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# A survey exploring private farm advisor perspectives of agri-environment schemes: The case of England's Environmental Stewardship programme

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ABSTRACT

Most stakeholder-based research concerning agri-environmental schemes (AES) derives from work engaging with farmers and land managers. Consequently, the voices and opinions of other actors involved in AES tends to be unrepresented in the wider literature. One group of actors that seem particularly overlooked in this respect are private (independent) farm advisors (i.e., the consultants contracted by farmers and land managers to advise-on AES and agronomic matters). To begin to rectify this knowledge gap we developed an exploratory online survey to explore private farm advisor perspectives in the UK; specifically, the situation in England and advisors' experience of Natural England's Environmental Stewardship programme. A total of 251 Natural England registered farm advisors (29.9%) completed our survey. The majority of these had knowledge and expertise in relation to two (31.5%) or three (42.2%) Environmental Stewardship schemes, with proficiency in ELS (93.4%) and HLS (82.8%) being the most common. On average, advisors had 9.6 ± 5.6 yrs of experience and operated (75.3%) in a single region of England. Although our results concentrated upon a relatively simple set of initial topics of inquiry, the survey revealed a number of interesting findings. Firstly; for example, that in the opinion of the advisors working with farmers applying for Environmental Stewardship schemes, the 'knowledge-exchange encounter' occurring between themselves, their clients and Natural England is fundamental to the environmental effectiveness of these schemes as well as their farm business compatibility. Secondly, respondents suggested that beneath this 'encounter' lie tensions arising from the competing agendas and objectives of the different actors involved which can affect the content of agreements; for instance, farmer selection of management options versus Natural England's target environmental objectives. Farm advisors suggested that they had to negotiate this balance whilst also serving the needs of their clients. Thirdly, respondents raised issues concerning the complicated nature of scheme arrangements, both from their own and farmers' perspectives, as well as the adequacy of payments to cover input costs and matters regarding contractual compliance, all of which theyproposed affected farmer participation. Looking ahead, we believe that future AES should account for all of these issues in their design to aid long-term farmer participation, effective agreement implementation and beneficial environmental management.



## 1. Introduction

Driven by a range of complex local and global drivers (e.g., globalisation, food security concerns) food production and domestic consumption patterns have undergone rapid transformations (e.g., FAO, 2003; OECD/FAO, 2011; Tscharntke et al., 2012; Poppy et al., 2014). These changes have been accompanied by significant agricultural intensification and extensification (FAO, 2012, 2014; Godfray and Garnett, 2014). Striking a balance between intensification and extensification is a central challenge for modern food production systems (Pretty et al., 2010; Balmford et al., 2012; Grau et al., 2013). Without balance, environmental risks are high and may include deforestation and forest degradation, loss of biodiversity, soil erosion, decreased water quality, water shortages, increases in greenhouse gas emissions and changes in biogeochemical cycles (e.g., Gibbs et al., 2010; Quinton et al., 2010; Lambin

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and Meyfroidt, 2011; Lenzen et al., 2012; Mills Busa, 2013; WWAP, 2014).

In Europe aspects of the agricultural sector have also undergone a degree of intensification (OECD, 2008), with concomitant repercussions for ecosystems, biodiversity and water resources (e.g., Tscharntke et al., 2005; Billeter et al., 2008; Henle et al., 2008; EEA, 2010; Pe'er et al., 2014; Zanten et al., 2014). The continuing problem European Union (EU) Member States face is trying to maintain thriving and competitive agricultural and forestry sectors whilst also ensuring a secure provision of environmental public goods (Allen and Hart, 2013). In response, to resolve this tension, incentive-based management strategies such as agri-environment schemes (AES) have been introduced throughout the EU (Deal et al., 2012; Lastra-Bravo et al., 2015; Lefebrve et al., 2015).

Initially optional, the 1992 MacSharry Reform of the Common Agricultural Policy (CAP) made AES a compulsory agricultural measure for all EU Member States; with further consolidation via the Agenda 2000 Reform leading to their provision under Pillar 2 of the CAP (European Commission, 2005; McCormack, 2012). Essentially, AES operate through voluntary contractual agreements and provide farmers with payments in return for the delivery of environmental public goods and services and/or the adoption of modern environmentally-friendly farming practices (Garrod, 2009; Lastra-Bravo et al., 2015; Lefebrve et al., 2015). Their implementation is based on the subsidiarity principle, meaning that AES are specially designed to negotiate the particular production-conservation circumstances faced by individual Member States, which they achieve by addressing three intertwined matters, namely: greening farming practices; reducing food production impacts on biodiversity and improving overall countryside management (European Commission, 2005; Smits et al., 2008; European Court of Auditors, 2011; McCormack, 2012; Allen and Hart, 2013; Burton and Schwarz, 2013).

Following their introduction in the UK in 1986 various versions of AES have affected more than 6 million Ha of agricultural land in England alone (Dobbs and Pretty, 2008; Gibbs, 2010; Tucker, 2010). The most significant recent variant, 'Environmental Stewardship', began in 2005 (Chaplin and Radley, 2010). Its purpose—to offer a fresher, more radical, two-tiered approach to land management characterised as 'broad and shallow' and 'narrow and deep' (Hart, 2010). The 'broad and shallow' tier was designed as a non-competitive and open-access arrangement, while the 'narrow and deep' component was configured as a targeted and competitive option for meeting priority environmental objectives (Boatman et al., 2010). In England, the Entry Level Stewardship (ELS) scheme represents the 'broad and shallow' approach, which also includes organic (OELS) and upland (UELS) variants, while Higher Level Stewardship (HLS) represents the 'narrow and deep' element (Boatman et al., 2010; Jones et al., 2010; Supporting information Table S1).

So, how effective are AES schemes at meeting their stated environmental goals? At both the European (e.g., Kleijn and Sutherland, 2003; Kleijn et al., 2011) and UK (e.g., Whittingham, 2007; Boatman et al., 2008; Defra and Natural England, 2008; Whittingham, 2011) scale evidence suggests that their ability to provide environmental and conservation benefits have been relatively mixed. In respect of Environmental Stewardship the picture is similarly mixed, with both positive and negative impacts on the supply of environmental benefits identified. In particular, research has tended to focus on the biodiversity impacts of common in-field, margin and boundary options such as crop rotations, hedgerow management, riparian buffer strips and winter stubble regimes on farmland birds (e.g., Davey et al., 2010a,b; Field et al., 2010; Hinsley et al., 2010; Siriwardena, 2010; Baker et al., 2012; Goodwin et al., 2013; Gruar et al., 2013), and to lesser extents on floristic diversity (e.g., Still and Byfield, 2010; Morris et al., 2010), insect pollinators (e.g., Fuentes-Montemayor et al., 2011; Critchley et al., 2013; Dunn et al., 2013; Peyton et al., 2013), natural resource management (e.g., Ramwell and Boatman, 2010), and ecosystem services (e.g., Rollett et al., 2008; FERA, 2012).

Beyond biodiversity, other analyses have demonstrated that participation in Environmental Stewardship can deliver both human and social capital gains (Mills, 2012), whilst also enhancing local employment and boosting the rural economy (Courtney et al., 2013). Yet, it has also been established that the financial compensation mechanism operated by Environmental Stewardship may promote adverse selection as well as reduce the degree of environmental benefits secured (Fraser, 2009; Quillérou et al., 2011).

Concerning ourselves with the principal agents involved (e.g., farmers, land managers, independent farm advisors and Natural England) in the implementation of Environmental Stewardship, research has generally favoured addressing the farmer element: focusing primarily on understanding the views of farmers (e.g. FERA, 2013a) and their motivations for engagement in these schemes (e.g. Mills et al., 2013) with little attention paid to intermediaries (e.g., advisors)—particularly independent farm advisors. Yet, drawing on evidence from payment for ecosystem service programmes (PES), a similar mechanism to AES, clearly demonstrates the importance of external advisors – especially as facilitators of agreement processes between participants and contracting authorities –– due to their capacity to provide specialist knowledge and skills (e.g., Ferraro, 2008; Thuy et al., 2010; Lin and Nakamura, 2012; Huber-Stearns et al., 2013; Martin-Ortega et al., 2013; Schomers and Matzdorf, 2013; Hejnowicz et al., 2014).

In light of this, we posited that examining the farm advisor dimension would represent an important and justified avenue of exploration. By improving our understanding of the views and opinions of farm advisors regarding Environmental Stewardship, it may be possible to identify ways in which to improve the overall implementation and effectiveness of AES: aspects important for achieving conservation objectives, public goods generation and farm business viability. In this research on the English experience, we report results from a survey designed to explore private farm advisors' views regarding their own particular role in the delivery of Environmental Stewardship agreements as well as their opinions concerning farmers, Natural England and other facets of Environmental Stewardship scheme implementation and operationalisation.

Our online survey adopted an exploratory approach, delving into the 'world' of the farm advisor and concentrated on: (i) advisors' views regarding scheme constraints and client motivations and behaviours; (ii) advisors' modes of interaction with their clients and Natural England; (iii) the determinants influencing the content of individual agreements; (iv) mechanisms for balancing client needs and the provision of sufficient levels of environmental public goods, and (v) recommendations for improving the delivery of AES.

It is important to point out that this investigation tells only part of a much larger story. As such, it should be viewed as the starting point, the first stepping stone, to further, more in depth examinations of the farm advisor role which by necessity would need to be triangulate with the views of farmers, land managers and those of Natural England.

