DECLARATION OF OWN WORK

I declare that this thesis

“The Land Manager Perspective of EU Agri-Environment Schemes: A Comparison of the Scientific and Media Literature”

is entirely my own work and that where material could be construed as the work of others, it is fully cited and referenced, and/or with appropriate acknowledgement given.

Signed.........................................................................................

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## CONTENTS:
The Land Manager Perspective of EU Agri-Environment Schemes: What does the scientific literature suggest and does the media accurately represent this view?

Declaration of Own Work........................................................................................................ ii

List of Tables and Figures.......................................................................................................... v

List of Acronyms........................................................................................................................ vi

Abstract...................................................................................................................................... vii

Acknowledgements.................................................................................................................... viii

1 Introduction.............................................................................................................................. 1
   1.1 Aim and objectives................................................................................................................. 5

2 Background............................................................................................................................... 7
   2.1 Development and History of EU Agri-environment Schemes............................................. 7
   2.2 Structure of Current EU Agri-environment Schemes......................................................... 9
   2.3 Effectiveness of EU Agri-environment Schemes............................................................... 10
   2.4 Farmers Attitudes Towards Agri-environment Schemes.................................................. 14
   2.5 Media Literature Searched................................................................................................. 16

3 Methodology............................................................................................................................ 17
   3.1 Conceptual and Methodological Frameworks..................................................................... 17
   3.2 Scientific Literature and Media Searches.......................................................................... 18
      3.2.1 Scientific Literature....................................................................................................... 18
      3.2.2 Media Literature........................................................................................................... 19
   3.3 Online Survey..................................................................................................................... 20
   3.4 Data Comparison Using Yoshikoder Program................................................................... 20

4 Results..................................................................................................................................... 22
   4.1 Scientific Literature and Media Content Analysis............................................................. 22
      4.1.1 Scientific Literature Analysis...................................................................................... 23
4.1.2 Media Analysis Results........................................................................................................30
4.2 Online Survey Results........................................................................................................33
5 Discussion..................................................................................................................................34
5.1 Comparison of the Scientific and Media Literature.........................................................34
  5.1.1 Scientific Literature.........................................................................................................35
  5.1.2 Implications of the Media Literature...........................................................................36
5.2 Online Survey........................................................................................................................39
5.3 Geographical Location..........................................................................................................40
5.4 Farming System and Level of Agri-environment Management......................................42
5.5 Time Frame..........................................................................................................................43
5.6 Where Can Improvements Be Made?..............................................................................44
6 References..................................................................................................................................46
7 Appendices.................................................................................................................................51
  Appendix 1. Main search string used for the scientific literature review..........................51
  Appendix 2. Variations to the main search string.................................................................51
  Appendix 3. Search string used for the media literature database Factiva.........................52
  Appendix 4. Search string used for the media literature database Factiva.........................52
  Appendix 5. Inclusion criteria for relevant science and media articles.............................54
  Appendix 6. Media literature sources searched for relevant articles, within the Factiva database..............................................................................................................................54
  Appendix 7. Agri-environment Programme Effectiveness Online Survey..........................55
  Appendix 8. Yoshikoder Frame.............................................................................................63
LIST OF TABLES AND FIGURES

Figure 2.3.1 Theory of Planned Behaviour (from Ajzen, 1991).............................................. 14

Table 4.1.1 Positive and negative word count for science and media literature.......... 22
Table 4.1.1.1 Influence, in scientific literature, of different levels of agri-environmental management upon use of words associated with a positive or negative view.......... 23
Table 4.1.1.2 Influence of different AES upon positive or negative word use within scientific literature........................................................................................................... 24

Table 4.1.1.3 Positive and negative word count for scientific literature data from different countries .......................................................................................................................... 25
Table 4.1.1.4 Positive and negative word counts for data collated from scientific studies according to the level of administration used within the study......................... 26
Table 4.1.1.5 Positive and negative word count, within science literature, according to farming system......................................................................................................................... 26
Table 4.1.1.6 Positive and negative word count, within the scientific literature data, according to experimental accuracy of study................................................................. 28
Table 4.1.1.7 Positive and negative word count according to time period within which scientific research was carried out......................................................................................... 28
Table 4.1.1.8 Positive and negative word count according to scientific journal type.... 29
Table 4.1.2.1 Positive or negative word count according to whether the media literature focus was upon the United Kingdom as a whole or its respective nations (Scotland, England, Wales and Northern Ireland)...................................................................................... 31

Table 4.1.2.2 Positive and negative word count according to nation............................ 31
Table 4.1.2.3 Influence of different levels of agri-environmental management upon positive and negative word use in media literature............................................................ 32
Table 4.1.2.4 Influence of farming system upon use of words associated with a positive or negative attitude in media literature........................................................................................ 32
Table 4.1.2.5 Positive and negative word count according to media journal................. 33
LIST OF ACRONYMS

AEM- Agri-environment measures
AEP- Agri-environment Programme
AES- Agri-environment Schemes
CAP- Common Agricultural Policy
CEE- Collaboration for Environmental Evidence
CSS- Countryside Stewardship Scheme
EC- European Commission
EU- European Union
GATT- General Agreement on Tariffs and Trade
PLC- Private Land Conservation
TPB- Theory of Planned Behaviour
UK- United Kingdom
VFI- Volunteer Functions Inventory
ABSTRACT

Agri-environment schemes (AES) are policies implemented under the rural development arm of the Common Agriculture Policy of the European Union. Designed to address the environmental impacts of modern agricultural technologies they incorporate management options that land managers can voluntarily choose to implement in return for financial compensation. However it is frequently suggested within the scientific literature that the policies are designed without a proper understanding of land managers’ attitudes towards AES. This project therefore reviews the scientific literature in order to determine land managers’ attitudes towards AES. A second element of the project was to review the way in which land manager attitudes are portrayed within the media literature and to determine whether there is any disparity between media and science literature. This is important as it can influence both consumer perceptions of AES and the attitudes of land managers themselves. The conclusion of the study is that while both media and science literature generally indicate a positive land manager attitude, the huge complexity in land manager attitudes indicates the need to understand attitudinal patterns according to various influential variables such as geographical location which the study also attempts to do here.
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CHAPTER 1: INTRODUCTION

Emerging from the post-war era of agricultural intensification, conservation management actions for mitigating the impacts of modern agriculture upon European landscapes and wildlife were urgently required (Burgess et al., 2000). This set the foundation for the development of present-day agri-environment schemes within the European Union (Burgess et al., 2000). Greater productivity was driven by the ‘Green Revolution’ whereby agricultural policies provided high prices for produce (Piorr, 2003). Unfortunately, this led to a general increase in agricultural intensification, as well as the use of a larger quantity of inputs such as pesticides or fertilizers (Piorr, 2003). The result was detrimental effects to the environment and wildlife including, as examples, natural resource pollution and the degradation of ecosystem services (Piorr, 2003).

