community empowerment and participatory approaches to decision-making (Lockie, 2006). As opposed to the top-down approach of the EU, then, the Landcare program has been presented as supportive of a wider literature that emphasises the ability of local groups to build social capital and effectively manage boundary-spanning natural resources (Pretty, 2003). One of the principal achievements of landcare in Australia, as well as in examples from the Philippines, is its ability to positively alter attitudes by bringing farmers together and providing a space for interaction and normative shifts amongst peers (Cramb, 2006; Hajkowicz, 2009; Lockie, 2006; Wilson, 2004). Moreover, it has been argued that these positive attitudes engendered through

group-working have also altered behaviours and conservation practices on individual farms (Lockie, 2006). This differs from studies of European AES implementation, therefore, that have argued that the mechanisms of implementation have ultimately failed to change farmers attitudes (Burton, 2004a; Burton et al., 2008) and it also represents an approach that begins with collaboration and subsequently alters individual behaviour, as opposed to a top-down approach that prescribes individual behaviours in the first instance. The challenge for policy-makers in England, given the increasing emphasis on ecological networks, ecosystems services and landscape-scale delivery, therefore, is to translate this individual prescriptive approach into a participatory and collaborative one. Despite the positive attitudinal changes instigated by Landcare, however, it has been argued that the environmental problems it was designed to address have seemingly continued unabated (Hajkowicz, 2009). This, in combination with the EU's continued preference for compensation-based payments and the need to fit collaborative approaches into existing policy frameworks, ensures that alternative options for delivering cAES are likely to continue to follow the European model. Examples from Germany have shown how local participatory approaches have been successfully incorporated into informing the existing AES policy framework (Prager and Freese, 2009; Prager and Nagel, 2008), although earlier attempts encountered obstacles to vertical integration (Eggers et al., 2005).

In the UK, Studies carried out on behalf of the Scottish Executive and the Countryside Council for Wales have provided recommendations for the further development of cAES based on a review of existing approaches (Davies et al., 2004; Ingram et al., 2008; Mills et al., 2006). Although a lot can be learned from existing experience with collaborative approaches, there is also a need to examine the scope for cAES amongst farmers that have no prior experience of collective land management and that may be non-participants in AESs. The work of MacFarlane (1998), represents one of few such studies in England and is also one of the earliest works to make the case for landscape scale AESs and to integrate social and environmental data. MacFarlane's study primarily focussed on existing AES participants (80% of sample) and elicited their favourability to a hypothetical tier of AES payment which would pay additional money for the collaborative management of features across farm boundaries (1998: 583). Like the present study, MacFarlane looked at favourability towards the hypothetical landscape scheme and contextualised this in terms of existing AES participation and existing levels of cooperation with neighbours. The results showed a high proportion of the sample (76%) being "sympathetic" to the proposed scheme, which showed no variance across the existing level of conservation participation (based on the categories of Morris and Potter (1995)) but did vary according to farmers' reported relationships with their neighbours. Those farmers with better relations with their neighbours were more likely to be in favour of a collaborative approach (MacFarlane, 1998: 591).

The high level of support for a hypothetical cAES has also been reported by Southern (2008), whilst specific examples of favourability towards managed coastal retreat and coastal plains conservation have been examined by Parrott and Burningham (2008) and Dutton et al. (2008) respectively. Dutton et al. report the success of the 'Chichester Plain Project' in recruiting 42 farm holdings into a cAES (Dutton et al., 2008: 210). Successful uptake was facilitated by one-to-one involvement between farmer and advisor in a 'personalized decision-making process' and by the buy-in of farmers to the benefits of a landscape-scale approach (Dutton et al., 2008).

The studies mentioned all included samples with high levels of participation in higher tier AESs (Countryside Stewardship, Environmentally Sensitive Areas Scheme). Our study, however, examines the favourability of farmers to the idea of cAES with a more diverse level of participation (with only a third in the higher tier AESs and a third non-participants) in a diverse range of agricultural settings. Moreover, the present study examines the desirability of cAES within the context of farmers' experiences of the new ELS and HLS schemes, which had only just been introduced when the above-mentioned research had been carried out. We build on the approach of MacFarlane (1998) by not only contextualising responses in terms of existing AES participation and levels of cooperation, but by also presenting a series of hypothetical cAES schemes requiring differing degrees of coordination and different types of management intervention.

In this paper we refer to the terms 'collective management', 'cooperation' and 'collaboration' to refer to similar types of activities between farmers that are of relevance for our consideration of cAES. Whilst we use all these terms in the general sense of farmers 'working together' they do, nevertheless, entail different types of, and motives for, action. We use 'collective management' in situations whereby working together is mandated by issues of property rights (such as for commons) without necessarily conferring additional benefits on those involved. We use cooperation to refer to situations whereby farmers work together on the assumption that those doing so will achieve some additional benefit (be it economic or social) over and above working independently. Cooperation need not necessarily entail working together on the same thing (for instance one farmer may plough a neighbour's field in return for his/her neighbour harvesting his/her field). In contrast, collaboration is used, in accordance with most dictionary definitions, as working together on a specific project, or to achieve one or more specific objectives. In this sense, the benefits of collaboration relate to the achievement of the specific objectives to which all are working rather than to the additional benefits conferred on the individual participants *per se*. For our current purposes, this is the achievement of environmental benefits at the landscape-scale. Of course, when translating this idea to cAES we might expect more buy-in where there are *also* additional benefits to the participants, but participation could also be encouraged through a range of other means such as legislation, education and the engendering

of positive support for the objectives of the scheme. What we have not done, and did not do when introducing the idea to farmers, is to specify what ‘working together’ entails. This is partly because we wanted to compare farmers’ ‘in principle’ response to the idea of cAES with their response to a range of landscape-scale management options which encompass a range of ways in which farmers might work together. More importantly, however, it is because the precise details of how a cAES will be designed and implemented remain undetermined. Presenting overly specific details of a cAES design, which would unlikely ever emerge, therefore, was seen as counterproductive to our general aim of garnering farmers own ideas and views on the prospects of cAES, in mind of the fact that these very views and ideas could be used in designing and specifying what the particulars of a cAES might be.

4. Results and Discussion

The results are presented and discussed in three main sections. In section 4.1 the main findings from the interviews, in terms of respondents’ stated receptivity to cAES are presented. These findings are then expanded and examined further in Section 4.2, which presents a more detailed analysis of the potential barriers to cAES through a fuller analysis of the interview transcripts from a socio-cultural perspective. Finally, Section 4.3 examines how a collaborative approach to AESs may be able to address some of the commonly cited problems with stand-alone AES and, if appropriately designed, can turn some of the barriers to AES uptake into opportunities for stimulating involvement and participants’ satisfaction with agri-environment schemes.

4.1 Receptivity to cAES

During the interviews respondents were asked to state, in principle, whether or not they would object to the idea of working collaboratively with other farmers on an AES. They were then asked to consider a series of nine hypothetical landscape-scale schemes, and again asked whether they would be willing to be involved. The purpose of the nine landscape-scale schemes were explained and provided a spectrum of different management requirements and potential constraints. They were:

- Creating a network of ponds

- Creating new areas of wetland
- Creating/extending networks of hedgerows
- Targeted tree planting
- Woodland expansion
- Coordinating the timing of harvest with neighbours
- Allowing land to revert to semi-natural habitat
- Specific measures to protect and enhance turtle doves
- Specific measures to protect and enhance rare bat species

Table 1 shows the respondents' openness to the idea of cAES in principle, as well as the number of times they expressed a willingness to engage in the hypothetical landscape schemes (giving a numeric score out of nine).