## 2. Background: evidence to support our exploratory approach

In concentrating on the areas (i–v) we were guided by evidence highlighting key determinants of voluntary incentive scheme operationalisation, implementation and effectiveness (e.g., Martin-Ortega et al., 2013; Hejnowicz et al., 2014); the general purpose and structure of AES (e.g., European Commission, 2005) and informed

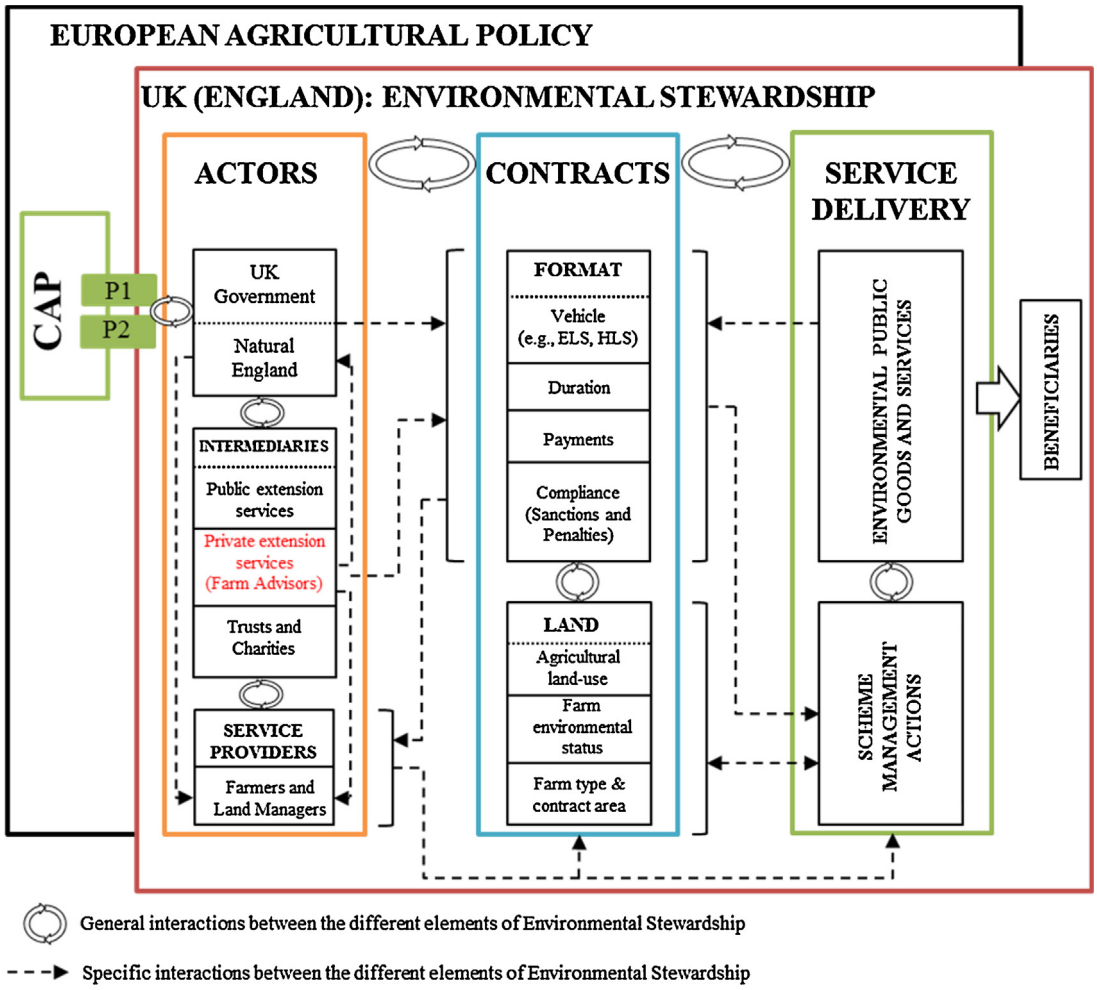


**Fig. 1.** Environmental Stewardship Framework co-opted and adapted from a PES model by Martin-Ortega et al. (2013). The UK/England Stewardship Scheme is placed within the European agricultural policy context expressed through the linkage with the CAP (Pillar 1 and Pillar 2). The Environmental Stewardship programme is divided into three major component parts (actors, contracts and service delivery) with each of these subsequently subdivided into major constituent properties, characteristics and qualities. The framework also emphasises general interactions occurring between components parts as well as highlighting key interactions which are key foci of our survey.

by the particular arrangements and specifications of individual Environmental Stewardship schemes (Natural England 2012a,b,c). We combined these different strands to develop an Environmental Stewardship framework (Fig. 1) to guide our survey. Reflecting this, the composition of our survey is underpinned by three major foci.

### 2.1. Actors and their interactions

#### 2.1.1. Farmers: motivation, participation and knowledge

What motivates participants is important; indeed, it is central to their participation (Lastra-Bravo et al., 2015). Motivations underpinning farmer and land manager decision-making processes have been identified as a complex mosaic of extrinsic and intrinsic values (Siebert et al., 2006), as well as central to delivering effective AES programmes (Mills et al., 2013). The choices farmers make seem to be influenced by a range of external factors like environmental policies; internal drivers such as personal characteristics (e.g., age, education) and farm features, as well as interactive elements related to farm business arrangements and incentive design (Mills et al., 2013). In particular, economic factors related to household income, land tenure, family labour, and farm business structure appear to be particularly influential determinants of participation (Barreiro-Hurlé et al., 2010; Lastra-Bravo et al., 2015). These represent aspects frequently related to the need to maintain family and farm continuity (Farmar-Bowers and Lane, 2009; Ingram et al., 2013). The extent to which this mix of farm structural factors and personal farmer characteristics influences AES participation is affected by the likelihood of an agreement producing either major or minor changes to farm operations, and consequently, the potential impacts these changes may have on marginal profits, the size of transaction costs incurred and the level of utility derived from the delivery of environmental goods and services (Barreiro-Hurlé et al., 2010). Overall, as Siebert et al. (2006:319) note:

> "There is an intricate interaction of contingencies affected by locality and specific context, such as agronomic, cultural, social and psychological factors, which [. . .] play interwoven roles in each [. . .] specific farm context".

Similarly, alongside motivation, knowledge underpins successful agriculture but the types of knowledge required for engagement in particular land management activities can vary substantially (Winter, 1997). For example, as Ingram notes (2008a:224) in relation to farmers' knowledge of soil management:

> ". . .although farmers are largely knowledgeable many appear to lack the [. . .] knowledge necessary for carrying out more complex [. . .] management practices."

Environmental stewardship more generally has been shown to enhance farmer skills and environmental knowledge, awareness and appreciation (Mills, 2012).

#### 2.1.2. Advisors and agencies

From this vantage the importance of both public and private advisory extension services and the advice they supply becomes apparent (Lastra-Bravo et al., 2015). The role of external advisors in bridging potential knowledge deficits, acting as a necessary precondition for realizing effective voluntary incentive schemes, and delivering successful public policy interventions are widely recognised (Juntti and Potter, 2002; Cooper et al., 2009; Vesterager and Lindegaard, 2012). Advisors are now required to explain regulatory processes and incentives as well as provide information and training (Vesterager and Lindegaard, 2012). Indeed, the evidence shows that informed farmers are far more likely to participate in AES (Lastra-Bravo et al., 2015). As Radley (2013) states, 'good advisors' are central to the effectiveness of AES. Underscoring this point, private advisors have been shown to positively impact the promotion of both minor and major AES measures as well as influence the willingness of farmers to adopt such measures (Lastra-Bravo et al., 2015). Considered more generally, the evidence indicates that the interactions between the actors (and agencies) involved in voluntary incentive schemes, operating across different institutional levels, as well as the degree of decentralisation and devolution in decision-making, are central to the functionality and effectiveness of these interventions (e.g., Beckmann et al., 2009; Pascual et al., 2010; Legrand et al., 2013).

### 2.2. Service delivery

#### 2.2.1. Management practices and the provision of public goods

The financial rules and decision-making framing AES design are central to how AES achieve environmental outcomes, economic efficiency and widespread uptake (Beckmann et al., 2009). At the heart of AES lies the provision of public goods. The capacity of voluntary management interventions to provide public goods rests on the premise that the measures specified by these initiatives are capable of generating the requisite environmental public goods (i.e. ecosystem services) at scale; and moreover, that participants (e.g., farmers) fully engage in implementing those management practices (Martin-Ortega et al., 2013; Hejnowicz et al., 2014). Essentially, it is about ensuring schemes are capable of demonstrating additionality, or added value, over and above the business-as-usual case in the absence of any intervention (Ghazoul et al., 2010).

Supplying public goods is an essential function of the CAP; but at the pan-European scale multiple environmental indicators suggest these are currently being undersupplied (Cooper et al., 2009; Pe'er et al., 2014). With respect to Environmental Stewardship there has been considerable discussion regarding ELS option management uptake and distribution, the inference being that this directly affects their capacity to facilitate the provision of sufficient environmental public goods (e.g., Hodge and Reader, 2010).

Optimal spatial targeting of management options is a key design challenge faced by incentive schemes (Wünscher et al., 2008). The reluctance of many EU/UK farmers to engage in significant environmental management has also been shown to inhibit uptake, although certain activities are guaranteed under cross-compliance (Rollett et al., 2008). Mechanisms to counteract these behavioural dispositions have been developed (Chaplin and Radley, 2010), such as: restricted option choices under a directed ELS regime (Boatman, 2013); focused initiatives like the 'Making Environmental Stewardship More Effective' programme (Blainey, 2013) and the Campaign for the Farmed Environment (Gibbs, 2010). To varying degrees they have established that the delivery of environmental public goods can be enhanced (Boatman, 2013; Clothier, 2013; Defra and Natural England, 2013; Jones and Boatman, 2013). Taking the long view, however, there are those who argue that sustaining behavioural change that results in lasting environmental benefits remains a significant challenge (Burton and Paragahawewa, 2011).

### 2.3. Contracts

#### 2.3.1. Agreement arrangements and conditions

Connected to issues of uptake and public goods provision are the other core elements of incentive scheme contracts, chiefly, payments, monitoring and compliance (Danielsen et al., 2013; Hejnowicz et al., 2014, 2015). The evidence clearly indicates that, for schemes to be effective, the payments entrants receive must be consistent with, and sufficient to cover, the opportunity costs they face through participation (Porras et al., 2013; Hejnowicz et al., 2014). Consequently, in the case of AES, public agencies need to ensure that payments cover the operational and investment costs, production and profits foregone and private transaction costs incurred by farmers (Falconer 2000; Mettepenningen et al., 2009). This is important because, for example, regarding the issue of transaction costs, not only do private transaction costs represent a sizeable proportion of total AES-related costs but fixed transaction costs also act as a major contracting barrier (Falconer 2000; Ducos et al., 2009; Mettepenningen et al., 2009). Financial incentives are also key to farmers signing up to longer-term AES agreements, entering schemes that are more prescriptive and joining schemes with significant layers of bureaucracy (Ruto and Garrod, 2009). Hence the significance of payments should not be underestimated, as they directly impact overall income and the feasibility of participation (Wunder et al., 2008) in addition to having fairness and equity ramifications (Borner et al., 2010; Pascual et al., 2010).