Agri-environment schemes (AES) form part of the rural development arm of the Common Agricultural Policy (CAP) of the European Union (EU) (Gay et al., 2005) and, aim to address the issues that resulted from these early days of intensification by encouraging land managers to implement farming practices that are beneficial for the environment (Kleijn and Sutherland, 2006). This is done through the provision of subsidies that act as an incentive for a land manager to participate within an agri-environment scheme (Kleijn and Sutherland, 2006). Management options within European AES comprise a large range of measures, including cultivating field margins or green cover crops, reducing pesticide and fertilizer use and, preventing the pollution of groundwater through well-managed crop rotations (Piorr, 2003).

While EU Member States are obliged to run AES as part of their rural development programmes, participating in a scheme is voluntary for land managers (Gay et al., 2005). With each Member State designing agri-environment programmes according to their individual priorities, there is a large diversity of schemes across the EU (Gay et al., 2005). These schemes, while having the overall aim of endeavouring to solve pressures on the environment resulting from agricultural activities, vary in their individual objectives (Gay et al., 2005). A couple of examples of the most common objectives
include reducing the use of inputs, such as pesticides, protecting and managing biodiversity and, promoting extensification of agricultural practices (Gay et al., 2005).

There is debate however, as to how effective EU agri-environment schemes have been at meeting their environmental aims. Studies have indicated very mixed outcomes in terms of the ecological benefits of agri-environment, with some studies demonstrating positive results in terms of biodiversity, while others indicate no effect or even a negative outcome (Kleijn and Sutherland, 2003). In addition to determining the success of AES for meeting environmental and ecological objectives, effectiveness also incorporates other factors. De Snoo et al. (2012) found that the majority of research has concentrated upon the outcome of AES’s from an ecological point of view, when social aspects should also be included, and in particular a consideration of the land managers who are directly involved in the implementation of schemes.

It is important to consider whether land managers believe that AES are effective for a number of reasons. Burgess et al. (2003) suggest that when it comes to providing information and an understanding of conservation management within agricultural landscapes, the conservationist is the one who is listened to, with one issue being how to encourage land managers to participate in schemes, thus resulting in the opinions of the latter tending to be overlooked. Land managers may not view scientists’ advice as being the right approach and in fact, thanks to their local knowledge of nature within agricultural land, will often dispute the management options suggested by conservationists (Burgess et al., 2003).

A better understanding of whether land managers view AES as effective or not, where they consider successes to be and, whether there are elements that they believe could be improved, would therefore allow this knowledge to be used in conjunction with that of conservationists, thus permitting agri-environmental policies to be designed better in alignment with the views of the multiple actors involved. Both de Snoo et al. (2013) and Carey et al. (2005), indicate that for agri-environment schemes to be successful over the long-term, they must institute a fully supportive, positive attitude towards conservation in the land managers involved. The adoption of innovative conservation practices by land managers will not occur if the practice does not
contribute towards achieving their own personal goals for their land (Pannell et al., 2006). This is linked to how the land managers view the environment and what they hope to achieve from it. Land manager goals, which include broad components such as financial security and social acceptance can be met through more specific objectives including, achieving farm survival and growth, expanding the business for successors and, being respected within the agricultural community (Pannell et al., 2006).

Subsequently, land managers view the environment in terms of how they can achieve these objectives and broader goals and, only when conservation innovations continue to allow goal advancement, will land managers consider adopting them (Pannell et al., 2006).

Consequently, for the agricultural community, effectiveness may involve not only biodiversity benefits but also how well a scheme fits in with other elements including farm management programmes and local values (Pannell et al., 2006). The importance of whether land managers view agri-environment schemes as effective can be considered in light of social theories such as the Theory of Planned Behaviour (TPB), which provides a conceptual framework proposed by Ajzen (1991). The theory implies that salient beliefs determine an individuals’ intentions and behaviour and describes three types of salient belief; behavioural beliefs, normative beliefs and control beliefs (Ajzen, 1991). These salient beliefs respectively influence attitudes towards and provide the basis for subjective norms and perceived behavioural control related to a particular behaviour (Ajzen, 1991). These three components lie within the TPB conceptual framework and influence an individual’s intentions towards a particular behaviour (Ajzen, 1991). These intentions, in conjunction with the level of perceived behavioural control, which ultimately describes the opportunities and resources the individual believes they have for achieving the behaviour, thus determine whether an individual performs the behaviour in question or not (Ajzen, 1991).

Taking the theory back to the study, identifying a land manager’s opinions and attitudes as to the effectiveness of AES can lead to a greater understanding of whether their attitudes, their perceived behavioural control and, the subjective norm that they are surrounded by, are conducive towards a positive intention of, as an example, joining a particular AES, and whether this intention, in turn linked to an individual land
manager’s perceived behavioural control, is enough to carry out the specific behaviour. For example, if a land manager believes that an AES does not provide adequate funding for implementing a specific management option, their perceived behavioural control may not be high enough to lead to the behaviour of implementing the management option in question. The components that make up this TPB framework, along with the way in which the theory is related to a consideration of land managers’ attitudes towards AES, will be expanded upon in the following chapter. An additional social theory, which considers a Functional Approach to Motivation (Clary et al., 1998) will also be introduced.

In addition to determining land managers’ attitudes towards AES across the EU as a whole, identifying land managers’ attitudes towards AES effectiveness and categorising these according to variables such as geographical location or the type of farming system in which a particular AES is implemented, could identify particular areas where schemes are viewed as especially effective. This may potentially indicate areas where policy has been designed more in keeping with the needs and preferences of land managers and, lessons learnt from the success of agri-environmental management in these areas could be applied elsewhere.

In light of the importance of understanding land managers’ attitudes towards the effectiveness of AES, this project primarily examines land managers’ perceptions of the effectiveness of AES within the EU. This is particularly important considering the most recent CAP reform has just taken place, with agreements being reached in 2013, and it would be useful to observe whether any elements that land managers’ believe could have been improved, have been addressed and resolved for the new CAP 2014-2020 (EC, 2013). The term land manager used within this project includes anybody who participates in agricultural or other rural land management activities, including farmers, gamekeepers, and so on, regardless of whether they are either a tenant or owner of the land.

A second aspect of the study will observe how the media portrays land managers’ attitudes towards the effectiveness of agri-environment schemes. This is important as agri-environment schemes are partially funded by local or national governments,
which is taxpayers’ money, and so the schemes need to be shown to be providing a good return-on-investment (Carey et al., 2003). Moreover, consumers are increasingly demanding products that have been produced in sustainable ways that minimise harm to the environment (Kempa, 2013). Consumers should therefore be shown an accurate picture of whether this is happening or not.