Table 1: Respondents' initial response to the idea of cAES in principle and their subsequent favourability towards nine hypothetical landscape-scale schemes

Farm Code ^a	Farm Size ^b	Principal Farm Activity	Current AES Involvement ^c	Objection in Principle to the idea of cAES ^d	How many of the 9 landscape-scale scheme options respondent is willing to support ^d
G1	Large	Arable	ELS	No	4
G2	Large	Arable	CSS/HLS	Yes	2
G3	Medium	Arable	CSS/HLS	No	5
G4	Small	Livestock	None	No	-
G5	Medium	Dairy	ELS	No	4
G6	Small	Livestock	CSS/HLS	No	6
G7	Medium	Mixed	None	No	1
G8	Large	Arable	ELS	No	7
G9	Large	Mixed	CSS/HLS	No	4
G10	Medium	Mixed	None	No	4
G11	Small	Livestock	None	-	-
G12	Large	Mixed	CSS/HLS	No	6
P1	Medium	Arable	CSS/HLS	No	3
P2	Large	Arable	ELS	No	2
P3	Medium	Arable	None	Yes	0
P4	Large	Arable	CSS/HLS	Yes	0
P5	Large	Arable	CSS/HLS	No	9
P6	Large	Arable	ELS	Yes	1
P7	Small	Arable	None	No	1
P8	Small	Arable	CSS/HLS	No	5
P9	Large	Arable	None	No	2
P10	Large	Arable	ELS	No	3
T1	Large	Mixed	ELS	No	6
T2	Small	Livestock	ELS	No	4
T3	Small	Livestock	None	No	2
T4	Medium	Dairy	None	No	4
T5	Small	Dairy	CSS/HLS	No	6
T6	Large	Mixed	None	No	0
T7	Small	Dairy	None	No	4
T8	Medium	Mixed	CSS/HLS	No	8
T9	Small	Mixed	ELS	Unsure	6
T10	Medium	Dairy	None	Unsure	3
T11	Large	Mixed	ELS	No	6
<i>n=33</i>				<i>n=32</i>	<i>n=31</i>
				Grafton Mean	4.3
				Peterborough Mean	2.6^e
				Tamar Mean	4.45

- Where G = Grafton case study area; P = Peterborough case study area, and; T = Tamar case study area
- Where Large = farms >200 ha; Medium = farms 100 – 200 ha, and; Small = farms < 100 ha.
- CSS = Countryside Stewardship Scheme, which is an agri-environment scheme pre-dating ELS and HLS but that still has active agreements nearing completion.
- = No data.
- Fewer of the options were seen by farmers in Peterborough as compatible with their arable and productive farming system.

Table 1 shows that ‘in principle’ the vast majority of respondents (81%) are not opposed outright to the idea of cAES (supporting MacFarlane, 1998; Southern, 2008). However, in terms of the practical scheme options that they would be willing to support there is a much greater variability. This high level of favourability is particularly interesting given that 36% of the sample were not current participants in AES. This may partly represent the hypothetical nature of the questions that were posed and the open-mindedness of the respondents. One of the currently non AES participating farmers in Peterborough, for instance, pointed out that “you don’t rule nothing out in agriculture” (farmer P7). It may also, however, suggest that cAES have the *potential* to have wider appeal than stand alone AES. The possible reasons for this are discussed further in Section 4.3.

In terms of the different scheme options, creating a network of hedges was viewed most positively by the sample (77% of respondents), whilst allowing land to revert to semi-natural habitat was viewed least favourably (14% responding positively). In general, those options that were seen to take the least amount of land out of production, or that required the least amount of change were supported the most highly. There were, however, variations by case study area which may be attributed to geography, farming types or local culture. For instance, in Peterborough the existing landscape is very sparse in terms of hedgerows and therefore this option might be seen as more practically difficult to implement. Tamar, however, which has many hedgerows also scores lower than Grafton in terms of respondents’ willingness to be involved in a hedgerow scheme. This may reflect the fact that many of the Tamar farmers had had negative experiences of the existing hedgerow management requirements in ELS because of the practical problems they cause for the local type of hedgerow (ancient hedgebanks), or because of the cultural importance of the symbolic appearance of the hedges (Oreszczyn, 2000; Oreszczyn and Lane, 2000).

Willingness to be involved in cAES showed little discernable relationship across a range of structural variables (such as farm type, farmer age, farm size, financial situation). This may be indicative of the multiple and intricate interaction of variables that is unique to each farm and makes generalising along structural lines problematic (Siebert et al., 2006). Equally, as found by MacFarlane (1998), there was no discernable relationship between current level of cooperation and favourability toward cAES. This might suggest that existing successful cooperation between certain farmers in an area does not necessarily translate into an openness to engage in cAES; which would likely involve a wider spectrum of farmers, would not necessarily allow a farmer to choose who they work with, and may include individuals not considered trustworthy (Lundqvist, 2001).

Despite there being no relationship between ‘in principle’ favourability to cAES and AES participation, there did appear to be a relationship between the degree of existing AES participation and the level of support for the nine cAES options (Figure 2).

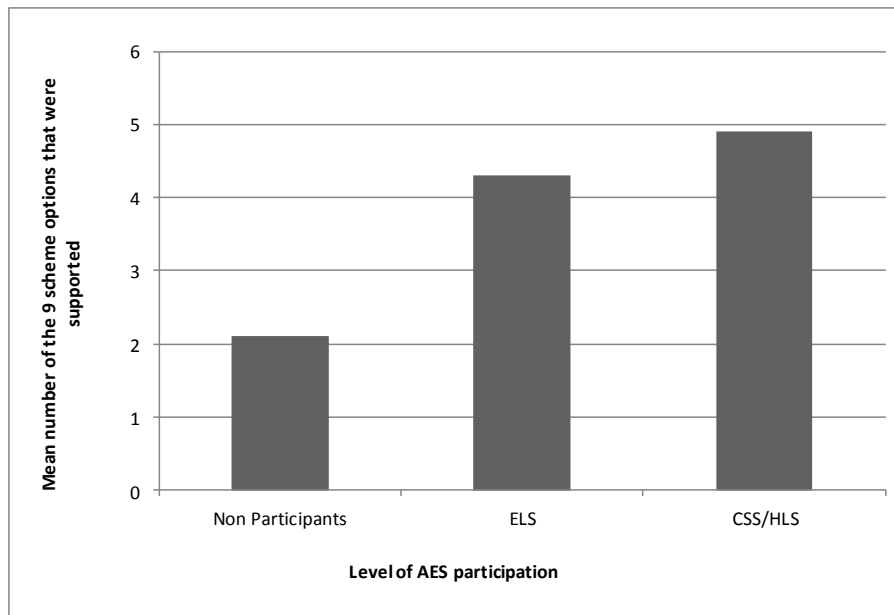


Figure 2: Mean number of the 9 hypothetical cAES scheme options that were supported according to the level of AES participation. ELS = Entry Level Stewardship scheme, CSS = Countryside Stewardship Scheme, HLS = Higher Level Stewardship Scheme.

Figure 2 shows that current non participants were willing to engage in fewer of the hypothetical landscape-scale options than participating farmers. Furthermore, those participants in the higher tier AESs (Countryside Stewardship and Higher Level Stewardship) were willing to engage with more of the scheme options than those respondents in the lower tier ELS scheme. This suggests that the same factors that affect uptake of standalone AESs would also be applicable to a collaborative scheme, and supports previous research that has demonstrated the importance of previous scheme involvement for uptake of AESs (Defrancesco et al., 2008; Fielding et al., 2008; Morris and Potter, 1995; Wilson and Hart, 2000).

During the interviews respondents were asked to give an indication of their future farm business plans for the next five years, either: expanding/intensifying production, maintaining current size and level of production, or decreasing size and intensity of production. When comparing these responses with the farmers’ receptivity towards cAES it is apparent that all of the farmers ($n=6$) that rejected the idea of cAES in principle, or who were cautious about the idea, fell within the category of respondents that were planning to increase the size or intensity of production of their farm business over the coming

five years ($n=15$). Although still only 40% of that sub-sample, this suggests that business strategy – which itself relates to multiple interacting factors – may have an influence on the favourability with which AESs are viewed (also Defrancesco et al., 2008: 124).

Following a discussion on the way the cAES's might be implemented the respondents were asked to identify any potential barriers or drawbacks to cAES that they could foresee. The most commonly cited responses from across the sample are presented in Table 2.

Table 2: Drawbacks and barriers to cAES perceived by farmers

Perceived barrier or drawback	Frequency cited	Percentage of sample cited by
Other farmers would be unfavourable	9	29%
Neighbouring farms all managed differently or have different systems	6	19%
Would be hindered by lack of existing cooperation amongst farmers	5	16%
Someone could pull out on a whim - higher risk	5	16%
Scheme administration and bureaucracy or paperwork	4	13%
Getting everyone to agree in the first place	4	13%
Requires all farmers involved to be like-minded	3	10%
Would need to involve landlords on tenanted farms	3	10%
Public access issues if creating corridors	3	10%
Increase in predators/weeds/ other undesirable species	3	10%
		<i>n=31</i>

Table 2 shows that most of the barriers cited relate to issues with *other* people, rather than any personal concerns that the respondent may have for his/herself. This suggests that farmers perceive neighbouring farmers to be less positive about the idea than themselves, and that this in turn is a

potential impediment to the success of cAES. The possible reasons for this outcome and its implications in terms of cAES are elaborated and discussed further in Section 4.2.1.