Providing a sufficient incentive also helps to ensure a higher degree of compliance; whilst this is important the other major factor that encourages greater compliance is the provision of contracts with enforceable sanctions and penalties (Ferraro, 2008; Wunder et al., 2008). Poor enforcement can often undermine scheme performance (Schomers and Matzdorf, 2013). Enforcement only works if there is an adequate monitoring regime in place, and in the case of Environmental Stewardship schemes this is recognised to require considerable improvement (Defra and Natural England, 2008; Boatman et al., 2010; Chaplin and Radley, 2010; Mountford et al., 2013; Radley, 2013). Collectively, these complex institutional arrangements represent fundamental aspects of the functioning and performance of any voluntary incentive programme (Hejnowicz et al., 2014, 2015).

## 3. Materials and methods

### 3.1. Data requirements

Our approach is exploratory. We reasoned the most expedient way to proceed to obtain a broad overview of farm advisors views was to use an online survey. In addition, due to the large number (>900) of Environmental Stewardship advisors this also seemed the most flexible and parsimonious choice. While interviews may provide a far more extensive and nuanced description of farm advisor views, we felt that it was important to gather information from as wide a variety of advisors as possible: given potentially important differences in opinions that might arise due to regional differences in priorities or in differences among advisors who specialized in ELS or HLS schemes. We also anticipated that a broad-based approach would identify specific issues and provide the necessary context to conduct more focused qualitative interviews with farm advisors as well as other agents in the process (e.g., farmers, Natural England advisors) in the future.

### 3.2. Sample

The sample was composed of Natural England registered stewardship advisors whose contact information, which was publically available, we obtained from Natural England's register.[1] After removing duplicate entries the register included information for 958 individual advisors from eight regions of England (North East, North West, East Midlands, West Midlands, East of England, South East, South West, and Yorkshire & Humberside).

### 3.3. Survey instrument

The survey was constructed with Sawtooth Software's (www.sawtoothsoftware.com) SSI web-based interviewing platform. A pilot survey was tested on 24 stewardship advisors, three from each of eight regions; responses from the pilot informed the design of the final survey. The questions included in the survey explore those issues previously discussed in Section 2. The final survey (Supporting information S2) consisted of 39 questions divided into three parts. Most questions were closed, involving selection of radio buttons (single answers) or checkboxes (multiple answers) but several questions included space for providing extra comments.

More specifically, Part 1 requested advisors' generic background information, including expertise. Part 2 focused on the process of generating a stewardship agreement and comprised sub-sections covering advisors' views regarding: client motivations and knowledge; agreement preparation and constraints; interactions with clients and Natural England; how advisors balance farmer needs and Natural England objectives; and recommendations for improving environmental stewardship agreements in light of future changes to scheme delivery. Part 3 concentrated on the environmental content of agreements, respondents' views regarding Natural England advisor amendments to submitted HLS agreements, and advisors' perceptions of client understanding and acceptance of scheme payment levels and sanctions. Importantly, participants were fully aware of what professional opinions were being asked of them and could decide to opt-out at any stage of the survey.

### 3.4. Survey implementation

Following standard social science survey protocol (Dilman et al., 2009), Environmental Stewardship advisors were contacted up to five times over a period of five weeks: (8th October to 7 November, 2013, with the survey open from 15 October to 15 November, 2013). Invitation emails contained a unique hypertext link enabling advisors to access the survey directly (Supporting information S3). Of 958 advisors from the register, we assumed that 840 had been contacted after adjusting for 118 non-delivery email notifications.

## 4. Results and discussion

### 4.1. Advisor characteristics

#### 4.1.1. Demographics, experience and regional distribution

A total of 354 respondents (42% of the sample) accessed the online survey platform and 251 (29.9%) completed the full survey (Supporting information Table S2). Given the number of completed responses, we can be fairly confident that the views expressed by respondents in our 'survey sample' are broadly representative of those held by the 'population sample'.

Respondents were asked to indicate the regions in which they operated, in terms of commonality: 24.8% of indicated the South West; 20.3% the West Midlands; 17.5% the East of England and Yorkshire-Humberside; 16.3% the East Midlands and the South East; 14.6% the North West; and 8.5% the North East. The majority of respondents (75.3%) operated in one region, with only 14.0%, 5.6%, 2.8% and 2.0% working across two, three, four or five regions respectively.

Relatedly, regions appeared to differ according to their degree of advisor mobility (Supporting information Table S3). In some locations advisors demonstrated a more extensive 'regional working network', operating across a number of different regions, whereas in other cases these 'networks' were more limited. In the East Midlands, for example, advisors exhibited the highest level of mobility with 60.0% working across additional regions. In the South West, on the other hand, just 24.6% of advisors operated outside their own region.

Advisor experience ranged considerably: from one to thirty years. However, the majority of respondents (56.5%) worked in an advisory capacity for $9.6 \pm 5.6$ yrs, although a large minority (39.04%) were considerably more experienced with 10–20 years of practice. Respondents operating across more regions also appeared to have longer experience as farm advisors, for example, $14.6 \pm 2.0$ yrs for those working across four and five regions compared to $9.4 \pm 0.4$ yrs for those working in a single region. Generally respondents indicated that they had knowledge and expertise in relation to two (31.5%) or three (42.2%) Environmental Stewardship schemes, with proficiency in ELS (93.4%) and HLS (82.8%) being the most common (Supporting Information Table S4). There were distinctive patterns of regional expertise (Supporting Information Table S5), probably reflecting the different geographies of these regions as well as the more limited application of some schemes compared to others (e.g., upland versions of ELS compared to standard ELS schemes).

### 4.2. Agreement formation

#### 4.2.1. Understanding clients: farmer motivations

Identifying the most common motivating factors leading farmers and land managers to engage with Environmental Stewardship, we found that advisors felt both extrinsic and intrinsic values played a motivating role (Table 1). Evidence from previous research indicates that farmers' and land managers' participation in voluntary agri-environment schemes is influenced by a variety of attitudes and values (e.g. Siebert et al., 2006; Cross and Franks, 2007; Mills et al., 2013). Respondents ascribed a heterogeneity of motivations to the decision-making processes underlying farmer participation, this suggests connections to broader socio-cultural norms, worldviews and goals (Ingram et al., 2013; Mills et al., 2013)—advancing what Morris and Potter, 1995 term a 'participation spectrum'.

Building on the existing literature (e.g., Wilson and Hart 2000, 2001; Siebert et al., 2006; Cross and Franks, 2007; Defrancesco et al., 2008; Mills et al., 2013; Lastra-Bravo et al., 2015) our analysis of advisor opinions suggests that extrinsic values such as those related to financial gain, profit maximization, long-term security and capital investment represent the primary motivators encouraging farmer and land manager engagement with environmental stewardship. These observations accord with evidence from UELS agreement holders suggesting that scheme payments act as the principal motivating factors determining participation, with additional agronomic concerns such as the degree of alignment with existing farm practices also influencing engagement (CCRI, 2012). In this regard we identified so-called 'calculating' (i.e., purely financial), 'opportunistic' (i.e., income from existing practices), 'optimizing' (i.e., production potential of marginal land) and,

[1] www.naturalengland.org.uk/ourwork/farming/funding/es/agents/register.aspx.

**Table 1**
Stewardship advisor perceptions of client motivations.

| Motivation classification[a,b] | Motivating factors (*key themes*) | Primary reason (%, *n* = 246) | Secondary reason (%, *n* = 235) | Tertiary reason (%, *n* = 153) |
|---|---|---|---|---|
| Extrinsic | | | | |
| Financial incentives (Cal) | Economics (i.e. income, finance, money, cash, payment, compensation) | 64.6 | 8.9 | 5.9 |
| Profit maximisation (Cal) | Finance linked to farm viability and management | 5.7 | – | – |
| Long-term security and farm viability (Opp) | Continuation of current practices and extension of a prior environmental scheme | 4.5 | 9.8 | 5.9 |
| Capital investment (Opt) | Use of unproductive marginal land (linkages to finance and profitability) | 4.1 | 12.3 | 5.9 |
| | Finance linked to recouping monies from modulation | 3.7 | 2.1 | 1.3 |
| | Income diversification | 1.22 | 2.1 | – |
| | Capital works (e.g. finance, investment and enhancements) | – | 6.4 | 6.5 |
| | General improvement in farm management and operations | – | 3.8 | 7.8 |
| | Increase farm value | – | 1.7 | 1.3 |
| Community image & recognition in wider society (Cat) | Prestige and public perception | – | – | 1.9 |
| Regulation (Com) | Cross-compliance | – | 0.4 | 5.9 |
| External non-regulatory obligation* | Peer Pressure | – | 0.8 | 1.9 |
| | Encouragement from Natural England | – | 0.4 | 0.6 |
| Intrinsic | | | | |
| Personal sense of environmental responsibility and accountability (E) | Environmental benefits (e.g. biodiversity, wildlife, conservation, farm environment) | 13.8 | 39.2 | 35.3 |
| | Environmental benefits linked to improvements for game and shooting | – | 2.1 | 5.9 |
| | Obligation and responsibility (e.g. moral and environmental aspect) | 1.2 | 3.4 | 5.9 |
| Commitment and interest in the environment(E) | Personal satisfaction and interest | – | – | 5.2 |

[a] Motivation classifications (i.e. extrinsic and intrinsic values) and sub-groupings are based on Mills et al. (2013).
[b] (Cal, Calculating), (Cat, Catalysing), (Com, Compensating), (E, Engaged), (Opp, Opportunistic) and (Opt, Optimising) are categories referring to modes of agri-environment scheme participation identified by Van Herzele et al. (2013). See their paper for category explanations.
* This category is not identified by Mills et al. (2013) but emerged from respondent comments.

to a lesser extent, 'compensatory' (i.e., regulatory obligation) motivating classifications as the primary drivers underlining farmer participation reinforcing previous analyses (e.g., Pike, 2008, 2013; Van Herzele et al., 2013).