Furthermore, the power of the media for influencing readers is described by Van Dijk (1996). The study suggests that each time an individual read a media news story, they create a model of the event based on what they have understood to have happened (Van Dijk, 1996). This model may also include their own personal opinions (Van Dijk, 1996). However, the news media has the power to manipulate the structure of these models, for example through altering the prominence of particular information to a greater or lesser extent (Van Dijk, 1996). This may also apply to news stories concerning AES and it would be interesting to discover whether the media is manipulating the construction of “models” by the general public with regards to the success of agri-environmental policy.

In order to study the two elements described, both land managers’ attitudes and beliefs and, whether these are portrayed accurately within the media, this project involved a structured review of the scientific and media literature, indicating EU land managers’ opinions on the effectiveness of AES. Deciphering whether land managers see AES as being effective relates to the overall success of the scheme, for instance through the fact that a positive attitude toward a particular AES may influence a land manager’s intention to participate or not, a concept encompassed within the TPB (Ajzen, 1991). Should there be a disparity between the scientific research which has studied land managers’ attitudes, and the way in which land manager attitudes are portrayed in the media, consumers, and the public as a whole, may not be receiving an accurate picture of what land managers actually believe.

1.1 AIM AND OBJECTIVES

The aim of this project is to identify whether the attitudes towards AES of EU land managers presented in the media are the same as those portrayed in the scientific literature. The objectives of the study were:
• Determine whether land managers in EU states have a positive attitude, or not, towards the effectiveness of agri-environment schemes.

• Identify whether these attitudes differ between farming systems depending on the type of system and geographical location within the EU.

• Determine whether the attitudes of land managers, towards the effectiveness of agri-environment schemes, as portrayed in the media, are representative of the land manager views found in the scientific literature.

• To identify elements that farmers have suggested could improve current agri-environment schemes through the literature and surveys.

In light of the aim and objectives presented above, the following hypotheses were tested in this project.

• Land managers believe that agri-environment schemes are effective.

• The belief of land-managers that agri-environment schemes are effective is consistent across all EU regions and farming systems.

• The way in which land manager attitudes toward agri-environment schemes are portrayed in the media are an accurate representation of the attitudes portrayed within the scientific literature and from the survey results.
CHAPTER 2: BACKGROUND

2.1 DEVELOPMENT AND HISTORY OF EU AGRI-ENVIRONMENT SCHEMES

The Common Agricultural Policy came about in 1962 so that people in a post-war Europe could enjoy a secure supply of high quality food while the land managers producing the food could be provided with good prices, thus allowing them to maintain a fair standard of living (EC, 2012). As a consequence, increases in agricultural production and intensification resulted in damaging impacts to ecosystem services, from pollination to nutrient cycling, in addition to negatively impacting the agro-ecosystem biodiversity upon which these ecological services depend (Stoate et al., 2009). While the global ‘Green Revolution’ drove an increase in agricultural productivity in the early days of the European Agricultural Policy, it was soon recognised that a consideration of environmental concerns must be also be included within policy measures (Piorr, 2003). Certainly, due to agriculture representing approximately half of land-use within the European Union, environmental issues within agricultural landscapes deserve considerable attention (Stoate et al., 2009).

In light of the environmental degradation resulting from agricultural activities, pressure from within the European Community, to adapt policy in order to achieve a more sustainable management of agro-ecosystems, commenced in the 1980’s (Wilson et al., 1999). Consequently, the “Single European Act” of 1986 obliged requirements for the protection of the environment to be integrated within the policies of the European Community (Piorr, 2003). This set the foundation for the inclusion of measures in the Common Agricultural Policy (CAP) that would aim to address these negative environmental impacts (Wilson et al., 1999).

Subsequently, in the 1992 CAP reform Regulation 2078/92/EEC, founded upon propositions by EU commissioner Ray MacSharry, the objective of achieving agricultural production in line with environmental protection and sustainable countryside maintenance, was introduced (Wilson et al., 1999). It was stipulated that all Member States should send agri-environment scheme (AES) proposals to the European Commission (EC) by July 1993 that, if approved, would mean that partial funding would be provided by the EU (Wilson et al., 1999). Although the 1992 CAP
reform introduced coordinated agri-environmental regulations across the European Union, Member States started implementing agri-environment measures on an individual basis as early as the 1980’s, in particular the Netherlands and Britain (Latacz-Lohmann and Hodge, 2003).

Having outlined the actual process of integrating environmental concerns within EU agricultural policy and the introduction of agri-environment programmes, it is worth considering what actually drove this process in the first place. Indeed, a number of different theories have been put forward by various authors, as to the factors that have pushed CAP reform. Coleman and Tangermann (2009) propose that higher level policy-making at an International level could be influencing policy formation at the EU level. They suggest two main opposing views as regards the influence that International policy in terms of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) had upon the 1992 CAP reform (Coleman and Tangermann, 2009). The first view suggests that the reform was independent of GATT, with internal issues as regards the oversupply of certain commodities pushing EU leaders to initiate CAP reforms (Coleman and Tangermann, 2009).

The opposite argument, while still maintaining the importance of internal issues, suggests that the logic behind CAP reform, in addition to its timing in relation to the GATT Uruguay Round, indicate that it acted as an answer to International pressures at the time (Coleman and Tangermann, 2009). Singh et al. (2014) introduce the concept of a different cause of reform, suggesting that consumer markets concerned with issues surrounding biodiversity loss, may act as a driver for the sustainable production of food. In reality, it is likely to be a combination of various factors, both political and those driven by the general public that have pushed CAP reforms over the years (Singh et al., 2014).

Agri-environment programmes, implemented under the 1992 CAP reform, included measures ranging from reducing the use of pesticides, herbicides and fertilizers, to mitigating the pollution of groundwater through improving crop rotation management (Piorr, 2003). As a few examples, measures in England under the current Environmental Stewardship Scheme include activities such as implementing buffer
strips and maintaining ditches (Natural England, 2013). Having previously provided subsidies for market support, the 1992 reform shifted the CAP towards direct support for land managers (Gay et al., 2005). However, with environmental pressures remaining strong, there were a further two CAP reforms in 2000 and 2003 (Baylis et al., 2008). The reform under Agenda 2000, through the implementation of the Pillar Two rural development arm of the CAP, provided the political infrastructure for better maintaining the rural environment, while the 2003 reform further directed the focus towards the protection of the environment, in addition to increasing market-orientation (Gay et al., 2005).