A novel potential drawback of cAES raised by this research is that of public access along margins, buffer strips or linear features. The concerns raised ranged from simple nuisance/wildlife disturbance by dog walkers through to increases in criminal activity such as poaching, farm thefts/burglary and illegal camping. Although only cited by three of the respondents in relation to cAES specifically, it was raised more widely (in particular by arable farmers) during discussions about current AESs.

4.2 Potential socio-cultural influences on cAES uptake

In addition to the heterogeneity of farmers' motives and contextual circumstances mentioned in the previous section (Siebert et al., 2006), a more detailed qualitative analysis of the interview transcripts, taking account of wider views on cooperation in general and current AESs, revealed three inter-related issues that present potential barriers to cAES: a lack of communication and mutual understanding between farmers; farmers' cultural imperative for independence and timeliness, and; varied and opposing conceptualisations of risk amongst farmers. Whilst these issues reflect farmers' prior experiences of working together and of AESs' they remain insightful for cAES development since they reflect deeper-seated issues and values that may have a bearing on cAES, and, moreover, past experiences can shape attitudes towards future behaviours. These issues are now discussed in turn.

4.2.1 Lack of communication and mutual understanding between farmers

Section 4.1 showed that 'other farmers', for a variety of reasons, were identified by respondents as a potential barrier to cAES. As part of the analysis of the five behaviours that were scored according to the principles of the Theory of Planned Behaviour, a similar pattern emerged. For each of the five types of behaviour (Section 2) respondents were asked to score their own favourability towards that behaviour (from 1-7, with 7 being the most favourable), as well as their perceived favourability of other local farmers towards that behaviour (again scored 1-7). Across four of the behaviours - including participation in cAES - the respondents consistently scored in such a way as to suggest that other farmers are less favourable about the particular behaviour than themselves. There are three possible explanations for this observation:

Firstly, the difference might be an accurate reflection of the broader attitudes of those farmers who did not participate in the research. It might be the case that those farmers less likely to participate in

research interviews are also less likely to work with one another, or engage with AES's. The fact that the samples *did* include farmers within close proximity of one another (that knew each other), however, suggests that this is not the only interpretation. Secondly, it is possible that during interviews respondents' transfer their own concerns onto their neighbours, because they may want to express the existence of concerns about a particular idea, without wanting to come across as being negative themselves. It is difficult, however, to substantiate this interpretation and there was little evidence to suggest that respondents were giving anything other than frank responses.

Finally, the difference might reflect that farmers do not actually know the motivations of their neighbours particularly well. This might be because of a lack of opportunities to communicate with one another, or because of shyness or reticence over talking about issues which are seen as potentially sensitive. This could act as a barrier to cAES if individuals' own concerns about a scheme relate to a misinterpreted understanding of their neighbours' motivations. Unlike the first interpretation, however, there is scope for addressing this barrier through increasing opportunities for farmers to communicate with one another and to better understand each others' motivations. This issue came across significantly during the wider interviews, and it is appropriate to explore the ways in which this manifests itself.

We begin with a particularly illustrative example provided by a farmer in Peterborough. He was interested in exploring the opportunity of setting up a machinery share with a neighbour, but as he points out, he found it particularly difficult to broach the subject:

P3 - I did approach the... a few years ago, I did approach a neighbour about possibly... but we never even, you know, he didn't...

Int. – Was that on a sharing basis?

P3 – Well, I didn't know what it was about. We'd had a difficult year, and he was of a similar size, and I just, you know, we were both running around in combines that cost a fortune and all that sort of thing, and it just seemed very sensible to try and broach the subject.

Int. – But he wasn't interested?

P3 – Well, I didn't find it very easy just to come out with it and say, 'Look, mate, I think we should share.' I sort of tried to provoke him into saying ... 'Well, that might not be a bad idea,' but it didn't happen. So we never went on further.

Perhaps because he was too proud to admit that he had had a difficult year the respondent found it difficult to directly make a proposal to his neighbour. Equally, however, his neighbour may have privately been thinking about the benefits of sharing, but was also reluctant to raise the issue. If neither farmer is prepared to make the first move because of fears about what the other may think, then there remains an impasse which is difficult to overcome. Evidence from the interviews suggests this impasse might arise due to a fear of being exposed to the potential judgement of others in terms of being seen as a good farmer (Burton, 2004a) or as being able to fulfil the fundamental cultural narratives of *improvement*, *survival* or *continuity* (de Haan, 1994; Emery, 2010; Salamon, 1992; Siebert et al., 2006; Silvasti, 2003; Strathern and Stewart, 2010; Ward and Lowe, 1994). Farmer T10, for instance, pointed out that certain farmers are very guarded against other people knowing their situation because it was important to ‘look like a farmer’ and not to be seen as ‘worse than previous generations’. An important reason why farmers may not communicate, therefore, is to avoid exposure to the potential judgement of others (also Blackstock et al., 2010; Sutherland, 2010: 419).

Problems of communication can act as a barrier to developing new schemes (as was shown in the case of farmer P3). Moreover, by not fully understanding the motives of one’s neighbours there may be a tendency to assume that they would be less favourable about a particular idea than oneself. This is aptly demonstrated by Farmer G3 who, when considering the merits of cAES, stated that:

I mean this is a beautiful area for it, there’s woods, it’s a lovely area to do it like you know, erm, but there are people about that certainly frown on it you know, I mean I would have said like the big prairie farm would perhaps, they wouldn’t want to know about it like you know. May be wrong, I don’t know.

This extract is interesting in that the respondent begins from a position of ‘certainty’ about the views of his neighbours, but then gradually reneges on that certainty with ‘I would have said’, ‘perhaps’, through to admitting that he ‘may be wrong’ but ultimately ‘doesn’t know’. Increasing communication, then, may be an important prerequisite for encouraging further cooperation between farmers. Indeed, several respondents pointed out that there were now fewer opportunities to speak with other farmers because there simply were not as many farmers around, that less farmers meet at the markets (Farmer T4) and this can be associated with a breakdown of the farming community (Farmer G5). Providing opportunities for farmers to come together and discuss issues such as cooperation, therefore, seems an important prerequisite for building mutual understanding and overcoming perceived cultural pressures.

4.2.2 Farmers’ cultural imperative for independence and timeliness

When asked during the interviews, 82% of the respondents reported that their independence was something they considered important. This confirms a more widely recognised association between farming and a value in independence (Gasson, 1973; Ilbery, 1983; Sullivan et al., 1996). This value in independence may be strongly related to the issues discussed in Section 4.2.1, whereby farmers avoid situations that may expose them to potential judgement by others. Here, though, we examine other possible reasons for a value in independence and, in particular, its association with a cultural value in timeliness.

When discussing independence with farmers during interviews, various reasons were given as to why independence was valued. These included a personal enjoyment in being one's own boss (Farmer P8) and a dislike for 'being told what to do' (Farmer G7). It emerged in the wider discussions throughout the interview, however, that being well-organised and having the ability to respond to quickly changing circumstances were both practically and culturally valued. We refer to this as 'timeliness'. Timeliness is particularly relevant for the current analysis on cAES, because although more commonly referred to through recourse to 'flexibility' or 'adaptability', restrictions on timeliness were identified by respondents as key drawbacks of both cooperation generally and the current AESs.

Thirty nine per cent of respondents cited 'being too restrictive on what they could do' as a drawback of cooperating, in general, with other farmers. Principally, this drawback arose in reference to machinery sharing and to the fact that everyone would want to be using the equipment at the same time as conditioned, most particularly, by the weather. The value in timeliness – as expressed here – relates to the practical necessity to be able to carry out certain farm operations (such as harvest) when the weather is suitable. Similarly, inflexibility was cited as a drawback of current AESs by 24% of respondents and was a key reason for not entering into the schemes for certain farmers:

It doesn't react quick enough, and when you're in those sort of schemes, I just feel you're tied up to things ... it just affects your flexibility really (Farmer T6).

Principally, this sort of response related to scheme requirements that imposed restrictions on the timing of certain farm activities (such as cutting hay, grazing, ploughing). Such requirements were seen, again, as antithetical to the need to operate according to the weather and were also seen to oppose farmers' own practical knowledge of the land and the weather conditions (also for instance Harrison et al., 1998).

These findings support the literature that has highlighted the practical issues for farmers of AESs that impose what are seen as inflexible and inappropriate blanket prescriptions that take no account of geographical differences or the changeability of the weather (Sutherland, 2010; Wilson and Hart,

2000; Wilson and Hart, 2001). The findings from our study, however, suggest that flexibility is not only a practical issue for farmers, but also a cultural one. Conceptions of the 'good farmer' were discussed during interviews and timeliness emerged from those discussions as an important farming virtue. Several farmers (G10, P1, P3) directly mentioned that flexibility, being well-organised, or doing things in a timely fashion is an integral component of 'the good farmer'. This was also succinctly explained by Farmer G8:

The difference between a good farmer and a bad farmer is about five hours and quite honestly if you can't do it yourself in that five hours you won't do it at the right time, so I think that's the essential part of it.