Previous studies of AES participants have, for example, highlighted support for environmentally-oriented concepts such as 'wildlife and environment', 'improving the landscape' and 'wildlife conservation benefits' (CCRI, 2012; FERA, 2013a). Indeed, a positive environmental attitude can be a component of farmers' willingness to engage with AES (Lastra-Bravo et al., 2015). Similarly, respondents felt that intrinsic values were important secondary and tertiary motivators underlying Environmental Stewardship engagement, perhaps in this sense, complementing the more widespread financially-oriented motivations which they proposed that farmers hold: lending credence to the notion that extrinsic and intrinsic values need not be mutually exclusive (Mills et al., 2013). To an extent this may help temper concerns that without significant intrinsic motivations farmers lack the necessary incentive to deliver long-lasting environmental management improvements (Van Herzele et al., 2013).

#### 4.2.2. *Farmers' knowledge and advisor advice*

Farmers' capacity to undertake on-farm environmental management, in part, relies on their knowledge, skills and understanding of those management requirements, although competencies can vary significantly between individuals (Ingram, 2008a). Consequently, there is a growing recognition that the provision of advice, and the role of advisor, is central for helping farmers negotiate the progressively more complex demands of environmental management and agricultural production (Ingram, 2008b).

The majority of respondents (60.0%) indicated that 50% or more of their clients had a clear notion of the stewardship scheme they wished to enter. However, only 27.6% of respondents agreed that a similar proportion of their clients also understood the intricacies of agreement arrangement (i.e. with particular reference to the application process)—in this case advisors may have been referring to clients that were renewing agreements (FERA, 2013a). Interestingly, respondents' views to both of these questions also demonstrated a degree of regional variation, suggesting the importance of context, although the over-arching picture remained reasonably consistent (Supporting information Table S6). From an advisor perspective, the assertion that famers express strong views regarding the schemes they wish to enter yet demonstrate more limited understanding of scheme-related processes and procedures should not, perhaps, be a surprise—after all one of the reasons famers employ independent advisors is to help navigate the complexity of scheme arrangements (Vesterager and Lindegaard, 2012). For example, as one respondent (id: GRFPA2) remarked:

> "Most clients have a general idea of which scheme they would like to enter (i.e. ELS or ELS & HLS) and the majority know the basic options available under ELS & HLS. But I have not met one client yet who has read each handbook (160 pages + in each) from cover to cover before I meet them so they do not realise the complexities involved, particularly in HLS, nor do they always realise the restrictions/requirements involved in the management of some of the options. This always surprises me because I would always want to know the details of something I would be committing to for 10 years especially given the financial and management implications."

In light of this, it is hardly unexpected to find that; overall, respondents regarded their own advice as either 'important' (37.2%) or 'very important' (53.2%) for steering their clients towards the most suitable Environmental Stewardship schemes. Perhaps more surprising was the gender split between advisors, with 63.4% of female respondents regarding their advice as 'very important' compared to 46.3% of their male counterparts. The reason for this apparent gender-based difference is unclear, though it does suggest that the potential role of gender in shaping professional advice needs further exploration.

What we can say, however, is that although we expect respondents to validate their own importance, the evidence seems to suggest that the advice farmers receive can be beneficial. For instance, information from UELS agreement holders points to applicants requiring substantial amounts of advice (CCRI, 2012). Likewise for ELS participants, salient advice has been shown to be essential for enabling farmers to fulfil particular environmental management obligations (Lobley et al., 2010). Thematic analysis of additional open-ended comments not only supports this claim, but further extends it by revealing the wide variety of reasons farm advisors feel their advice is necessary for aiding farmer decision-making (Supporting information Table S7). These reasons include ensuring farmers select the most appropriate type of stewardship scheme and suite of environmental options; as respondent (id: 9V3PZG) clearly stated:

> "Farmers are not aware of all the options on offer for each scheme (particularly HLS) and therefore which ones best suit their farm and farming practices. They are also not aware of all the management prescriptions in HLS as these are not in the handbook."

They also reflect the opinion that farmers recognise the need for technical input and appreciate, trust and prefer independent advice; indeed, as one farm advisor (id: 5GHHXD) put it:

> "They [that is the farmer] prefer private advice rather than Natural England sponsored/contracted advisors as they rather pay for impartial advice than possibly receive bias advice."

There's also a sense that respondents see their advice has having wider significance for their client's farming system too; a view advanced by respondent (id: ZJGWWD):

> "...other factors that 'farmers' need to consider and reflect on including tax implication of dual use and on their single payment, how their business structure is arranged [...], the working and timing of operations at the commencement of the agreement, implications particularly under the HLS regarding the reversion of arable to grass under several options that can affect the capital value of their land..."

Many of these views are reinforced by farmers themselves (CCRI, 2012; FERA, 2013a).

### 4.3. Agreement practicalities

#### 4.3.1. Application complexity

Respondents noted the variation in application completion times (to the point of submission) between ELS, OELS and UELS schemes, on the one hand, and HLS on the other (Table 2)—illustrating the different labour demands these schemes have. The majority of respondents (88.4%) indicated that ELS applications take 1–3 months to complete, while 51.6% thought that completion times of between 4–9 months were more common for HLS. ELS agreements could sometimes be completed within a few days or weeks because of the efficiency of the ELS online application system. According to open-ended survey responses, major thematic factors contributing to the longer completion times of HLS agreement included: the requirement for detailed surveys (i.e., the Farm Environment Plan [FEP]); farm complexity and holding size; the need for meetings with Natural England (as well as Natural England's capacity and decision-making); draft agreement checks; problems associated with rural land registry mapping, and obtaining historic environment record reports promptly. As one advisor (id: YMEVCN) commented:

> "For ELS schemes; the application process is usually very quick – the application forms are available immediately online (or within a week on paper) then they usually take just a few hours to complete. Natural England then process the application to Agreement within 6 to 8 weeks. For HLS; often first contact is made up to or over a year in advance of the start of the Agreement. After this, the FEP must be carried out at the most appropriate time (e.g., mid-late June in species rich hay meadows or March/April on breeding wader ground). It's then necessary to delay the submission of the application until after the FEP has been completed and approved (easily 8 to 12 weeks). It can then be another 8 to 12 weeks from the Agreement to be drawn-up by the HLS Adviser and studied in detail by the applicant before it goes live."

The complexity of the application process represents a significant issue in the design and effectiveness of HLS, in particular, the task of undertaking and producing the FEP (Defra and Natural England, 2008). Yet 74.4% of respondents agreed that the FEP was 'important' or 'very important' to the subsequent design of HLS agreements. In addition, 57.6% of respondents indicated that the advice delivered by the FEP grant to farmers and land managers was 'effective' or 'highly effective'. The centrality of FEP to constructing agreements was confirmed in an HLS monitoring programme (FERA, 2013b; Mountford et al., 2013).

Open-ended comments provided a mixture of views with some respondents arguing the value of the FEP, especially its usefulness for: mapping features and selected options; indicating the value of a holding; enabling advisors to advise on marginal areas of the holding and become familiar with the whole farm; and providing the ecological evidence base to support the correct choice of HLS options and indicators. As advocated by respondent (id: RG5J9W) the FEP represents a:

> "Very useful exercise for the adviser to get a really good understanding of the farm, what is there and the farming system in place: it gives you the knowledge to sit down with the farmer and talk knowledgeably about their farm and make suggestions, also great to be able to tell them something they don't know and helps to build a good relationship for developing a quality scheme."

On the other hand, some took a more critical stance citing that the FEP was too time-consuming to produce and collected too much unnecessary information (FERA, 2013b). For example, as respondent (id: FJMNC3) notes succinctly:

> "I completed a FEP for a farm...where over 75% of the FEP was irrelevant to the plan that was finally agreed. Natural England knows what it wants to focus on – there is no point in wasting time mapping areas that are irrelevant to a future scheme."

Still, others claimed that the FEP was not always read in detail by Natural England project officers; did not properly consider the farm business, and was not used following approval – a view articulated by respondent (id: LDHK8D):

> "We get the impression that the FEP is not read in detail by many NE project officers, and that the end stewardship agreement is worked up by verbal discussion rather than by close reference

**Table 2**
Average time taken by respondents to complete Environmental Stewardship agreements (applications).

| ES Scheme | (% of Advisors, $n = 250$) | | | | | |
|---|---|---|---|---|---|---|
| | 1–3 months | 4–6 months | 7–9 months | 10–12 months | 1 year + | I don't know |
| ELS | 88.4 | 4.4 | 0.0 | 0.4 | 0.0 | 6.8 |
| OELS | 57.2 | 4.8 | 1.2 | 0.0 | 0.0 | 36.8 |
| U(O)ELS | 39.6 | 4.0 | 1.6 | 1.2 | 0.4 | 53.2 |
| HLS | 20.4 | 30.4 | 21.2 | 8.8 | 5.6 | 13.6 |

to the FEP – hence I rate the FEP as 'important', but not 'very important'."

To some extent these views leave a question mark over whether efforts to simplify FEP methodology and recording have been as successful as originally envisaged (Defra and Natural England, 2008).