Moreover, high treatment costs for mitigating the detrimental effects that agriculture has upon the environment have to be paid by the public (Piorr, 2003), while at the same time, this public is often mistrusting of certain factors of intensive agriculture (Kleijn and Sutherland, 2003). It seems strongly likely therefore, that the general public may have an important role in influencing more sustainable and environmentally-friendly measures under CAP reform.

2.2 STRUCTURE OF CURRENT EU AGRI-ENVIRONMENT SCHEMES

The budget of the CAP is directed towards two main routes of expenditure, the first of which is known as Pillar One, which provides land managers with direct payments on a per area or livestock basis (Gay et al., 2005). Pillar Two provides support for rural development, including measures for land and environmental management which encompass agri-environment programmes (Gay et al., 2005).

However, the structure of individual agri-environment programmes within EU Member States can vary considerably, with no schemes being exactly the same between any two countries (Kleijn et al., 2006). Schemes range in specificity, from very broad programmes that may endeavour, for example, to protect biodiversity and landscapes as a whole, to narrow schemes with very precise aims (Mauchline et al., 2012). For example, the Reduction of Nitrate Pollution Scheme in Greece, has very specific targets such as restoring groundwater quality and improving soil fertility, while the Nature Sensitive Area Scheme of Hungary, has broader objectives such as, reducing agricultural pressures upon the environment (Mauchline et al., 2012).
The Common Agricultural Policy and agri-environment schemes, have recently been through a third reform, with agreements in terms of new policy for the period 2014-2020 being reached in 2013 (EC, 2013). The agricultural community are facing a number of challenges, derived from three main categories of factors; territorial, economic and environmental, that respectively cover issues such as depopulation, food security and biodiversity threats (EC, 2013).

In order to address these, the new policy aims to carry on the process commenced by previous reforms, of shifting support to the producers, with an additional land-based element (EC, 2013). This encourages land managers to meet the requirement, of simultaneously maintaining natural resources while increasing the quantity of high quality food produced (EC, 2013). New additions to the CAP include a “greening” feature within Pillar One, targeted towards providing public goods from the environment, and subsequently contributing towards the central element of concurrently providing private and public goods (EC, 2013). Although the two pillars of the CAP will remain, the new CAP 2014-2020 aims to increase the connectivity between the two, in order to provide more integrated policy support (EC, 2013).

2.3 EFFECTIVENESS OF EU AGRI-ENVIRONMENT SCHEMES

Carey et al. (2003) suggest that because AES are partially funded by the local and national governments, it is important that they are demonstrated as delivering a strong return-on-investment. This means that the government has to show that a particular AES has quantifiably increased environmental benefits (Carey et al., 2003).

While this can be done from a scientific perspective, studies observing the success of AES as regards the conservation of the environment and biodiversity, have presented very mixed results. One study, by Kleijn et al. (2006), aimed to determine the influence upon biodiversity, of conservation measures applied to agricultural land, using the species abundance and density of five species groups, together representing a number of trophic levels. The study was conducted in Switzerland, Germany, Spain, the UK and the Netherlands, and investigated whether species density of each of the five groups and of rare or endangered species was higher on fields with agri-environment measures (AEM) than on those without (Kleijn et al., 2006). It was found within the
study, that fields with agri-environment management options had some measures of biodiversity higher than fields without, in all countries except the Netherlands (Kleijn et al., 2006). Density of plant species is one such measure that was greater in fields with AES in each of these countries (Kleijn et al., 2006). However, the study indicated that agri-environment management did not greatly change the composition of species unless there were also changes in species density, since the beneficial effects of AEM upon uncommon species were identified only within some groups of species (Kleijn et al., 2006). For example, an increase in the number of uncommon arthropod and plant species, in fields with AEM, were only found in Switzerland and Germany (Kleijn et al., 2006).

Moreover, in an earlier study by Kleijn and Sutherland (2003), which reviews the available scientific literature on the effectiveness of AES in providing biodiversity benefits, the authors state that they are not able to come to a conclusion of whether AES are indeed effective at delivering such benefits. They suggest that many of the studies evaluated were poorly designed and did not provide adequate analysis, and that generally research was limited (Kleijn and Sutherland, 2003). Once again, studies that were well designed indicated mixed results with some showing positive results, as regards greater species abundance and diversity, with others showing no effect or even, in some cases, negative results (Kleijn and Sutherland, 2003).

While it is important to consider the scientific literature in terms of the effects AES have upon biodiversity, a large diversity of stakeholders and actors are involved with AES, from those who design policies, to the land managers themselves who are directly involved in implementing the schemes on their land. Each different stakeholder group will have different views of effectiveness. Conserving the environment and biodiversity on farmland is as much an ecological challenge as it is a social one (de Snoo et al., 2012).

The perception that land managers have of the effectiveness of AES is important, as only by having a fully supportive agricultural community, will agri-environment programmes be successful in the long term (de Snoo et al., 2012). Carey et al. (2003)
are in agreement on this point, stating that in order for AES to be effective, they must inspire positive attitudes from the land managers involved.

Burgess et al. (2000), suggest that land managers are often not consulted when it comes to the knowledge required for implementing conservation actions on agricultural land. The focus of their study was a Wildlife Enhancement Scheme (WES) on the Pevensey Levels, a wet grassland system on the Southeast coast of England. The research involved conducting in-depth discussion groups with local land managers from within this system (Burgess et al., 2000).

The actor-world of conservationists viewed land managers as technicians, only interested in financial incentives, and whose skill base would allow them to implement management options, for example controlling the level of ditch water, within the WES, but who were otherwise ignorant (Burgess et al., 2000). In contrast, land managers saw themselves as knowledgeable, and believed that their agricultural practices were beneficial for wildlife and had allowed it to thrive, and that if they hadn’t, there would be no land left to conserve through the WES (Burgess et al., 2000). In terms of ditch management for example, through research carried out in locally selected ditches, which thus formed the basis for specifying management prescriptions for other ditches within the Pevensey Levels, conservationists stated that in order to provide healthy wildlife communities, ditches should be cleaned every 6-12 years (Burgess et al. 2000). Land Managers were not sure whether this management prescription would work however, and recognised that some ditches remained clear much longer than others, thus believing they had a much better understanding of how ditch clearing should be managed (Burgess et al., 2000). The conclusion of the study was that AES might do better to incorporate both local knowledge in addition to scientific knowledge when considering conservation management options (Burgess et al., 2000).

Morris (2006), recognised the importance of considering local farming knowledge, and suggested that many researchers see agri-environmental policy, as being based upon scientific knowledge but having ignored local farming knowledge. The study discusses the concept of AES as representing a “policy knowledge culture”, quite separate in its understanding of nature to the traditional farming “knowledge culture” and, that this
conceptualisation thus allows an examination of whether information is exchanged across the two knowledge cultures (Morris, 2006). Morris (2006) concludes by stating that there is discussion and compromise going on between each knowledge culture, albeit that AES is still produced within a centralised policy environment.