Timeliness was also shown to be wrapped up with other farming values in independence, tidiness and farm survival. On farm P9, a father and son were considering the reasons for valuing independence:

Int - Okay. Is your independence important to you? When you figure out what you're going to do in the future would you like to be independently on your own or are you quite happy to share?

P9a - I think we're all quite independent and we all have quite different views. So that's important.

P9b - Independence is important to us, yes, because [pause] it's timeliness.

P9a - We're not trying to be average farmers, we're trying to be better.

In this example independence and timeliness are stressed as synonymous and are also linked to the cultural imperative for making things better, for improvement (cf Emery, 2010). Similarly, farmer G10 not only suggested that timeliness was synonymous with independence, but with farming itself:

Historically a scruffy farmer's always seen as a poor farmer and therefore, financially.... I mean, I have to say, historically you don't see the tidy boys giving up very often, because with tidiness becomes timeliness and farming, in a sense is timeliness isn't it.

Tidiness has been reported in the literature as an important symbol of 'the good farmer' (Burgess et al., 2000; Egoz et al., 2001; McEachern, 1992; Nassauer, 1997; Oreszczyn and Lane, 2000). In this instance, that tidiness is seen as symbolic of being well-organised and therefore having the ability to respond to changing circumstances in a timely fashion. Moreover, this is then linked back to the pressing farming virtue of continuity and survival. Hence, 'the tidy boys' do not fail as farmers

because they are organised and demonstrate this symbolically through the appearance of their farms which, in turn, is associated with the moral virtue of the 'good farmer'.

This insight adds an interesting temporal dimension to interpretations of cultural resistance to AESs. It suggests that AESs are not only antithetical to farmers' long-term value in improvement and their desire to pass the farm on to future generations in a better condition than when they found it (Emery, 2010), it also suggests that AESs are antithetical to farmers' short-term value in timeliness. Agri-environment schemes with their typical 5 – 10 year timeframes, then, can be seen to sit uncomfortably between these two alternative temporal frames of reference which are practically and culturally valued and, therefore, important influences on behaviour.

4.2.3 Varied conceptualisations of risk amongst farmers

When discussing with farmers the benefits and drawbacks of cooperation in general, risk (increasing or reducing) was seen as both a potential drawback and a potential benefit. Five of the farmers cited financial risks as a drawback of entering into cooperative arrangements with neighbouring farmers, whilst three reported that cooperation was a means of reducing risk. This difference may be on account of the type of cooperative activity being considered, how risks are perceived and the presence or absence of trust. Ad-hoc reciprocity (whereby farmers help one another out on an 'as and when basis' on the assumption that a neighbour would return the favour) was cited as a long-standing, albeit dwindling, farming tradition (and the most commonly cited form of cooperation) and can be seen as a risk aversion strategy that also maintains community bonds under the auspices of 'neighbourliness' (Farmer P9, G5) (cf Mauss, 1990 [1922]). Most of the cooperative activity that farmers considered when giving their responses to issues with cooperation in general, however, related to the idea of more formal machinery sharing arrangements.

In terms of machinery sharing, two factors were highlighted as potentially increasing the risk of such arrangements. First is the risk that you do not have the equipment when you want it, or when the weather is suitable, which relates to the imperative for timeliness as described in the previous section. Second is the risk that the machinery is not cared for in line with one's own standards. Ultimately, as many farmers pointed out, how risk is perceived can depend on trust. Farmer T9 who prefers not to share with neighbours stated:

I don't know that I trust other people ... other farmers to look after machinery as I'd like it looked after.

Farmers G9 and P3 on the other hand, who were in successful machinery rings, pointed out that the success depended on the trust between the individuals. Farmer P3, for instance, (who had had trouble

discussing the issue with his close neighbour [see Section 4.2.1]) chose to cooperate with a personal school friend who lived 22 miles away. They had both known each other long enough, he said, to be able to go into such an arrangement without a formal contract (for more on machinery sharing and social capital see Sutherland and Burton, 2011).

When discussing the disadvantages associated with stand-alone AES few respondents reported increased risk as a direct drawback. However, there was a stated concern about the uncertain longer term future of the schemes. This manifest itself as a concern that either the funding would be removed leaving a less economically productive land-base (also Parrott and Burningham, 2008: 358), or, that encouraging biodiversity could lead to statutory designation of conservation sites that could impose legal obligations on the farmer without the need for remuneration. When considering the drawbacks of cAES, specifically, 16% of the respondents perceived it to be a more risky endeavour than stand-alone AES. Farmer P6, who objected to the idea of cAES in principle, cited increased risk as a main reason for objecting:

You've got to be responsible for your own actions in those kinds of things because you can't be held accountable for what somebody else does. It's like entering into a partnership, isn't it, on a financial arrangement, you're joint and severally [sic] liable and the risk would be too great I think.

This was supported by several farmers who feared that someone could 'pull out on a whim' (including farmer P5 who had had prior experience of a previous attempt at cAES under the former Countryside Stewardship scheme) or 'not pull their weight' and saw it as safer to remain 'master of your own destiny' (refer to Table 2). For this reason Farmer G3 stressed that it would be important to work with like-minded farmers who bought-into the scheme rather than being motivated by financial incentives. Whilst financial risks associated with cAES may be mitigated through contractual arrangements that protect members from others' actions (as is the case with existing arrangements – Franks et al., (2011)), there are further risks which are more difficult to mitigate. In addition to financial risks, farmers also highlighted social risks as a reason for not cooperating and as a potential drawback of cAES:

If you could go into a co-operation and it goes wrong you've then fallen out with your neighbours and, in this world falling out with your neighbours isn't a good idea.

...

I mean, I know people who shared machinery and it's finished up on very bad terms. And then you're left with your neighbour who you don't want to speak to [Farmer G10].

As well as cooperation being a means of consolidating social bonds, therefore, it also runs the risk – if relationships are negatively affected – of breaking bonds. Some farmers, therefore, may see it as preferable to stay on good terms with their neighbours without getting too close to them for fear of the longer term consequences that a dispute could lead to (possibly running generations ahead). Risks associated with cAES, then, may involve risks associated with the scheme requirements as well as the risks associated with working with one's neighbours. The perceived risk of engaging with neighbours in cAES is heightened by the fact that there may be no choice with whom collaboration takes place and it may extend a farmer's involvement with neighbours beyond those considered trustworthy (Lundqvist, 2001). Moreover, given the imperative for timeliness, farmers may have little desire to risk their own time on cAES if it includes “an untested neighbour who may not reciprocate” (Sutherland and Burton, 2011: 250). It is important when devising cAES that policy makers and implementers are cognizant of the different types of risk and, importantly, the fact that they may be interpreted differently by different farmers.

4.3 The potential for cAES to address farmers' existing concerns with AES

One of the most surprising findings of the research was that several farmers who were non-participants in current AES were more favourable about the idea of cAES than would be expected. As already mentioned, favourability does not in itself suffice as an indicator of intent, but the responses of these farmers, and the fact that 81% of the sample did not object in principle to the idea of cAES suggests that cAES have the *potential* to be of more appeal to farmers than the current stewardship scheme by virtue of the fact that, if designed appropriately, it can overcome or address some of the key concerns that farmers have with the current system. We now examine some of these issues before presenting recommendations in Section 5.

4.3.1 The need for demonstrable benefits

Farmer G7 expressed a potential interest in cAES if ‘it could be demonstrated it was going to be of direct benefit to something’. He would be much more willing to be involved in a scheme for a known local species, or habitat, with a specific aim, rather than the blanket prescriptions – such as hedge-cutting – associated with the Entry Level Scheme. The fact that cAES would likely be tailored to local circumstances meant that Farmer G7 could see the potential benefits of such an approach. The lack of demonstrable environmental benefits was the most commonly cited drawback (39% of respondents) of the current AESs from across the entire sample of farmers. Moreover, it was a

common point of discussion throughout the interviews. Farmer G3, for instance, expressed his consternation at the fact that Natural England had not done any monitoring of the current schemes to 'prove the success' of them. Without the proof, farmers do not have the symbolic capital that is so important for them in their displays of good farming (Burton, 2004a; Burton et al., 2008). Farmer G12 pointed out that the HLS scheme was much more satisfying than the ELS scheme on account of the fact that the benefits could be seen:

*I think it's [HLS] probably more satisfying 'cos the hedgerow management [under ELS] really was money for old rope, 'cos all we've done is let the hedges grow a bit taller and a bit wider. Erm... so, we are actually having to... we're making more input and we are actually... **we will be seeing the results**. We've got more lapwings already haven't we? (emphasis added).*

Similarly, farmer G7 demonstrated the importance of being able to feel that you are doing 'something really constructive and useful', even so far as to say that were a cAES able to demonstrate the benefits then there would be no need for a financial incentive. If a cAES scheme, therefore, was focussed on a known local species/habitat that could be shown to be threatened or have declined, and if monitoring was put in place to track recovery, it would be more likely to appeal to farmers. Indeed, 29% of the sample said that this would be a pre-requisite for them entering such a scheme. Finally, and particularly interesting in terms of current debates on cultural symbolic display, Farmer G7 also pointed out that there would be an additional advantage of working on conservation with one's neighbours. Namely that:

If you had a common aim, then there would almost be a competitive nature into who's done the most towards achieving that aim.