Cost and time were identified as the most common principal constraints relating to the preparation and submission of Environmental Stewardship applications (Table 3). Administrative burdens magnify the transaction costs of HLSs, particularly due to labour-intensive activities such as the FEP. Past surveys of both ELS and UELS agreement holders highlighted that the bureaucracy and complexity of schemes are perceived as daunting and can reduce the number of potential applicants (Cross and Franks, 2007; CCRI, 2012; FERA, 2013a). Reducing scheme complexity and procedures is the most effective means of curtailing transaction costs and increasing AES uptake by farmers (Mettepenningen et al., 2009). In this survey, 62.5% of respondents 'somewhat agreed' or 'highly agreed' that the HLS process needed to be simplified, while a further 80.2% agreed that farmers and land managers perceived the process of applying for environmental stewardship (in particular HLS) as too time consuming and complicated. This resonates with requests to make future Rural Development Programme funding applications far simpler and manageable through, for example, improving available guidance and streamlining application processes and requirements (Defra, 2013).

#### 4.3.2. Advisor roles

Our analysis indicated that respondent interaction (i.e., communication) differed according to agreement type and the corresponding actor. Respondents noted that all Environmental Stewardship schemes involved significant client interaction. However, respondents indicated that ELS, OELS and U(O)ELS schemes involved less client interaction (64.8%–77.6% 'high' to 'very high') compared to HLS schemes (95.5% 'high' to 'very high').

In the context of a 'knowledge exchange encounter' (Ingram, 2008b) studies of advisor-farmer interactions have previously emphasised the power imbalance in that relationship, characterising the advisor as a prospective exploiter; however, following significant privatisation of advisory services farmer demand is potentially reframing that asymmetric power dynamic (Ingram, 2008b). Respondents suggested that interactions between themselves and their clients proceeded based on mutual decision-making (62.0%), or to a lesser extent according to their own requirements (27.0%). Advisors described their interactions with clients mainly in terms of client need (54.0%); with the frequency of interactions being mainly 'sufficient' (40.8%) and/or 'above average compared to other professionals' (28.8%).

The emerging narrative suggests that agreement preparation is not simply a series of box ticking exercises and procedures but also a social process. As Ingram (2008b:414) noted, with respect to the relational interaction between farmers and agronomists:

"...the practice the farmer implements is a negotiated or facilitated outcome between agronomists and farmer rather than a rigid prescriptive practice "'adopted'" by the farmer."

Reinforcing this view, most respondents (80.0%) described the process of agreement preparation as a negotiation between client needs and their expert advice, with clients being relatively flexible on the type of scheme (49.2%) and environmental objectives (56.1%) they would adopt. For example, as one advisor (id: D77SEQ) noted:

"Negotiation is the key to success – one needs to be able to understand the farm, the farmer and then the reasons for being invited and work out a scheme that will achieve success for both parties."

Indeed, the overwhelming majority of advisors (92.0%) indicated that clients demonstrated a high degree of openness towards their advice. This suggests that farmers are a relatively pragmatic group – open to being persuaded on a range of possible recommendations concerning the type and composition of the agreements they enter – and that in this respect advisors can have an important role in guiding farmer-decision making processes. For example, evidence from UELS agreement holders suggests that a fifth of their option uptake is a result of external advice (CCRI, 2012). Likewise, ELS agreement holders have previously stated that advice is:

"...very useful for both option choice and option management" (FERA, 2013a:5).

In comparison with their clients, the levels interaction respondents had with Natural England advisors were substantially lower for ELS, OELS and UELS schemes (8.4% to 11.7% very low to low) but remained similar for HLS (82.0% high to very high). The vast majority (92.7%) of advisors indicated that they knew they could contact Natural England for information and advice if and when required. Their reasons for doing so were many and varied (Table 4); however, thematic analysis indicated that they were commonly related to issues concerning: clarification and guidance on scheme options, appropriateness and suitability; Natural England requirements/expectations for the farm area and application-related issues, details and administrative checks (e.g. help, advice, specific codes, vendor numbers etc.). Overall, additional comments verified that observed differences in the levels of interaction respondents had with clients and Natural England reflected the underlying complexity of the Environmental Stewardship schemes.

### 4.4. Environmental stewardship performance

#### 4.4.1. Public goods: promoting environmental objectives in entry level stewardship

Delivering public goods implies a degree of spatial optimisation to generate the requisite magnitude and distribution of environmental benefits (Garrod et al., 2012). There has been widespread discussion regarding the effectiveness of ELS option uptake and management activities in relation to realizing environmental benefits and value for money (Defra and Natural England, 2008; Hodge and Reader, 2010; Jones et al., 2010). In particular, arguments for increased integration of options across the landscape have been proposed (Chaplin and Radley, 2010), with research suggesting that farmers would buy into collaborative AES (Emery and Franks, 2012; McKenzie et al., 2013).

**Table 3**
Common constraints (C) identified by respondents in relation to Environmental Stewardship application preparation and submission processes.

| Constraints (Emergent Themes) | C1 (%, $n=248$) | C2 (%, $n=211$) | C3 (%, $n=145$) | C4 (%, $n=76$) | C5 (%, $n=40$) |
|---|---|---|---|---|---|
| Cost (e.g. for clients) | 20.6 | 15.6 | 4.8 | 3.9 | 2.5 |
| Time (e.g. application preparation and submission) | 34.7 | 16.1 | 6.9 | 6.6 | 2.5 |
| Time and cost | 6.1 | 3.8 | 1.4 | 0.0 | 0.0 |
| Costs versus potential rewards of scheme participation | 3.2 | 1.9 | 2.1 | 3.9 | 0.0 |
| Costs associated with implementing scheme options | 0.0 | 4.3 | 3.5 | 6.6 | 2.5 |
| Suitability and alignment with current farming practices (e.g. extent to which farming practices may need to be altered) | 8.5 | 6.6 | 4.8 | 5.3 | 7.5 |
| Farmer preferences, decision-making and expectations of scheme benefits | 2.4 | 1.9 | 4.1 | 1.3 | 0.0 |
| Farmer willingness to engage in the application process and implement scheme requirements | 1.6 | 7.1 | 6.2 | 7.9 | 17.5 |
| Farmer understanding, knowledge and awareness of schemes | 0.4 | 2.4 | 4. | 2.6 | 2.5 |
| Scheme capacity to be effective and inherent limitations (e.g. environmental option choices and flexibility) | 2.4 | 7.6 | 11.7 | 14.5 | 10.0 |
| Scheme complexity (e.g. in preparation and implementation) | 2.4 | 4.7 | 14.5 | 10.5 | 10.0 |
| Mapping, visualisation tools, information procurement and surveying | 5.6 | 3.3 | 8.3 | 2.6 | 5.0 |
| Natural England | 2.8 | 8.0 | 8.9 | 7.9 | 10.0 |
| Farm limitations and suitability (e.g. size and features) | 3.6 | 3.8 | 2.8 | 13.2 | 0.0 |
| Bureaucracy (e.g. red tape) | 0.8 | 0.0 | 0.0 | 1.3 | 0.0 |
| Scheme funding availability (e.g. in relation to capital works) | 0.4 | 0.5 | 2.8 | 2.6 | 0.0 |
| Other | 4.0 | 9.0 | 8.9 | 7.9 | 27.5 |

**Table 4**
Common reasons (R) respondents identified for contacting Natural England during agreement preparation.

| Emergent Themes | R1 (%, $n=237$) | R2 (%, $n=201$) | R3 (%, $n=144$) | R4 (%, $n=59$) | R5 (%, $n=20$) |
|---|---|---|---|---|---|
| Clarification and guidance on scheme options, appropriateness and suitability | 23.2 | 16.4 | 13.2 | 8.5 | 20.0 |
| Target options, priorities and features for the local area | 6.3 | 6.0 | 2.8 | 1.7 | – |
| Mapping-related issues | 8.0 | 4.0 | 3.5 | 5.1 | – |
| Natural England requirements/expectations for the farm area | 12.7 | 6.5 | 2.8 | 6.8 | 5.0 |
| Permission, approval and success of submitted application | 3.8 | 2.0 | 2.1 | – | – |
| Application-related issues, details and administrative checks (e.g. help, advice, specific codes, vendor numbers etc.) | 10.5 | 7.0 | 4.9 | 10.2 | 10.0 |
| Farm-related features, characteristics and aspects for inclusion in applications | 9.3 | 4.5 | 5.6 | 1.7 | 5.0 |
| Information related to previous applications and current on-farm/neighbouring farm schemes in operation (i.e. practices, compatibility etc.) | 4.2 | 5.0 | 4.2 | – | – |
| Budgetary availability, flexibility and constraints | 2.1 | 2.5 | 4.2 | 1.7 | – |
| Clarification of scheme rules and regulations | 2.5 | 1.5 | 0.7 | 1.7 | – |
| FEP/FER/HER related matters | 2.5 | 4.0 | 8.3 | 3.4 | 5.0 |
| Time scale of application submission/deadlines | 1.7 | 3.5 | 5.6 | 6.8 | 5.0 |
| Time scale for management options | 0.4 | – | – | – | – |
| Time to meet clients | 0.4 | 0.5 | – | 1.7 | 5.0 |
| Information and discussions regarding designated sites | 1.3 | 3.0 | 1.4 | 5.1 | – |
| Software/technical issues | 0.4 | 0.5 | – | 1.7 | – |
| Landowner-related matters (e.g. interest, commitment etc.) | 0.4 | 2.0 | 4.9 | 5.1 | 5.0 |
| Eligibility of land for Stewardship schemes and options | 3.8 | 2.0 | 1.4 | – | – |
| Field data, measurements and information | 1.3 | 1.5 | 1.4 | 3.4 | – |

ELS schemes are designed to achieve five broad environmental objectives: wildlife conservation (WC); landscape quality & character (LQ & C—particularly in relation to water); protection of the historic environment (PHE); natural resource conservation (NRC, particularly in relation to soil) and climate mitigation and adaptation (CM & A). We asked respondents to identify the environmental objectives most frequently met by the agreements they have been involved with (Table 5). Clearly, there are some that appear to be being met more than others. This suggests differences in the way agreements fulfil specific objectives and provide a comprehensive range of environmental benefits (Radley, 2013).