The Theory of Planned Behaviour (Ajzen, 1991) (see Figure 2.3.1 below) is useful for examining the links between land managers’ attitudes and their participation in, and subsequent commitment to, an AES, or of implementing a specific agri-environmental measure. The TPB conceptual framework implies that three factors within the framework influence an individual’s intentions to perform a particular behaviour namely attitude, subjective norm and, perceived behavioural control which are founded respectively upon three types of salient belief; behavioural beliefs, normative beliefs and control beliefs respectively. Whether an individual performs a certain behaviour or not is a function of both their intention and their perceived behavioural control (Ajzen, 1991).

While intention signifies an individual’s motivations for carrying out a particular behaviour, how much effort they are willing to put into achieving that behaviour, perceived behavioural control represents the opportunities and resources for achieving a specified behaviour that an individual believes they have (Ajzen, 1991). Attitude indicates the extent to which an individual has a positive, or less so, assessment of a particular behaviour, while the subjective norm relates to a person’s perception of the social pressures influencing them to carry out a certain behaviour, or not (Ajzen, 1991).

Identifying land managers’ attitudes towards the effectiveness of agri-environment and combining this with the TPB conceptual framework can allow a better understanding of whether a particular AES is providing the most useful conditions for motivating a land manager to carry out a specified behaviour, such as joining a particular AES.
2.4 FARMERS ATTITUDES TOWARDS AGRI-ENVIRONMENT SCHEMES

The Functional Approach to Motivation, whereby understanding what motivates people to volunteer through an understanding of the psychological functions being met by volunteering, is a further social theory relevant in the context of AES as they are voluntary to join (Clary et al., 1998). Through their work, Clary et al. (1998) propose six psychological functions that can be satisfied through volunteering, namely, values, social, understanding, career, enhancement and protective functions. Taking as a couple of examples the values function and the careers function, the former can be fulfilled through volunteering if it allows individuals to demonstrate humanitarian principles, while the latter can be met through participating in a volunteer activity which results in gaining valuable skills relevant to a particular career (Clary et al., 1998).

Clary et al. (1998), go on to suggest that every volunteer has a different combination of importance for each of the six functions. Subsequently, benefits received through a particular volunteer activity, and that fulfil the functions that are meaningful to individuals on a personal level, will enable a greater level of satisfaction as a volunteer, and will encourage the continuation of participation in volunteer activities (Clary et al., 1998).
In their report, Clary et al., (1998) also describe a tool, the Volunteer Functions Inventory (VFI), which they developed in order to allow a measurement of the importance of the six functions, mentioned previously, to be taken, so that an individual’s motivations for volunteering can thus be deciphered. It can subsequently be determined whether a particular volunteer activity will satisfy the psychological functions of the individual and instil a positive attitude towards the volunteer activity in question (Clary et al., 1998).

Selinske (2013) used this idea to develop a Stewardship Functions Inventory for South African land managers involved in Private Land Conservation (PLC). This allowed the satisfaction of land managers to be gaged with respect to PLC which is a conservation strategy that combines both a voluntary element and financial compensation (Selinske, 2013). In a similar way, thanks to their voluntary approach and provision of subsidies, agri-environment schemes can also be considered in terms of land manager satisfaction, with a fully satisfied individual having a potentially having a greater motivation to join and subsequently remain within an AES.

As an example of research into land managers’ attitudes towards agri-environment, Morris, Mills and Crawford (2000) conducted a study in Eastern and Central England, whereby they carried out informal interviews with key stakeholders, to determine the main issues regarding land manager attitudes towards the Countryside Stewardship Scheme (CSS), specifically the Arable Field Margins management measure. They concluded that land managers felt that the Arable Field Margins option hindered their freedom to farm (Morris, Mills and Crawford, 2000).

Few studies have reviewed and compared land managers’ attitudes towards agri-environment effectiveness across the EU. Uthez and Matzdorf (2013) conducted a literature review to identify different types of agri-environment studies and categorise them according to their particular focus. One category of studies focussed upon elements that influenced farmers to participate in AES or not (Uthez and Matzdorf, 2013). This holds some overlap with land managers’ attitudes towards the effectiveness of AES. However, Uthez and Matzdorf (2013) did not provide an overall indication of whether EU land managers regard AES as effective, nor did they divide
studies indicating land managers’ attitudes into sub-categories. They did however, outline factors that had been designated as limiting to current agri-environment schemes and suggested a lack of flexibility in management options (Uthez and Matzdorf, 2013).

2.4 MEDIA LITERATURE SEARCH

Land managers’ views of agri-environmental conservation are relevant to the overall success of the policy and, should land managers’ view AES as effective, and this opinion is correctly presented in the media, AES can subsequently gain the support of the public influenced by the media in question. This support is important in one respect as AES are funded, in part, by national and regional governments, and taxpayers consequently need to see that AES are successful so that they continue providing support (Carey et al., 2003). Gay et al. (2005) suggest that in addition to other influences, such as changes in technology and market prices, land managers respond to consumer preferences, indicating just how important an affect the general public and consumers can have.

Media outlets, including television and newspapers, were identified by Morris et al. (2000) to be the largest source informing land managers about Countryside Stewardship, and certainly, they are an important medium for promoting awareness about AES. In the same study, the telephone survey revealed that 51% of the CSS through the aforementioned main media outlets including farming magazines or newspapers (Morris et al., 2000). The media is therefore the first channel of communication persuading land managers whether they should join a scheme or not and consequently, positive messages concerning AES within the media, could go a long way in encouraging land managers to participate.
CHAPTER 3: METHODOLOGY

3.1 CONCEPTUAL AND METHODOLOGICAL FRAMEWORKS

Two conceptual frameworks are of relevance in this study for considering land managers’ attitudes towards the effectiveness of agri-environment schemes. Both of these were described in detail in the previous chapter and consist of the Theory of Planned Behaviour (Ajzen, 1991) and the Functional Approach to Motivation (Clary et al., 1998). In keeping with the former theory, should land managers indicate a positive attitude towards AES and the belief that a particular scheme fits in with the resources that they have available, they may be more likely to participate in and remain in the Scheme. As regards the Functional Approach to Motivation, should a land manager indicate a positive attitude towards AES, it is likely that the scheme in question is fulfilling the psychological functions that are most important to them and that they have a high level of satisfaction with the scheme (Clary et al., 1998). Should a positive attitude be observed in the results, it would be possible to conclude by saying that land managers’ perceive agri-environmental policy as effective in terms of meeting their requirements and motivations.