The lack of cultural symbolic rewards from conservation, as opposed to symbols associated with productivism (such as tidiness and homogeneity), have been highlighted as a key impediment to altering the attitudes of farmers towards agri-environment schemes (Burton, 2004a; Burton et al., 2008). However, this insight suggests that if locally demonstrable benefits, and means of monitoring to that end, can be achieved then farmers may still get a sense of satisfaction and moral esteem from their conservation efforts. It is interesting to note that the lack of demonstrable benefits is also criticised by ecological research that has questioned the adequacy of the monitoring and therefore effectiveness of AESs (Kleijn and Sutherland, 2003).

4.3.2 Increased flexibility from not having to put whole farm into scheme

Farmer T6, a non-participant from Tamar said that a cAES would appeal more if it was not applied across the entire holding but only on less productive parts of the farm that were more suitable for conservation.

I think if an environmentalist came round and walked round the farm they could say well, wouldn't it be beneficial if we had such and such in that field there or, but they're not, they're coming in and saying well you gotta put the whole farm in Entry Level or you gotta put the whole farm in HLS and it doesn't work 'cos it just ties both hands behind your back, it takes away all your flexibility of managing the farm, doesn't it?

Thirty-two percent of the sample said that a scheme that only incorporated suitable parts of the farm, rather than the entire holding, was a prerequisite for their considering entering into a cAES. Such a scheme would be less restrictive on what a farmer could do across the holding (cited by 27% of the sample as a drawback of standalone AES), it would allow greater flexibility (cited by 24% of the sample as a drawback of standalone AES), and it would more likely be capable of fitting in around the farmers' existing approach to management (half of all non-participants cited this reason for not entering existing AESs). Without the blanket prescriptions of ELS that may not be deemed as locally specific, such a scheme may also be less at odds with the farming imperative for timeliness. Of course, the actual extent to which the scheme was less restrictive and more flexible would depend upon its design. The important point here however, is that respondents identified that it *could* address these concerns.

Burton & Paragahawewa (2011) have argued that allowing the continuation of productivist farming on parts of the farm limits the extent to which agri-environment schemes can become embedded in local farming culture(s). This suggests, however, that productivist and environmental values are mutually exclusive and that different parts of the farm can not be used to nurture alternative cultural values. One farmer in Grafton, for instance, was very keen on agri-environment schemes, was proud of the results of his environmental efforts but still thought it important to retain areas of the farm that he could keep 'nice and tidy' to prove that he *could* 'keep it respectable' (Farmer G3). Putting an entire holding into a scheme, therefore, may be seen to inhibit flexibility and the ability to engage with extant symbols of good farming. It may be ultimately more sustainable to allow values to change iteratively, rather than to impose conditions which prevent farmers operating in such a way as to maintain a connection to their historic values (on the negotiation of farming values see Emery (2010)).

4.3.3 Sharing environmental features

cAES was seen by farmer P2 as increasing the opportunities for farmers such as themselves to get involved in AES. This was because they felt they did not have adequate environmental features on their farm to go into the Entry Level Scheme, or that if they were to take the farm into Entry Level it would place too many restrictions on their other activities (as per Section 4.3.2 above). They saw cAES, however, as more favourable than ELS and HLS because it provided a means of pooling their environmental resources with their neighbours:

Other people have different parts to their business that we don't have ... for instance, the farm over the other side of the road they have a grass field where they have sheep ... riverbanks have cattle. So we could utilise areas that they could have [in a stewardship scheme] that we can't ... Whereas we may have ... something else ... that they could have.

Three farmers cited a lack of environmental features on their farm as a drawback of current AES and this approach to pooling can be seen as potentially able to overcome this drawback. The advantage of a scheme that allows the pooling of different features on each farm, and doesn't require the whole farm to be incorporated, therefore, is that it has the potential to achieve greater environmental benefits at the landscape-scale, whilst at the same time being less demanding and more flexible for the individual farmer.

4.3.4 Increased flexibility and greater practicality by virtue of farmer involvement in scheme design

A locally targeted scheme that brought neighbouring farmers together was viewed as more likely to be a success than standalone schemes which provide little scope for farmer input. Although the majority of farmers suggested that a cAES would be best organised by an external organisation, 19% of the sample maintained that farmer involvement in the design of cAES would be a prerequisite for their considering joining such a scheme.

A lot of the schemes that come in you think 'well that's completely impractical, it's not going to work', if you actually had a farmer on the committee or something it would enable to stop that scheme happening before it even went down the road [Farmer T10].

Again, farmer involvement would allow flexible management and the ability to accommodate different approaches and interests on different farms. Moreover, involving farmers in the design and ongoing monitoring of the scheme would allow farmers to feel a sense of ownership over the issue, be more likely to provide a sense of satisfaction, and would incorporate their local knowledge into the

design of the scheme, rather than overlooking it or marginalising it (Harrison et al., 1998). Many farmers pointed to a sense of irritation at previous schemes that were seen as impractical, or as failing to meet their objectives and it could put them off the schemes if they felt that their views were not taken into account.

5. Conclusions

When envisioning this research the main impediments to developing cAES, with regard to farmers, were thought to be their reluctance to engage in formal cooperative arrangements and the potential need to incorporate farmers who were not currently participants in AES. The research has explored some of the socio-cultural factors behind farmers' reluctance to engage in cooperation and has considered their implications in terms of implementing cAES. Moreover, it has suggested that whilst current non-participants in AES might be viewed as a potential barrier to cAES, cAES themselves may be viewed as a potential opportunity for increasing participation levels in AES by virtue of the fact that, if designed appropriately, it has the potential to address some of the concerns held by farmers about the existing AESs.

The research suggests that, in terms of landscape-scale scheme design, those farmers in the higher tiers of current AES are likely to be more willing to engage in more extensive cAES than non-participating farmers. However, it also suggests that non-participating farmers would be willing to contribute to a landscape-scale design through less extensive interventions such as the creation of corridors or stepping stones. Combining this information with locally prescribed conservation aims and objectives, along with a map of existing AES uptake, we suggest, provides a sensible place from which to start planning landscape-scale delivery.

In presenting the idea of cAES to farmers they came up with their own vision of how the scheme might look, and in doing so they identified potential benefits of cAES over and above the current schemes. Building on the potential benefits foreseen by farmers, therefore, will increase the likelihood of broad participation in cAES as well as the commitment given to, and satisfaction taken from, the scheme. To that end, we recommend that cAES are likely to be more successful where: they do not require the whole farm to be entered into a scheme; farmers are involved in scheme design; the scheme is flexible in initial design and adaptable to changing circumstances; they are locally specific with clear aims; they work towards clearly demonstrable benefits with monitoring and reporting to that end, and; they are seen to reduce rather than increase risk.