For example, 94.0% of respondents indicated that most ELS schemes in which they have been involved fulfil WC objectives, whereas only 4. 8% identified CM & A as being similarly fulfilled. This trend is also observed at the regional scale. It appears most applications (48.0%) focus on WC, LQ & C and PHE or WC, LQ & C and NRC (27.6%) environmental objectives. This supports previous agreement holder surveys indicating that 'farmland wildlife', 'wildlife conservation benefits' and 'resource protection' were important environmental issues affecting agricultural land (FERA, 2013a). To some extent variations in meeting particular environmental objectives may be a reflection of the outcomes of directed funding streams. For example, significant investments (approximately

**Table 5**
Environmental objectives fulfilled by Environmental Stewardship agreements.

| Environmental objectives | Presence in stewardship application (%, $n=250$) | Commonly met environmental objectives | (%) |
|---|---|---|---|
| WC | 94.0 | WC, LQ & C, PHE | 48.0 |
| LQ & C | 87.2 | WC, LQ & C, NRC | 27.6 |
| PHE | 67.2 | WC, PHE, NRC | 11.2 |
| NRC | 48.8 | LQ & C, PHE, NRC | 4.0 |
| CM & A | 4.8 | – | – |

£200 million) have been channelled towards historic environment conservation activities since 2005 (Natural England, 2014). They may also be a consequence of sectoral variation in agreement and option uptake (Defra and Natural England, 2008).

It is certainly the case that most respondents (87.0%) regard their role as achieving the 'best' agreement for their client. What 'best' actually refers to needs further exploration; however, in this context there is the potential for farmer-advisor co-alignment: either to increase or decrease the environmental ambition of an agreement. One argument raised is that when advisors want to avoid losing the trust of farmers or negatively impacting farmer incomes they may focus on bolstering current on-farm agricultural practices (e.g., Sutherland et al., 2013). For instance, as respondent (id: 8RAV9H) stated:

> "I see my role as trying to fit the scheme with the farming practices/available labour/capabilities & experience of the applicant. My aim is to enhance them all, and to ensure the success of them all."

The majority of respondents (51.4%) stated that 50% or more of the applications they had been involved with included specific environmental objectives based on their priority status, implying that advisors strongly argued for the environmental component and/or that those farmers regarded this as important. As one ardent 'green' thinking advisor (id: TGGE35) commented:

> "I try to only work with those people that are truly engaged with the principles of Stewardship. If they are constantly trying to find ways out of doing what is necessary I explain that I can't help them and leave."

However, for a significant minority (48.59%) this was not the case, suggesting that advisors either failed to effectively promote and push the environmental argument or, that even if a forceful argument was presented; farmers considered other factors to be of greater bearing on their decision-making. A sentiment supported by respondent (id: 725VQ8) who acknowledge that:

> "It depends if you are tuned into each other's objectives. I do this with the aim of improving and promoting good environmentally sound farming practice – which has been in serious decline since the 80s. If my clients are similarly inclined, my advice is important and relevant. If they are not of the same opinion, my advice/persuasion falls on deaf ears and is of little importance."

Regarding the latter, although we suggested in Section 4.3.2 that advisors were well placed to influence farmer decision-making – given the level of openness to advice they purportedly demonstrated – respondents identified a range of other significant farm-related factors that strongly affected farmers' decision-making rationale to include/exclude specific management options. The most commonly identified reasons advisors noted were those connected to farm system compatibility. For example, environmental objectives are easy to implement (88.4%); is/are an extension of current farm practices (84.3%), do not significantly impact on the day to day farm routine (84.3%), provide a higher points value (67.1%) and requires few man hours (49.4%). Advisors seem to be indicating that farmers are predisposed towards selecting options that do not significantly influence their farm business (FERA, 2013a), bolstering the idea that the primary predictors of option uptake are agricultural related factors (Hodge and Reader, 2010). Moreover, it supports the generally articulated view of AES that there is a:

> "...disjuncture between the policy's supposedly overarching environmental rationale and its realisation in practice through the actions and behaviours of land managers" (Juntti and Potter, 2002:216).

On the other hand, 80.0% of respondents also agreed that in preparing ELS and HLS agreements they needed to balance both client and Natural England needs. However, overall, opinion was split as to whether a stewardship agreement reflected the preferences of their clients or the priorities of Natural England. Nevertheless, when viewed through the lens of gender and expertise differences did emerge. For example, a higher percentage of male respondents (46.3%) compared to female respondents (30.7%) agreed that agreements were more reflective of client preferences than Natural England. In fact; on this issue, the distribution of responses between male and female advisors was significantly different ($H(2) = 7.56$, $df = 1$, $p = 0.006$). However, when considering advisor expertise, those with wider experience of Environmental Stewardship schemes were more inclined to disagree with this position (44.7–54.3%) compared to those with less expertise (30.0–33.8%).

Importantly, 53.2% of respondents acknowledged that there was an inherent conflict between client needs and Natural England priorities, a pattern similarly observed if disaggregated by gender and expertise. This is significant, because it points toward an inherent tension in how agreements meet their statutory obligations whilst acknowledging that, to some degree, they must also co-align with farmer and land manager needs. Although it would require further investigation, it is conceivable that these various decision-making trade-offs may contribute to the skewed pattern of option uptake observed elsewhere (e.g., Boatman et al., 2007; Jones et al., 2010; Radley, 2013).

To an extent our results add weight to the contention that the voluntary nature of Environmental Stewardship schemes, and their option menus, predispose farmers to undertake only those environmental management activities that would have occurred in their absence (i.e., a lack of additionality); specifically, by subscribing to those practices that fit easily into existing farm activities – leading to the possibility of adverse selection in option choices where the envisaged level of environmental benefits cannot be guaranteed (Hodge and Reader, 2010). For example, research has found that:

> "...farmers thought that 61% of features in ELS option would be managed the same if they had not gone into ELS" (FERA, 2013a:9).

And furthermore, that between 21% and 52% of management work, in financial terms, would have occurred 'in the absence of the scheme' (Courtney et al., 2013).

#### 4.4.2. Alteration of agreements: the case of HLS

A profusion of advisory services stretching across public and private sectors presents both challenges and opportunities: a pluralistic resource of diverse competencies enriching advice and extending the 'agricultural knowledge system'; yet also providing an opportunity for fragmentation, duplication, and incoherence in policy and delivery; encouraging greater competition between service providers and leading to confusion amongst farmers (Juntti and Potter, 2002; Sutherland et al., 2013). How these play out in practice can significantly influence the environmental performance of agreements (Sutherland et al., 2013).

It is reasonable to posit that there are different points in the Environmental Stewardship process where the content of agreements can be revised. First, there are those opportunities that arise during agreement preparation, specifically, in relation to the dialogue between farmers, private advisors, and Natural England officers. Second, alterations can be made to applications post-submission when they are being reviewed by Natural England (here we are particularly referring to HLS applications). At this juncture, it is pos-

sible that agreements may be altered to favour Natural England's environmental agenda and priorities—potentially shifting the pre-submission content away from more farmer-centric interests.

With this in mind, we asked respondents with experience of HLS agreements (n = 212) to comment on the extent to which Natural England advisors made alterations to the environmental content of HLS applications between the original and final approved application. Although some respondents (17.9%) specified that Natural England advisor decisions did not lead to any alterations in environmental content, the majority of respondents indicated that the environmental management composition of applications was either 'somewhat different' (40.1%) or 'moderately different' (38.7%). Notably, from the standpoint of transparency, a majority of respondents (56.3%) declared that Natural England 'very often' or 'always' informed them about changes that had been made:

> "I have without exception found the Natural England advisors very helpful and communicative at all stages of the long process it takes to put an application into practice." (Respondent id: WSGZAM)

Listing reasons as to why Natural England advisors altered the environmental content of submitted HLS applications, respondents expressed a range of views with several themes emerging (Table 6). The most frequently cited themes related to changes in Natural England's environmental agenda (23.7%), financial and cost constraints (20.3%), and the calibre of Natural England advisors (11.6%).

It is possible, of course, that Natural England modifications to HLS applications do improve their environmental content:

> "I work very closely with Natural England and know advisors personally. Although they work to targets they seem to aim for the best 'wildlife' options overall." (Respondent id: HT2RJQ)

Furthermore, a previous assessment of 174HLS agreements indicated that they were generally 'well designed' with 80% of agreements deemed likely to be effective in achieving most outcomes: in each of these cases it is likely that there was considerable Natural England oversight in the delivery of these schemes (Mountford et al., 2013). Conversely, extensive prescriptive revisions to AES have been shown to produce 'excessive uniformity' in habitat management which can undermine biodiversity as well as negatively affect farmer participation (Radley, 2013). The impact on farmers may be potentially quite severe, as respondent (id: 2NUE5U) strongly argued:

> "Often the client has already committed to a huge expense to undertake the scheme that they feel they have to accommodate the changes in order to achieve a return. Many are bullied into the changes. This is ineffective as it doesn't take into account if the changes can be managed effectively which can lead to failure in the long term."

The majority of respondents (87.9%) expressed the opinion that they should be included in the discussions leading to changes in finalized HLS agreements. Similarly, 82.2% of respondents disagreed with the notion that it was appropriate for Natural England to make modifications to HLS applications without their input (Supporting Information Table S8). For some advisors involvement is a question of process and procedure:

> "If Natural England discuss with advisor then the advisor can understand the rationale and will be able to use advice on other applications. Sometimes the discussions with Natural England can lead to them reverting to original option." (Respondent id: 3US4XH)

Yet, for other respondents, it is about mitigating inefficiencies and the potential straining of relations:

> "I've had farmers very upset not understanding the changes and then creating a silly 3 way discussion where it is not easy to know exactly what has been said. It makes sense to have a proper open communication system. The farmer has employed me, why suddenly change to excluding the agent. This varies according to the NE officer." (Respondent id: TFEPJJ)

Nevertheless, Natural England is the statutory authority in charge of implementing Environmental Stewardship and as such oversees the final decisions regarding individual applications—they represent the legitimate institutional authority. It is interesting, therefore, that advisors should feel entitled to have a greater influence over Natural England decision-making. The reasons behind this require further investigation.