Taking these two theories into consideration, the methodology addressed land managers’ overall attitudes towards agri-environmental policy within the scientific and media literature. This was done by carrying out a structured review of each literature type and comparing differences in attitude through the use of a content-analysis software.

An additional aspect of the methodology involved designing an online survey and making this accessible to land managers across England. The concept behind this was that combining data from the three sources, science literature, media literature and survey, would allow triangulation of results. The idea behind triangulation is that by combining different methods of data collection, the reliability and validity of the results obtained can be increased and a more rounded perspective can be attained (Thurmond, 2004).
3.2 SCIENTIFIC LITERATURE AND MEDIA SEARCHES

3.2.1 Scientific Literature

To commence with, a structured search of the scientific literature was carried out in order to retrieve any studies that illustrated land manager attitudes towards the effectiveness of AES. In order to do this, a process based on the framework for carrying out a systematic review, as outlined by the Collaboration for Environmental Evidence (CEE, 2013), was carried out. Starting with the development of a systematic search string, search terms were trialled by recording the number of hits as each new term was added. The search string was primarily developed in the Science Direct database. However, because media and scientific studies utilise very different language when describing land manager attitudes, additional terms were added once the search string had been trialled in the media literature database, Factiva. In order to keep consistency between both the science and media searches therefore, the same search string was as used as far as possible. The final version of the search string used for the scientific databases can be seen in Appendix 1.

The other scientific databases searched were Web of Science, JSTOR, ProQuest, SCOPUS and the Environmental Sciences and Pollution Management database. While the majority of these used the search string developed in Science Direct, it should be noted that slight adaptations had to be used for each database depending upon particularities in terms of symbols used to represent Boolean, wildcard or other functions. As an example, the symbol “W/15”, signifying, in Science Direct, that a particular term be found within 15 words of another term, was replaced with “NEAR/15” in the Web of Science database. The search strings for the databases that required slightly bigger adaptations are shown in Appendix 2.

Following the application of the search string within each database, retrieved articles were saved into RefWorks (ProQuest, 2001). The abstracts of each of the studies were then read and grouped as either relevant or irrelevant to the project depending upon whether they met a set of relevance inclusion criteria which can be seen in Appendix 4. An important note here is that while Norway and Switzerland are not currently members of the EU (European Union, 2014), any studies that contained information
relating to land manager’s attitudes as to the effectiveness of AES from either of these two countries, were included as relevant in the search. This is because they are both European countries that developed AES at the same as the EU Member States (Kleijn et al. 2003) and the lessons learnt could therefore be relevant to this study.

Once the abstracts had been appropriately categorized, the studies which had been termed as relevant were then read in full and further classified as either relevant or irrelevant, following a second set of inclusion criteria as shown in Appendix 5. Due to a lack of time however, 20% of the 187 articles found to be relevant at the first sorting stage, were randomly selected and read in full. The total number of irrelevant articles, from the 20% of articles read in full, were subtracted from 187 and 20% of the new value was calculated. Subsequently, additional articles were read in full to make up 20% of the new value. This process was continued until 20% relevant articles were obtained.

The subsequent step of the process was to categorise all the relevant articles, ready for analysis, according to different variables that could influence land manager attitudes such as geographical location or time frame of the study. In order to keep the research relevant to present AES, only studies from the specified time period, 2004 to 2014, were used.

3.2.2 Media Literature

A similar process as that outlined above for the scientific literature was used to obtain accessible media articles relevant to the study. The database Factiva, which includes the records of a variety of global media sources, was used and a mixture of both agricultural and non-agricultural media were searched. The media sources searched are displayed in Appendix 6.

The search string used in Factiva was kept as similar as possible to that used for the scientific literature search in order to maintain consistency. The only difference to the search string presented in Section 3.2.1 above, was that the phrase “AND ("European Union" Or EU OR "Common Agricultural Policy" OR "Europe* agricultur*")” was removed. This was because the articles within the media literature referred to specific
countries and regions, and did not necessarily mention the terms in the phrase above. To test whether the difference in the number of articles obtained was large enough to make it worthwhile leaving the search phrase, outlined above, out, the search was carried out both with and without the phrase. This resulted in 202 hits and 79 hits respectively, and consequently the search phrase was left out. The full search string used for the media articles can therefore be seen in Appendix 3.

Using the same method as that used for the scientific literature, studies were grouped into either irrelevant or relevant to the project, following a pre-defined search criteria which is visible in Appendix 5. Due to a lack of time and to maintain consistency with the methodology used for the scientific literature, 20% relevant articles were randomly selected in excel and used for the analysis.

3.3 ONLINE SURVEY

Questions were designed for the online survey in keeping with the TPB and the Functional Approach to Motivation conceptual frameworks. In other words, questions enquiring as to land managers’ level of satisfaction with AES were asked. Additionally, questions were asked regarding any benefits they believed that they would or had received and any suggestions for scheme improvements. The final survey which was uploaded onto the online survey software Qualtrics (Qualtrics, 2014) can be seen in Appendix 7. The information included in Question 1, regarding agricultural activities carried out upon the land, was taken from the National Statistics for Agriculture in the United Kingdom (DEFRA et al. 2014). Moreover, Natural England reports and handbooks were used for designing the questions enquiring as to specific agricultural-environmental measures that land managers had implemented on their land (Natural England (2009), Natural England (2013a), Natural England (2013b)). The survey was sent out to land managers by including a link in the National Farmers Union newsletter.

3.4 DATA COMPARISON USING YOSHIKODER PROGRAM

Once the data collection was complete, data from relevant articles was analysed using a freely downloadable content-analysis software, Yoshikoder (Weatherhead Centre for
This allowed comparisons to be made between the quantity of positive and negative words, relative to the effectiveness of AES, found within a particular group of articles. The idea was that if a group of studies had significantly more positive words than negative, the overall indication was that land managers within that particular grouping had a more positive attitude towards agri-environment schemes and perceived them as being more effective.

Through creating a dictionary in the Yoshikoder software, which defined which words were to be included under the categories of “positive” and “negative”, the number of positive words and negative words within the quotes from a particular category of studies was calculated. This data was then entered into an excel spreadsheet and a chi-square test was used to determine any significance between the number of positive or negative words used.

The “positive” and “negative” word categories within the Yoshikoder dictionary were respectively built using words with positive or negative connotations from the search string used to obtain the relevant articles in the first place (See Appendices 1.-3.).