We have suggested that one of the biggest potential barriers to cAES, or to farmers working together more broadly, is a lack of communication or mutual understanding between farmers. A principal

reason for this lack of understanding, and its association with a value in independence, is a fear of exposure to the potential judgement of others. This leads to a kind of inertia or stasis in relations between farmers as cultural norms and pressures become self-reinforcing. What this means in practice, is that farmers may keep their personal motives quiet if they are seen to contravene cultural expectations, and there is an assumption that the motives of others conform to the cultural norm. Overseas experience has shown that environmental collaborations have been particularly successful in improving communications and relations amongst farmers (Prager and Freese, 2009; Prager and Nagel, 2008). Moreover, one of the key successes of participatory approaches, such as landcare, has been in affecting positive attitude change amongst farmers by virtue of the greater level of scrutiny they are subjected to within the peer group (Wilson, 2004). If, as we have shown, however, farmers are reluctant to engage with one another for that very reason (fear of scrutiny), then it seems likely that there is a role for a facilitating organisation to break down the initial barriers and misconceptions that might exist. The role of facilitating or intermediary organisations in the delivery of collaborative approaches has been stressed as important in terms of their role in bringing farmers together, in providing information, in building trust and acting as a broker or mediator between local actors and government (Franks and Mc Gloin, 2007; Hodge and McNally, 2000; Lundqvist, 2001; Polman and Slangen, 2008; Prager and Freese, 2009). When questioned, 80% of the farmers in our study also thought that a cAES would be best overseen by an external organisation rather than being farmer-led. Roughly half of these thought that a government agency could play this role, while the other half favoured a conservation NGO. Despite a fairly even split there was a greater propensity for animosity to be expressed towards the government agency, which suggests that, in sum, trusted and known cNGO facilitators might be best placed to oversee cAES design and implementation. An additional benefit of breaking down cultural barriers, which has been witnessed in other collaborative environmental schemes, is the potential to clear the way for further collaborative or cooperative activities amongst farmers with wider rural development and economic benefits (Cramb, 2006; Franks and Mc Gloin, 2007).

The imperative for flexibility or timeliness was shown to be of practical and cultural significance for farmers. Both cooperation and AESs can be seen as antithetical to this imperative and it is therefore essential in designing a cAES that flexibility and adaptability are inherent to the scheme (also Davies et al., 2004; Dutton et al., 2008; Folke et al., 2005; Mills et al., 2006). As argued, this can be achieved through locally specific, participatory approaches (also Dobbs and Pretty, 2001). Such approaches have the potential to not only encourage more participation in AES amongst currently non-participating farmers but, crucially, to make AES more acceptable and satisfying to all farmers. Rather than leaving farmers with a sense of being marginalised recipients/benefactors of AES, we

support arguments (Prager and Freese, 2009; Prager and Nagel, 2008) that propose that participatory approaches lead to better environmental outcomes since farmers are more likely to buy-in to the schemes long-term, to have a sense of ownership over them and to feel proud of their actions.

In practice, the extent to which farmers' preferences can be achieved will depend partly upon the specific environmental resource of interest, the requisite management intervention and the preferences of policy makers in terms of delivery mechanisms (for current debates on the future of the farmed landscape, agri-environment scheme development and the institutional design of collaborative approaches see Franks, 2008; Franks, 2011; Franks et al., 2011; Goldman et al., 2007; Hodge, 2009; Hodge and Reader, 2007; Winter and Lobley, 2009). Nevertheless, the research suggests that cAES have the potential to deliver greater environmental benefits, whilst at the same time increasing the appeal of agri-environment schemes to a broader spectrum of farmers. Further research is required to better understand how, where, and in what circumstances the environmental requirements of a landscape-scale approach are compatible with farmers' preferences, and how best to manage this interface in taking cAES forward. Furthermore, to establish a genuinely integrated approach to management further research is required into collaboration not just between farmers but between farmers and a range of different local, regional and national stakeholders.

The findings from this research contribute to interesting old arguments about the relative merits of targeted as opposed to broadly implemented AES (Potter et al., 1993), both in terms of regional targeting of support to areas of high environmental value and – more especially – to how schemes are administered at the farm scale (either 'whole-farm' schemes or 'part-farm' schemes). An interesting dimension of what we are proposing is that there is need for greater continuity and joined up action at the landscape scale, but at the farm-scale there should be greater discretion allowed and the opportunity for farmers to only enter part of their farm if it contributes to the delivery of landscape-scale benefits. The argument being that it is better to have a joined up landscape than a joined up farm and if a fragmented farm encourages farmer participation, whilst simultaneously contributing to a joined up landscape, then the environmental outcomes will be better. This research provides additional consideration of the socio-cultural dimension to the political, economic and ecological arguments for a more targeted approach. It has been argued that the biodiversity gains of AES are likely to be greater from the provision of large, targeted, resource patches, as opposed to the currently disaggregated, broad and shallow, approach to AES delivery (Whittingham, 2007). Similarly, it has been argued that the targeting of specific kinds of environmental improvements, through locally specific contracts to each farm is the most cost-effective way to deliver AES (Falconer and Saunders, 2000, in Dobbs and Pretty, 2001).

What is particularly interesting is the compatibility of a more targeted approach to cAES, that does not necessarily require the involvement of individual farmers on a 'whole-farm' basis, with an increasing contemporary policy emphasis on food security and the new 'sustainable intensification' agenda. That apparently oxymoronic term denotes the simultaneous need to produce more food from a diminishing agricultural land base while at the same time reducing the negative environmental impacts of agriculture (Foresight, 2011). And whilst it has been developed in relation to global agricultural and environmental needs the rhetoric has also found its way into common parlance amongst UK ministers and in relation to UK agriculture. This resonates with farmers' own (longstanding) arguments that productive agricultural land should be used to produce more food and that environmental protection or services should be provided in either parts of the country or on parts of the farm, that are naturally less productive. It represents a more compartmentalised idea of land use but if that compartmentalisation is organised at the landscape scale it appears that cAES have the potential to be ecologically better and economically more cost-effective, without constraining productivity on better agricultural land. What remains more contentious, however, is the extent to which such an approach fosters the necessary attitudes and values amongst farmers to make AES more successful.

As referred to in Section 4.3.2 Burton and Paragahawewa (2011: 99) argue that only applying AES requirements to parts of a farm has little impact on sustainable behaviour change since it allows "farmers to disown responsibility for scheme areas while concentrating on production (and the accumulation of productivist symbolic capital) in the remaining areas of the farm". However, this contradicts earlier work by Wilson and Hart (2001) which compared the former part-farm Countryside Stewardship Scheme (CS) and the whole-farm Environmentally Sensitive Areas Scheme (ESA). Although indeed finding that farmers in the CS did see environmental parts of their farm as separate from their main farming business, Wilson and Hart also found that CS was more successful than ESA "in changing participants' attitudes towards conservation thinking" in part precisely because "as a part-farm scheme, it [did] not impinge upon farming activities on large parts of the farm" (Wilson and Hart, 2001: 269). The benefits of a part-farm approach, therefore, might arise precisely because it makes environmental interventions more acceptable to farmers which, as outlined earlier, is crucial for the long-term environmental success of AESs. We showed one case where a farmer demonstrated an ability, and desire, to uphold strong values in both his conservation work and his productive farm work and that these alternative values sets were not, therefore, mutually exclusive. If we take a view of farming values as dynamic, interactively achieved and incessantly negotiated (Emery, 2010) then farmers can be seen as able to simultaneously uphold a range of different values. Under this scenario, a more fragmented farm with 'environmental areas' and 'productive areas' might actually allow for a

more iterative and ultimately more sustainable change in attitude if different value sets, nurtured on different parts of the farm are allowed, so to speak, to rub shoulders.

Burton and Paragahawewa (2011) have made a commendable call for AESs to be more ‘culturally sustainable’. We have presented the potential environmental, social and economic benefits of a collaborative approach to AES delivery which takes account of farmers’ preferences and experiences. Ultimately, we believe, taking account of farmers’ preferences is the primary way to enhance the cultural sustainability and long-term buy-in of farmers to AES. Understanding the precise socio-cultural mechanisms by which values and attitudes change to this end, however, remains an area of much-needed further study.

6 Acknowledgements

We gratefully acknowledge the financial support of Rural Economy and Land Use (RELU) and the ESRC (RES-240-25-0019) which facilitated this study. Thanks to Caroline Drummond, Chris Stoate and Jim Egan for assistance in setting up the survey and to our project colleagues Mark Whittingham and Ailsa Mckenzie. We are grateful for the constructive and helpful comments from three anonymous reviewers as well as for comments on earlier drafts of the paper from Maria Kastrinou, Menelaos Gkartzios and Karen Scott. Finally, special thanks to the farmers who took the time to participate in our research and welcomed us into their homes.