Linked to these comments, 60.8% of respondents viewed Natural England's modifications of HLS agreements as not made in the interests of their clients. In fact, 68.8% of respondents thought that revisions to HLS applications were made to favour Natural England interests (Supporting information Table S8). This point was forcefully conveyed by one advisor (id: MLZEYT) who commented that:

> "In my experience they are ALWAYS made to save money and not in the best interests of the client or the environment and, if truth be known, not in the best interests of Natural England either in the long term."

Equally, however, some advisors noted the difficult position Natural England advisors faced:

> "Advisors are in the awkward position of trying to achieve Government objectives, habitat and species protection and encouraging land owners to enter the schemes. Advisors work hard to get as much for the money as possible and farmers want as much money as possible." (Respondent id: QK59MK)

#### 4.4.3. *Payments, costs and income*

Financial incentives are a central tool in steering farmers' private interests to provide particular public goods, but to achieve their desired outcome payment levels must account for the opportunity and transaction costs that farmers might incur on entering voluntary schemes (Cooper et al., 2009). Stewardship schemes provide different standard payment amounts. Little consensus emerged in our survey regarding respondents' perspectives on whether clients were satisfied with ELS payments (Supporting information Table S9). There was a sense from some open-ended responses that farmer expectations remain too high, with an attitude of 'maximum gain and minimal cost/impact'. For example, as one advisor remarked:

> "They [i.e. farmers] would always be happier with more!" (Respondent id: 7KMC97)

Other advisors observed that payments were sufficient so long as other farming business opportunities were not compromised:

> "The £30/ha for ELS is ok provided there is not serious competition for more productive uses." (Respondent id: 4DQMRP)

On the whole there was more general agreement among advisors that clients were satisfied with the standard payment amounts for OELS, UELS and HLS (Supporting information Table S9). Having said that there were also clear differences of opinion, with one farm advisor suggesting that farmers might be overpaid:

> "HLS payments are too high for the land based options in the uplands. Extremely large annual payments for delivering very little benefit." (Respondent id: LGQECT)

**Table 6**
Emergent themes describing the possible reasons (R) for HLS application modifications.

| Emergent themes | R1(%, $n$ = 187) | R2(%, $n$ = 116) | R3(%, $n$ = 64) | R4(%, $n$ = 13) | Importance Across Reasons (%) |
|---|---|---|---|---|---|
| Changes in Natural England targets and priorities for HLS | 26.7 | 22.4 | 21.8 | 0.0 | 23.7 |
| Budgetary/cost/financial constraints | 22.9 | 18.9 | 12.5 | 30.8 | 20.3 |
| Natural England advisor decision-making, viewpoint and knowledge | 9.6 | 14.7 | 12.5 | 7.7 | 11.6 |
| Other | 8.7 | 12.9 | 14.1 | 15.4 | 11.1 |
| Environmental option suitability | 6.9 | 2.6 | 7.8 | 0.0 | 5.5 |
| Farmers changed their minds | 2.7 | 4.3 | 9.4 | 0.0 | 4.2 |
| Conflict between HLS options and other scheme objectives | 4.3 | 3.4 | 4.7 | 0.0 | 3.9 |
| Farmer and NE negotiated changes | 2.1 | 5.2 | 4.7 | 7.7 | 3.7 |
| HLS prescriptions too burdensome | 1.6 | 5.2 | 4.7 | 15.4 | 3.7 |
| Too little evidence to justify & differences of opinion concerning option inclusion | 1.6 | 4.3 | 4.7 | 7.7 | 3.2 |
| Environmental option eligibility | 4.2 | 0.9 | 0.0 | 0.0 | 2.4 |
| Application mistakes | 2.1 | 2.6 | 1.6 | 0.0 | 2.1 |
| Rarely are changes/adjustments made prior to submission | 4.3 | 0.0 | 0.0 | 0.0 | 2.1 |
| Too many similar options included in HLS applications | 1.6 | 0.9 | 0.0 | 7.7 | 1.3 |
| Inclusion of too many options (overly ambitious application) | 0.5 | 1.7 | 1.6 | 7.7 | 1.3 |

Whilst in stark contrast, one respondent commented that the present level of HLS payments questions the scheme's viability:

> "HLS payments in recent years have been 'trimmed' down to the state that with some schemes the annual return has been so low as to make the scheme non-viable for the farmers." (Respondent id: 7KDH6Y)

However, by and large, with regards to payment satisfaction our results seem to accord with the 66% of UELS agreement holders that considered scheme payments to be 'generous' or 'sufficient' (CCRI, 2012). Ultimately, as respondent (id: P8XVWR) indicates:

> "If they [i.e. farmers] were not happy they would not enter an agreement."

Some studies claim farmers view Environmental Stewardship as an income top-up and stabilizer (a form of income security), particularly in instances where the farm business is vulnerable (Mills, 2012). In others, it has been argued that ELS entry may incur modest costs rather than adding to income (Udagawa et al., 2014). Our results suggest that respondents straddle both of these perspectives, as advisors were generally split over whether payments afforded their clients an adequate income stream or not (Supporting information Table S9), although one advisor did comment that:

> "Some. . .farmers look on stewardship payments as income, but I do point out to them that they are required to work for their money – it's not just a free hand-out." (Respondent id: LDHK8D)

However, when specifically reflecting upon the connection between payments and costs (e.g., labour and materials), 56.6% of advisors suggested that clients considered payments insufficient to adequately cover changing input costs versus only 21.1% that thought the contrary. This view was echoed in open-ended comments, with some advisors stating payments did not reflect recent 'escalations in commodity prices' or 'cost increases due to inflation', for example:

> "Payments should be index linked. A payment of £30/ha might have been acceptable 5 years ago, but costs have gone up a lot yet scheme incomes have remained the same." (Respondent id: 4A29YS)

Others emphasised that ELS payments were 'not cost effective for arable farmers' and that 'crop values and greening measures will make it harder to encourage renewals', as one advisor outlined:

> "Payments are now seen as too low particularly in intensive arable areas where a typical comment is that 'it's hardly worth the hassle'." (Respondent id: 6EATTB)

This is supported by evidence indicating that cereal incomes may be unduly affected by entering ELS schemes (Udagawa et al., 2014), as a respondent noted:

> "The £30/ha on ELS was set at a time of low cereal prices and was to compensate for income forgone – in light of much higher prices for crops this aspect needs re-visiting." (Respondent id: 4NGVTB)

While this may be the case other studies have suggested that the percentage of farmers who regard payments as sufficient to cover their costs has grown since 2005 (FERA, 2013a).

Adopting a regional perspective revealed statistically significant heterogeneities in respondents' views regarding scheme payment levels as well as income and input costs (Supporting information Table S10, Figs. S1 and S2). These regional patterns likely reflect individual respondent experiences of specific farm-level socio-economic characteristics as well as the distinctive rural and wider economic circumstances encountered in these locations (see Farm Business Survey).[2] The implication seems to be that payment levels ought to account for these differences, and thus better reflect regional level conditions and farm business circumstances. Overall, advisors' comments suggest that payment levels are a real issue for farmers, in particular, whether the costs incurred actually make entry level schemes unsustainable in the long-term (Udagawa et al., 2014).

#### 4.4.4. *Compliance: penalties and sanctions*

The successful provision of public goods relies on individuals complying with contractual arrangements: this requires agreements to have monitoring and conditionality elements (Hejnowicz et al., 2014). We queried respondents regarding elements of conditionality (i.e., sanctions and penalties) and found that, although a majority, only 51.4% agreed that their clients understood the extent of the penalties that may be applied should they fail to fully comply with agreements (Supporting information Table S9). Notably, a sizeable minority of advisors (33.9%) thought the opposite.

Additional commentary raised a number of issues; for example, some advisors alleged that farmers and land managers, although aware penalties could be applied in cases of non-compliance, were often ignorant of the scope sanctions could take: partly as a consequence of the rules being over-complicated and poorly explained:

> "Farmers are often oblivious to the penalties that would be applied for non-compliance. However, there are very few which would knowingly flout the rules and often farmers are found to

[2] http://www.farmbusinesssurvey.co.uk/regional/.

be non-compliant only as a result of them not being aware of all of the requirements of the complicated scheme (particularly in the case of HLS)." (Respondent id: YMEVCN)

On closer inspection this observation does seem rather puzzling, surely the expectation is that part of the service advisors provide includes spelling out the likely repercussions of non-compliance? If an explanatory deficit exists then surely this rests, in part, on the shoulders of farm advisors themselves? Certainly some advisors made the effort to inform their clients of non-compliance related issues but hinted at the fact that, in their opinion, 'not. . .many other advisors do this' and also with regards to farmers 'it's amazing how quickly some of them forget!'.

Picking up on the latter point, ignorance and deliberate avoidance have been identified as issues for farmers failing to meet agreement prescriptions, a reality that would seem to support the contention that agreement holders ought to have better access to training in order for them to more closely adhere to agreement conditions (FERA, 2013a). The provision of training has been shown to positively influence farmer behaviour and management activities (Jones et al., 2013).

Training, however, may not be sufficient because, as some respondents disclosed, a number of their clients took a fairly relaxed, even recalcitrant, stance towards compliance issues due to poor monitoring and enforcement:

"Past monitoring of schemes has been poor – I think some farmers believe they are unlikely to be caught breaching ELS/HLS options and may therefore continue existing practices (e.g., supplementary feeding, applying fertilizer) where the options actually forbid this." (Respondent id: QKUYGC)

At the opposite end of the spectrum, however, a number of advisors commented that punitive sanctions actually dissuaded individuals from entering schemes as well as affecting the content of agreements:

"The issue of the current punitive level of sanctions has put off some farmers from going into schemes and has certainly reduced an agreements 'ambition'." (Respondent id: E9DAB2)

Indeed, some respondents suggested that famers regarded sanctions and penalties as the thin-end-of-the-wedge:

"Penalties imposed as a result of inspection are often seen as pedantic and penny pinching for what appears to be minor infringements." (Respondent id: 6EATTB)

Others went further, proposing that sanctions and penalties were inappropriate, poorly formulated and incorrectly realised:

"The main problems with the sanctions and penalties are that they come across as being draconian and in many cases incorrect and based on incorrect information either supplied by the inspector or interpreted by the administration staff." (Respondent id: 97H33F)

and furthermore,

"Rules about penalties are over-complicated and poorly explained. No allowance for intent – issues with extenuating or mitigating circumstances are punished as severely as deliberate non-compliance." (Respondent id: 36E4W9)

Reflecting this view, only 19.9% of respondents agreed that their clients regarded such sanctions as reasonable. Clearly, in the view of advisors, farmers regard the potential sanctions imposed by Natural England as disproportionate, with some suggesting that the fault lies, in part, in the 'uncertainty' and 'inconsistency' with which Natural England tackle these issues.