Comparisons were subsequently made between media and scientific studies overall, in addition to breaking down each respective literature type according to individual variables that could be influencing the results including, among others, geographical location, farming system and level of agri-environment management.
CHAPTER 4: RESULTS

4.1 SCIENTIFIC LITERATURE AND MEDIA CONTENT ANALYSIS

Starting with an overall comparison of the scientific and media literature, it can be seen from Table 4.1.1 that within both types of literature, words associated with a positive attitude towards AES are used more often than words with a negative connotation, with a chi square test indicating that this difference is significant with p-values of <0.001 and 0.002 for science and media literature respectively. Positive words were used 68% of the time within the data collected for the scientific literature while they were used 75% of the time within the media literature data.

Table 4.1.1 Positive and negative word count for science and media literature

<table>
<thead>
<tr>
<th></th>
<th>Science literature</th>
<th>Media literature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Word count</td>
<td>Percentage</td>
</tr>
<tr>
<td>Positive</td>
<td>164</td>
<td>68%</td>
</tr>
<tr>
<td>Negative</td>
<td>77</td>
<td>32%</td>
</tr>
<tr>
<td>Total</td>
<td>241</td>
<td>-</td>
</tr>
<tr>
<td>P-value</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>P-value for difference between science and media literature</td>
<td></td>
<td>0.045</td>
</tr>
</tbody>
</table>

The proceeding stage of the analysis was to divide the scientific and media data into separate components according to a number of categories, such as geographical location, that could have an influence upon the views of the land managers as regards AES.

4.1.1 Scientific Literature Analysis

The results of classifying scientific data according to what level of agri-environment management had been investigated within the research can be seen in Table 4.1.1.1. Only data from the AEP or AES levels obtained significant results (p-values of 0.002 and <0.001 respectively), with both indicating a more positive attitude from land managers, towards agri-environment management. Using a chi square test to compare levels of management also returned a significant result, with a p-value of 0.005. By
studying Table 4.1.1.1, it can be seen that data researching AEP and AES, obtained a more favourable result, with a positive word use of 75% and 69% respectively, than data with a focus upon AEM which had a negative word use of 67%.

**Table 4.1.1.1** Influence, in scientific literature, of different levels of agri-environmental management upon use of words associated with a positive or negative view

<table>
<thead>
<tr>
<th>Agri-environment level</th>
<th>Programme</th>
<th>Scheme</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>30</td>
<td>75%</td>
<td>91</td>
</tr>
<tr>
<td>Negative</td>
<td>10</td>
<td>25%</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>-</td>
<td>131</td>
</tr>
<tr>
<td>P-value</td>
<td>0.002</td>
<td>&lt;0.001</td>
<td>0.157</td>
</tr>
</tbody>
</table>

P-value for difference between agri-environment level 0.005

Moreover, by carrying out a comparison of different types of AES (see Table 4.1.1.2), organic farming data generated a more positive response than did data for afforestation measures, with positive word use being 72% for organic farming as opposed to 43% for afforestation data. Analysis was only carried out on these two types of AES as they had the most data available, being the only schemes as the main focus in more than two of the studies read in full.

Another factor analysed was that of geographical location and this was approached from two angles. Firstly, countries within the EU that were the main focus in more than one of the studies read in full, were analysed individually and, once again, compared to each other as can be observed in Table 4.1.1.3. While data from The Netherlands and Sweden both indicate a very positive attitude towards agri-environment schemes, with 89% and 76% of positive dictionary words in the analysis respectively, Germany indicates a much more negative outlook with 100% of dictionary words being negative.
Table 4.1.2 Influence of different AES upon positive or negative word use within scientific literature

<table>
<thead>
<tr>
<th></th>
<th>Afforestation</th>
<th></th>
<th>Organic farming</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>10</td>
<td>43%</td>
<td>36</td>
<td>72%</td>
</tr>
<tr>
<td>Negative</td>
<td>13</td>
<td>57%</td>
<td>14</td>
<td>28%</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td></td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>P-value</td>
<td>0.532</td>
<td></td>
<td>0.002</td>
<td></td>
</tr>
</tbody>
</table>

Furthermore, the second method of categorising geographical data (see Table 4.1.4) was to group the data according to the focus of a particular study in terms of the level of administration. However, there was no significant difference found between any of the three categories which grouped data according to whether the study focus had been at a national, regional or local level. It should be noted that Wales, Scotland and England were included as separate regions under the national region rather than categorised together as Great Britain as they have different agri-environment programmes. Nonetheless, all three data categories indicated a more positive attitude towards AES, with positive word use being 66%, 78% and 65% for national, regional and local levels respectively.

Chi square tests as shown in Table 4.1.5 suggest that there was no difference in land managers’ attitudes between farming system according to whether the focus of the study was upon a livestock farming system, arable system or whether the study incorporated data from a mixture of farming system types. The categories ‘livestock systems’ and ‘arable systems’ were chosen as they were the simplest way to categorise an extremely broad range of different farming system types.
Table 4.1.1.3 Positive and negative word count for scientific literature data from different countries

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>16</td>
<td>55%</td>
<td>19</td>
<td>59%</td>
<td>12</td>
<td>67%</td>
<td>0</td>
<td>0%</td>
<td>17</td>
<td>89%</td>
<td>13</td>
<td>76%</td>
</tr>
<tr>
<td>Ireland</td>
<td>13</td>
<td>45%</td>
<td>13</td>
<td>41%</td>
<td>6</td>
<td>33%</td>
<td>7</td>
<td>100%</td>
<td>2</td>
<td>11%</td>
<td>4</td>
<td>24%</td>
</tr>
<tr>
<td>Scotland</td>
<td>12</td>
<td>67%</td>
<td>6</td>
<td>33%</td>
<td>7</td>
<td>100%</td>
<td>2</td>
<td>11%</td>
<td>4</td>
<td>24%</td>
<td>3</td>
<td>33%</td>
</tr>
<tr>
<td>Germany</td>
<td>0</td>
<td>0%</td>
<td>7</td>
<td>100%</td>
<td>2</td>
<td>11%</td>
<td>4</td>
<td>24%</td>
<td>3</td>
<td>33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>17</td>
<td>89%</td>
<td>13</td>
<td>76%</td>
<td>6</td>
<td>67%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Netherlands</td>
<td>19</td>
<td></td>
<td>17</td>
<td></td>
<td>17</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wales</td>
<td>6</td>
<td>67%</td>
<td>13</td>
<td>76%</td>
<td>6</td>
<td>67%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

p-value for differences between countries 0.003
Table 4.1.1.4 Positive and negative word counts for data collated from scientific studies according to the level of administration used within the study