References

- Ajzen, I., 1985. From Intentions to Actions: A Theory of Planned Behaviour, in: Kuhl, J., Beckermann, J. (Eds.), *Action Control: From Cognition to Behaviour*. Springer, New York, pp. 11-39.
- Ajzen, I., 1991. The Theory of Planned Behaviour. *Organisational Behaviour and Human Decision Processes* **20**, 179-211.
- Beedell, J.D.C., Rehman, T., 1999. Explaining farmers' conservation behaviour: Why do farmers behave the way they do? *Journal of Environmental Management* **57**, 165-176.
- Blackstock, K.L., Ingram, J., Burton, R., Brown, K.M., Slee, B., 2010. Understanding and influencing behaviour change by farmers to improve water quality. *Science of The Total Environment* **408**, 5631-5638.
- Burgess, J., Clark, J., Harrison, C.M., 2000. Knowledges in action: an actor network analysis of a wetland agri-environment scheme. *Ecological Economics* **35**, 119-132.
- Burton, R.J., 2004a. Seeing Through the 'Good Farmer's' Eyes: Towards Developing an Understanding of the Social Symbolic Value of 'Productivist' Behaviour. *Sociologia Ruralis* **44**, 195-215.
- Burton, R.J.F., 2004b. Reconceptualising the 'behavioural approach' in agricultural studies: a socio-psychological perspective. *Journal of Rural Studies* **20**, 359-371.
- Burton, R.J.F., Kuczera, C., Schwarz, G., 2008. Exploring Farmers' Cultural Resistance to Voluntary Agri-environmental Schemes. *Sociologia Ruralis* **48**, 16-37.
- Burton, R.J.F., Paragahawewa, U.H., 2011. Creating culturally sustainable agri-environmental schemes. *Journal of Rural Studies* **27**, 95-104.
- Burton, R.J.F., Wilson, G.A., 1999. The Yellow Pages as a sampling frame for farm surveys: Assessing potential bias in agri-environmental research. *Journal of Rural Studies* **15**, 91-102.
- C.R.E.R. and C.J.C. Consulting, 2002. Economic evaluation of agri-environment schemes. Centre for Rural Economics Research, Department of Land Management, University of Cambridge, Cambridge, UK.

Concepción, E.D., Díaz, M., Baquero, R.A., 2008. Effect of landscape complexity on the ecological effectiveness of agri-environment schemes. *Landscape Ecology* **23**, 135-148.

Cramb, R.A., 2006. The role of social capital in the promotion of conservation farming: The case of 'landcare' in the southern Philippines. John Wiley & Sons Ltd.

Cumming, G.S., Cumming, D., H., Redman, C.L., 2006. Scale mismatch in social-ecological systems: causes, consequence and solutions. *Ecology and Society* **11**, online version, page number not stated.

Curtis, A., De Lacy, T., 1998. Landcare, stewardship and sustainable agriculture in Australia. *Environmental Values* **7**, p. 59-78.

Dallimer, M., Gaston, K.J., Skinner, A.M.J., Hanley, N., Acs, S., Armsworth, P.R., 2010. Field-level bird abundances are enhanced by landscape-scale agri-environment scheme uptake. *Biology Letters* **6**, 643-646.

Davies, B., Blackstock, K., Brown, K., Shannon, P., 2004. Challenges in creating local agri-environmental cooperation action amongst farmers and other stakeholders. The Macaulay Institute, Aberdeen, Scotland, p. 131.

de Haan, H., 1994. In the Shadow of the Tree. Kinship, Property and Inheritance among Farm Families. Het Spinhuis, Amsterdam.

Defrancesco, E., Gatto, P., Runge, F., Trestini, S., 2008. Factors Affecting Farmers' Participation in Agri-environmental Measures: A Northern Italian Perspective. *Journal of Agricultural Economics* **59**, 114-131.

Dobbs, T.L., Pretty, J., 2001. Future Directions for Joint Agricultural-Environmental Policies: Implications of the United Kingdom Experience for Europe and the United States, *South Dakota State University Economics Research Report 2001-1 and University of Essex Centre for Environment and Society Occasional Paper 2001-5*. University of Essex.

Dutton, A., Edwards-Jones, G., Strachan, R., Macdonald, D.W., 2008. Ecological and social challenges to biodiversity conservation on farmland: reconnecting habitats on a landscape scale. *Mammal Review* **38**, 205-219.

Eggers, J., Laschewski, L., Schleyer, C., 2005. Agri-Environmental Policy: Understanding the Role of Regional Administration, *The Future of Rural Europe in the Global Agri-Food System, XI Congress of the EAAE*, Copenhagen.

Egoz, S., Bowring, J., Perkins, H.C., 2001. Tastes in tension: form, function, and meaning in New Zealand's farmed landscapes. *Landscape and Urban Planning* **57**, 177-196.

Emery, S.B., 2010. In Better Fettle: Improvement, Work and Rhetoric in the Transition to Environmental Farming in the North York Moors, *Department of Anthropology*. Unpublished PhD. Durham University, UK., Durham, p. 248. Available from <http://etheses.dur.ac.uk/379/>.

Errington, A., 1985. Sampling frames for farm surveys in the UK: Some alternatives. *Journal of Agricultural Economics* **36**, 251-258.

Eycott, A., Watts, K., Brandt, G., Buyung-Ali, L., Bowler, D., Stewart, G., Pullin, A., 2008. Which landscape features affect species movement? A systematic review in the context of climate change, in: Conservation, F.R.C.a.E.-B. (Ed.), *DEFRA Research Contract CR0389*.

<http://www.environmentalevidence.org/Documents/Completed%20Reviews/SR43.pdf>, Forest Research Centre and Evidence-Based Conservation, DEFRA Research Contract CR0389

<http://www.environmentalevidence.org/Documents/Completed%20Reviews/SR43.pdf> [accessed 29th November 2010], p. 151.

Falconer, K., Saunders, S., 2000. Negotiating agri-environmental management agreements: transaction costs from SSSIs and policy design. Paper for Agricultural Economics Society Annual Conference, Manchester, UK.

Fielding, K.S., Terry, D.J., Masser, B.M., Hogg, M.A., 2008. Integrating social identity theory and the theory of planned behaviour to explain decisions to engage in sustainable agricultural practices. *British Journal of Social Psychology* **47**, 23-48.

Folke, C., Hahn, T., Olsson, P., Norberg, J., 2005. Adaptive governance of social-ecological systems. *Annual Review of Environmental Resources* **30**, 441-473.

Foresight, 2011. *The Future of Food and Farming: Challenges and Choices for Global Sustainability*. Final Project Report, London.

Franks, J.R., 2008. A blueprint for green co-operatives: organisations for co-ordinating environmental management across farm holdings. *International Journal of Farm Management* **4**, 1-24.

Franks, J.R., 2011. The collective provision of environmental goods: a discussion of contractual issues. *Journal of Environmental Planning and Management* **54**, 637-660.

Franks, J.R., Emery, S.B., Whittingham, M., McKenzie, A., 2011. An appraisal of HR8 and UX1: options for landscape scale collaboration in UK Environmental Stewardship, in: Economy, C.f.R. (Ed.), *Centre for Rural Economy, Research Report*. Newcastle University, Newcastle upon Tyne, UK.

Franks, J.R., Mc Gloin, A., 2007. Environmental co-operatives as instruments for delivering across-farm environmental and rural policy objectives: Lessons for the UK. *Journal of Rural Studies* **23**, 472-489.

Franks, J.R., McGloin, A., 2006. The Potential of Environmental Co-operatives to Deliver Landscape-Scale Environmental and Rural Policy Objectives in the UK, in: Warren, M., Yarwood, R. (Eds.), *The Rural Citizen: Governance, Culture and Wellbeing in the 21st Century*. University of Plymouth, Plymouth University, U.K.

Gasson, R., 1973. Goals and values of farmers. *Journal of Agricultural Economics* **24**, 521-542.

Geertz, C., 1973. *The Interpretation of Cultures*. Basic Books, New York.

Goldman, R.L., Thompson, B.R., Daily, G.C., 2007. Institutional incentives for managing the landscape: Inducing cooperation for the production of ecosystem services. *Ecological Economics* **64**, 333-343.

Gravsholt-Busck, A., 2002. Farmers' Landscape Decisions: Relationships between Farmers' Values and Landscape Practices. *Sociologia Ruralis* **42**, 233-249.

Hajkowicz, S., 2009. The evolution of Australia's natural resource management programs: Towards improved targeting and evaluation of investments. *Land Use Policy* **26**, 471-478.

Harrison, C.M., Burgess, J., Clark, J., 1998. Discounted knowledges: farmers' and residents' understandings of nature conservation goals and policies. *Journal of Environmental Management* **54**, 305-320.

HM Government, 2011. *The Natural Choice: Securing the Value of Nature*. The Stationery Office.

Hodge, I., 2009. The further development of agri-environmental schemes: Extending and defending conservation values, in: Brouwer, F., van der Heide, M. (Eds.), *Multifunctional rural land management: Economics and Policies*. Earthscan, London, pp. 33-52.

Hodge, I., McNally, S., 2000. Wetland restoration, collective action and the role of water management institutions. *Ecological Economics* **35**, 107-118.