Perhaps one avenue to help address these compliance issues would be to adopt performance-based payment schemes: here payments are directly linked to the maximization of environmental benefits (Schomers and Matzdorf, 2013). Examples of agricultural results-based payment programmes throughout Europe indicate that they can be successful in generating beneficial ecological, economic and social outcomes (Burton and Schwarz, 2013), and research in England also suggests that payment by results is positively perceived by farmers (Schroeder et al., 2013).

### 4.5. Moving forwards

A new round of CAP reforms (2014–2020) has been introduced to provide a more streamlined, targeted and greener approach to agricultural production and the rural environment (European Commission, 2014). The degree of inter-pillar transfer from Pillar 1 to Pillar 2 in England, as a consequence, is set to increase from 9% to 15% over the next six years; and Defra has committed to allocate 87% of rural development funds to the environment (Defra, 2014; Natural England, 2014). These revisions will see Environmental Stewardship programmes eventually phased out and replaced by the New Environmental Land Management Scheme or NELMS for short (Natural England 2013). Although NELMS will be implemented in early 2016, current Environmental Stewardship agreement holders will still be delivering management under the 'older' system. The opportunity therefore exists for further suggestions for refinements to feed into the design and operationalization of NELMS based on lessons learned under the Environmental Stewardship programme.

Respondents were allowed to put forward four recommendations that could enhance Environmental Stewardship uptake and implementation (Table 7). Many recommendations were suggested and thematic analysis identified several broad themes, the most common of which centred on: reorganising Environmental Stewardship delivery (22.5%); simplifying scheme processes and procedures (19.5%); providing more information regarding environmental option management and implementation (14.3%), and improving the targeting of schemes (9.6%). Indeed, the views of respondents also echo those of Lastra-Bravo et al. (2015) who highlight the importance of 'institutional design' and 'stable policy' for aiding farmer engagement with, and adoption of, future agri-environmental schemes.

Overall, recommendations provided by respondents connected with the themes central to the NEMLS programme (e.g., 'delivering outcomes at a landscape scale'; 'a participative and collaborative approach'; 'outcome focused performance assessment'; 'flexible and adaptable'; 'locally tailored advice and training'; and 'simplification'—see NELMS Project, 2013), as well as reflecting research focusing on the design principles of future agri-environment schemes (FERA, 2013b). Respondent suggestions also aligned with those expressed in recent Defra consultations on CAP reform (Defra, 2014), which included the need to address 'the risk of complexity' and the importance of 'targeting as a means to direct option choice'.

## 5. Conclusions

Our survey has provided an important exploratory assessment of the English experience of Environmental Stewardship viewed through the lens of independent farm advisors: the views of whom are under-represented in the existing literature. In this regard, we have both strengthened and expanded upon the current literature concerning AES, and Environmental Stewardship in particular, by highlighting a broad range of farm advisor views that have not previously been, in this format at least, addressed or assessed.

**Table 7**
Recommendations (R) for improvements in Environmental Stewardship delivery and implementation.

| Emergent themes | R1(%, $n = 168$) | R2(%, $n = 92$) | R3(%, $n = 56$) | R4(%, $n = 27$) | Overall popularity (%) |
|---|---|---|---|---|---|
| Reorganization of Environmental Stewardship delivery (e.g. alternative ways to improve on-the-farm provision) | 25.6 | 16.3 | 28.6 | 11.1 | 22.5 |
| Simplification of Environmental Stewardship processes (e.g. streamline HLS application requirements) | 26.2 | 17.4 | 7.1 | 11.1 | 19.5 |
| Environmental Stewardship scheme options (e.g. degree of flexibility in option implementation) | 10.1 | 21.7 | 17.9 | 7.4 | 14.3 |
| Targeting Environmental Stewardship (e.g. tailoring to meet local environmental needs) | 8.3 | 13.0 | 8.9 | 7.4 | 9.6 |
| Natural England and Natural England Advisors (e.g. knowledge; interaction with farmers) | 8.9 | 9.8 | 3.6 | 11.1 | 8.5 |
| Environmental Stewardship payments (e.g. reassess payments to reflect environmental option requirements and changing labour and input costs) | 9.5 | 6.5 | 3.6 | 0.0 | 7.0 |
| Other | 5.4 | 4.4 | 7.1 | 18.5 | 6.4 |
| Consultation, dialogue and support (e.g. contact with industry; ES support provision for farmers) | 4.2 | 2.2 | 5.4 | 11.1 | 4.4 |
| Agent/advisor training (e.g. ensuring agents are suitability qualified and knowledgeable) | 0.6 | 2.2 | 1.8 | 14.8 | 2.3 |
| Mapping (e.g. improve online mapping tools) | 0.6 | 3.3 | 1.8 | 3.7 | 1.8 |
| Farmer focused (e.g. consideration of farmer viewpoints and operational constraints) | 0.0 | 0.0 | 8.9 | 3.7 | 1.8 |
| Environmental Stewardship scheme reinvention (e.g. establishing and dissolving schemes too frequently) | 0.6 | 0.0 | 3.6 | 0.0 | 0.9 |
| Farmer knowledge (e.g. improving knowledge of ES scheme management) | 0.0 | 2.2 | 0.0 | 0.0 | 0.6 |
| Scheme complementarity (e.g. reduce conflicts between different but co-implemented/managed environmental schemes) | 0.0 | 1.1 | 1.8 | 0.0 | 0.6 |

Our findings indicate that farm advisors exhibit a wide range of expertise and experience, and that in some cases regionality, expertise and gender can play a part in influencing farm advisor perspectives and experience of Environmental Stewardship schemes. We have also shed some light on the facilitating role farm advisor advice plays in the preparation of Environmental Stewardship agreements, and shown that farm advisors regard what we term the 'knowledge-exchange encounter' as a crucial aspect of this facilitative function.

Initial findings suggest that farm advisors face a difficult balancing act: preparing agreements based around the needs of their clients on the one hand, whilst on the other, ensuring submitted agreements are not at odds with Natural England requirements. In the view of most respondents, there is an inherent tension between farmer and Natural England objectives. This would seem to connect to the finding that, in the eyes of respondents, although farmers display a broad range of extrinsic and intrinsic motivations for engaging in Environmental Stewardship agreements, they are primarily motivated by financially-oriented reasons. And, in addition, they demonstrate a proclivity to make decisions about the environmental management content of agreements based on how closely this aligns with current on-farm practices and the farm business more generally.

Equally, given that famers respect, and are open to, the advice they externally contract, farm advisors may have a decisive role in guiding farmer decision-making processes. Advisors, in this sense, potentially occupy an influential 'soft power' position. This has the prospect of going in one of two directions, either: advisors can encourage farmers to undertake environmentally ambitious agreements that build on intrinsic 'green' motivations or, taking the opposite stance, draw on farmers' extrinsic motivations and produce agreements requiring minimal changes to on-farm practices primarily benefiting existing farm business arrangements.

Allied to these discussions are the observations that many respondents noted, namely, with particular reference to the HLS tier of Environmental Stewardship, that their clients found HLS application processes too burdensome and overly complex, a view they also concurred with, pointing to the need to simplify and streamline the system. Respondents suggested that the complexity of programme arrangements and processes may function as a barrier for farmers and land managers: potentially acting as a contributing factor to decrease the environmental ambition of agreements and increase the likelihood that the management practices incorporated into agreements mirror those of the 'farm system'. Perhaps it is the very labour intensive nature of producing an HLS agreement that provides one explanatory factor for the observation that respondents felt they ought (and were entitled) to be involved in the HLS revision process, a process in which they have no legitimate authority to intervene.

Overall, the narrative we have presented suggests that the knowledge-exchange encounter is not a simple straightforward interaction. Rather, advisers' opinions and comments suggest that there are often important tensions between the goals and agendas of the principal agents involved in preparing, implementing and delivering Environmental Stewardship.

In addition, our survey has also highlighted a feeling among advisors that, for farmers, scheme payments present a real issue, particularly because management interventions can have a considerable impact on overall farm income and; furthermore, may not adequately account for all the costs farmers incur and appropriately reflect regional socio-economic differences. Farm advisors also indicated, and to some extent this may be linked to the issues of scheme complexity we have previously discussed, that there are challenges associated with matters of scheme compliance and sanctions. Among respondents there was a general feeling that a significant minority of their clients were not fully aware of scheme-related penalties and sanctions, and in some cases adopted a fairly relaxed stance towards non-compliance. Such matters pose real issues for how enforcement works and the environmental management effectiveness of schemes, but also, raise important issues regarding proper informed consent (i.e., that agreement holders should be fully informed about, and understand, their contractual obligations at the outset of the process).

Looking ahead, to ensure the success of future AES programmes, teasing out the issues we have started to shed light on in this paper will be necessary, in particular: focusing in more depth on the relationships and tensions existing between farmers, farm advisors and Natural England. This would seem to be the most fertile ground for uncovering those factors determining the overall content, implementation and performance of AES agreements. Ultimately, if NELMS are to fruitfully replace and build on the successes of Environmental Stewardship, as well as avoid any of their pitfalls,

then the issues raised by farm advisors in this survey will be important food for thought in developing effective schemes that work in practice. Specifically, by acknowledging the importance of the different agendas and dialogues occurring between farmers, private advisors and Natural England; ensuring that participation and environmental ambition pays and contracts are properly enforced; and that the operation and implementation of schemes is simple, straightforward, easy to put into practice, accommodates farm production and does not alienate potential participants.

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## Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.landusepol.2016.04.005.

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