Hodge, I., Reader, M., 2007. Maximising the provision of public goods from future agri-environment schemes, in: Group, L.U.P. (Ed.). University of Cambridge, Cambridge, UK., p. 89.

Holstein, J.A., Gubrium, J.F., 1995. *The Active Interview*. Sage, London.

Hopkins, J., 2009. Adaptation of biodiversity to climate change: An ecological perspective, in: Winter, M., Lobley, M. (Eds.), *What is Land For. The Food, Fuel and Climate Change debate*. Earthscan, UK., pp. Chapter 8, pages 189-212.

Ilbery, B.W., 1983. Goals and Values of Hop Farmers. *Transactions of the Institute of British Geographers* **8**, 329-341.

Ingram, J., Mills, J., Short, S., Reed, M., Gibbon, D., Dwyer, J., Cheese, L., 2008. Evaluation of key factors that lead to successful agri-environmental co-operative schemes: A literature review of behavioural change mechanisms in agriculture. Prepared for Welsh Assembly Government by Countryside and Community Research Institute., Cheltenham, UK.

Kleijn, D., Sutherland, W.J., 2003. How effective are European agri-environment schemes in conserving and promoting biodiversity. *Journal of Applied Ecology* **40**, 947-969.

Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.A., Tew, T.E., Varley, J., Wynne, G.R., 2010. Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network. A Report to Defra.

Lockie, S., 2006. Networks of Agri-Environmental Action: Temporality, Spatiality and Identity in Agricultural Environments. *Sociologia Ruralis* **46**, 22-39.

Lowe, P., Woods, A., Liddon, A., Phillipson, J., 2009. Strategic Land Use for Ecosystem Services, in: Winter, M., Lobley, M. (Eds.), *What is Land For. The Food, Fuel and Climate Change debate*. Earthscan, UK., pp. 23-45.

Lundqvist, L.J., 2001. Games real farmers play - knowledge, memory and the fate of collective action to prevent eutrophication of water catchments. *Local Environment* **6**, 407-419.

MacFarlane, F., 1998. Implementing agri-environmental policy: a landscape ecology perspective. *Journal of Environmental Planning and Management* **41**, 575-596.

Mauss, M., 1990 [1922]. *The Gift: Forms and Functions of Exchange in Archaic Societies*. Routledge, London.

McEachern, C., 1992. Farmers and conservation: conflict and accommodation in farming politics. *Journal of Rural Studies* **8**, p. 159-171.

Merckx, T., Feber, R.E., Riordan, P., Townsend, M., Bourn, N., Parsons, M., Macdonald, D., 2009. Optimizing the biodiversity gain from agri-environment schemes. *Agriculture, Ecosystems and Environment* **130**, 177-182.

Mills, J., Gibbon, D., Dwyer, J., Short, C., Ingram, J., 2006. Identification of Delivery Mechanisms for Welsh Top-Tier Agri-Environment Schemes. Countryside Council for Wales, Policy Research Report 06-15, Cheltenham, UK, p. 78.

Morris, C., Potter, C., 1995. Recruiting the new conservationists: farmers' adoption of agri-environment schemes in the UK. *Journal of Rural Studies* **11**, p. 51-63.

Nassauer, J., 1997. Cultural Sustainability: Aligning Aesthetics and Ecology, in: Nassauer, J. (Ed.), *Placing Nature: Culture and Landscape Ecology*. Island Press, Washington, pp. 67-83.

Natural England, 2011. Think BIG: How and why landscape-scale conservation benefits wildlife, people and the wider economy. Produced for the England Biodiversity Group., p. 44.

Oreszczyn, S., 2000. A systems approach to the research of people's relationships with English hedgerows. *Landscape and Urban Planning* **50**, 107-117.

Oreszczyn, S., Lane, A., 2000. The meaning of hedgerows in the English landscape: Different stakeholder perspectives and the implications for future hedge management. *Journal of Environmental Management* **60**, 101-118.

Parrott, A., Burningham, H., 2008. Opportunities of, and constraints to, the use of intertidal agri-environment schemes for sustainable coastal defence: A case study of the Blackwater Estuary, southeast England. *Ocean & Coastal Management* **51**, 352-367.

Polman, N.B.P., Slangen, L.H.G., 2008. Institutional design of agri-environmental contracts in the European Union: the role of trust and social capital. *NJAS - Wageningen Journal of Life Sciences* **55**, 413-430.

Potter, C., Cook, H., Norman, C., 1993. The targeting of rural environmental policies: an assessment of agri-environmental schemes in the UK. *Journal of Environmental Planning and Management* **36**, 199 - 216.

Prager, K., Freese, J., 2009. Stakeholder involvement in agri-environmental policy making – Learning from a local- and a state-level approach in Germany. *Journal of Environmental Management* **90**, 1154-1167.

Prager, K., Nagel, U.J., 2008. Participatory decision making on agri-environmental programmes: A case study from Sachsen-Anhalt (Germany). *Land Use Policy* **25**, 106-115.

Prager, K., Vanclay, F., 2010. Landcare in Australia and Germany: comparing structures and policies for community engagement in natural resource management. *Ecological Management & Restoration* **11**, 187-193.

- Pretty, J., 2003. Social capital and the collective management of resources. *Science* **302**, 1912-1914.
- Renting, H., van der Ploeg, J.D., 2001. Reconnecting nature, farming and society: environmental co-operatives in the Netherlands as institutional arrangements for creating coherence. *Journal of Environmental Policy and Planning* **3**, 85-101.
- Salamon, S., 1992. *Prairie Patrimony. Family, Farming and Community in the Midwest*. The University of North Carolina Press, Chapel Hill.
- Setten, G., 2004. The habitus, the rule and the moral landscape. *Cultural Geographies* **11**, 389-415.
- Siebert, R., Toogood, M.D., Knierim, A., 2006. Factors affecting European farmers' participation in biodiversity policies. *Sociologia Ruralis* **46**, 318-340.
- Silvasti, T., 2003. The cultural model of "the good farmer" and the environmental question in Finland. *Agriculture and Human Values* **20**, 143-150.
- Southern, A., 2008. Implementing an Integrated Approach to Natural Resource Governance: A Case Study in Whole Landscape Design at the Catchment Scale, *School of Environmental Sciences*. University of East Anglia, Norwich, p. 245.
- Strathern, A., Stewart, P.J., 2010. Bureaucracy, crisis and the question of survival, in: Strathern, A., Stewart, P.J. (Eds.), *Landscape, heritage and conservation: Farming issues in the European Union*. Carolina Academic Press, Durham, North Carolina, pp. 277-294.
- Sullivan, S., McCann, E., De Young, R., Erickson, D., 1996. Farmers' attitudes about farming and the environment: A survey of conventional and organic farmers. *Journal of Agricultural and Environmental Ethics* **9**, 123-143.
- Sutherland, L.-A., 2010. Environmental grants and regulations in strategic farm business decision-making: A case study of attitudinal behaviour in Scotland. *Land Use Policy* **27**, 415-423.
- Sutherland, L.-A., Burton, R.J.F., 2011. Good Farmers, Good Neighbours? The Role of Cultural Capital in Social Capital Development in a Scottish Farming Community. *Sociologia Ruralis* **51**, 238-255.
- Tscharntke, T., Klein, A., Kruess, A., Steffan-Dewenter, I., Thies, C., 2005. Landscape perspectives on agricultural intensification and biodiversity - ecosystem service management. *Ecology Letters* **8**, 857-874.

Ward, N., Lowe, P., 1994. Shifting values in agriculture: the farm family and pollution regulation. *Journal of Rural Studies* **10**, 173-184.

Webb, J.R., Drewitt, A.L., Measures, G.H., 2010. Managing for species: Integrating the needs of England's priority species into habitat management. Part 1 report, in: England, N. (Ed.), *Natural England Research Report No. 024*. Natural England Research Report No. 024, Sheffield, UK.

Whittingham, M.J., 2007. Will agri-environment schemes deliver substantial biodiversity gain, and if not why not? *Journal of Applied Ecology* **44**, 1-5.

Wilson, G.A., 2004. The Australian Landcare movement: towards 'post-productivist' rural governance? *Journal of Rural Studies* **20**, 461-484.

Wilson, G.A., Hart, K., 2000. Financial imperative or conservation concern? EU farmers' motivations for participation in voluntary agri-environmental schemes. *Environment and Planning A* **32**, 2161-2185.

Wilson, G.A., Hart, K., 2001. Farmer participation in agri-environmental schemes: towards conservation-oriented thinking? *Sociologia Ruralis* **41**, 254-274.

Winter, M., Lobley, M., 2009. What is land for? The food, fuel and climate change debate. Earthscan, London.