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>67</td>
<td>66%</td>
<td>42</td>
<td>78%</td>
<td>55</td>
<td>65%</td>
</tr>
<tr>
<td>Negative</td>
<td>35</td>
<td>34%</td>
<td>12</td>
<td>22%</td>
<td>30</td>
<td>35%</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
<td></td>
<td>54</td>
<td></td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>P-value</td>
<td>0.002</td>
<td></td>
<td>&lt;0.001</td>
<td></td>
<td>0.007</td>
<td></td>
</tr>
</tbody>
</table>

P-value for difference in level of administration 0.218

Table 4.1.1.5 Positive and negative word count, within science literature, according to farming system

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>21</td>
<td>78%</td>
<td>23</td>
<td>62%</td>
<td>128</td>
<td>69%</td>
</tr>
<tr>
<td>Negative</td>
<td>6</td>
<td>22%</td>
<td>14</td>
<td>38%</td>
<td>58</td>
<td>31%</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td></td>
<td>37</td>
<td></td>
<td>186</td>
<td></td>
</tr>
<tr>
<td>P-value</td>
<td>0.004</td>
<td></td>
<td>0.139</td>
<td></td>
<td>&lt;0.001</td>
<td></td>
</tr>
</tbody>
</table>

P-value for difference between farm system type 0.412

With a greater number of studies, it would have been possible to break the categories down further, according to cropping system for example. While the chi square test for the category incorporating data from studies that focused upon arable farming systems was found to be insignificant, on the contrary, the results for both the livestock system and mixture of farming system classifications imply a positive attitude towards AES, with a positive word use of 78% and 69% respectively.

Three remaining factors were also analysed, namely journal type, experimental accuracy of the study in question and the time period during which a particular study
was carried out. By looking at data (see Table 4.1.1.6) from studies containing purely anecdotal information, or from both anecdotal and semi-experimental research, it can be seen that there is no difference between use of positive and negative dictionary words, whereas in all other types of study, experimental, semi-experimental and combined experimental and anecdotal, positive words are used more frequently, with a use of 73%, 70% and 63% respectively.

Interestingly, as presented in Table 4.1.1.7, results for both of the time periods, 2003-2005 and 2012-2014 suggest that land managers had a more favourable attitude towards agri-environment during these time frames, with positive word use being at a respective 86% and 73%. On the other hand, 2006-2008 and 2009-2011 saw a significant difference in word use, with negative words being used a lot more frequently, 53% in 2006-2008 and 44% in 2009-2011.

Finally in terms of scientific literature analysis, it can be deduced from Table 4.1.1.8, that different types of scientific journal, within which the studies were found, produced results that according to the chi square test were significantly different to one another. However, the predominant pattern implied a greater use of positive words within the Yoshikoder analysis, for all journal types other than for those with a focus upon environmental policy and economics, for which there was no difference between positive and negative word use (p-value 0.011).
Table 4.1.6 Positive and negative word count, within the scientific literature data, according to experimental accuracy of study

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>2</td>
<td>40%</td>
<td>44</td>
<td>62%</td>
<td>75</td>
<td>73%</td>
<td>6</td>
<td>67%</td>
<td>37</td>
</tr>
<tr>
<td>Negative</td>
<td>3</td>
<td>60%</td>
<td>27</td>
<td>38%</td>
<td>28</td>
<td>27%</td>
<td>3</td>
<td>33%</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>-</td>
<td>71</td>
<td>-</td>
<td>103</td>
<td>-</td>
<td>9</td>
<td>-</td>
<td>53</td>
</tr>
</tbody>
</table>

P-value

0.655

0.044

<0.001

0.317

0.004

P-value for difference between experimental accuracy

0.383

Table 4.1.7 Positive and negative word count according to time period within which scientific research was carried out

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>2</td>
<td>67%</td>
<td>78</td>
<td>86%</td>
<td>27</td>
</tr>
<tr>
<td>Negative</td>
<td>1</td>
<td>33%</td>
<td>13</td>
<td>14%</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>-</td>
<td>91</td>
<td>-</td>
<td>57</td>
</tr>
</tbody>
</table>

P-value

0.564

<0.001

0.691

0.423

0.005

P-value for difference between time frame

<0.001

28
Table 4.1.1.8 Positive and negative word count according to scientific journal type

<table>
<thead>
<tr>
<th></th>
<th>Agricultural and land use policy and economics</th>
<th>Agriculture journals</th>
<th>Environmental policy and economics</th>
<th>Agroecosystems and the environment</th>
<th>Environmental and ecology science, management and conservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word count</td>
<td>Word count</td>
<td>Word count</td>
<td>Word count</td>
<td>Word count</td>
<td>Word count</td>
</tr>
<tr>
<td>Positive</td>
<td>24</td>
<td>25</td>
<td>27</td>
<td>32</td>
<td>56</td>
</tr>
<tr>
<td>Pct.</td>
<td>75%</td>
<td>81%</td>
<td>55%</td>
<td>84%</td>
<td>62%</td>
</tr>
<tr>
<td>Negative</td>
<td>8</td>
<td>6</td>
<td>22</td>
<td>6</td>
<td>35</td>
</tr>
<tr>
<td>Pct.</td>
<td>25%</td>
<td>19%</td>
<td>45%</td>
<td>16%</td>
<td>38%</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>31</td>
<td>49</td>
<td>38</td>
<td>91</td>
</tr>
<tr>
<td>P-value</td>
<td>0.005</td>
<td>0.001</td>
<td>0.475</td>
<td>&lt;0.001</td>
<td>0.028</td>
</tr>
<tr>
<td>P-value for difference between journal type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.011</td>
</tr>
</tbody>
</table>


4.1.2 Media Analysis Results

While for reasons considered in the discussion that follows, only media literature from the United Kingdom and the Republic of Ireland was obtained but this was nonetheless classified into categories according to factors that could potentially influence the opinions of land managers and analysed accordingly.

The focus of the media however, tended to be much broader with articles more often discussing nations, or large geographical regions as a whole as opposed to considering agri-environment policy at a local level. Nevertheless, as portrayed in Table 4.1.2.1, enough data was obtained to compare media literature with a focus upon the United Kingdom as a whole to that with the slightly more localised focus of national regions within the UK (Scotland, England, Northern Ireland and Wales). Both categories used a greater quantity of words associated with a positive outlook of agri-environment, 77% and 74% respectively. The p-value for the difference between categories was also very significant at <0.001, although this appears to be because of a difference in the combined total of words found in data for each category, rather than a difference in the trend.

In terms of analysing individual nations, only enough data was acquired for England and Wales, the results of which can be seen in Table 4.1.2.2. While there was no difference between the two nations (p-value= 0.121), the data for England used positive words significantly more often at 83% with a p-value of 0.005. For Wales, on the other hand, there was no difference between words with either a positive or negative association to agri-environment schemes (p-value= 0.739).

A broad approach is similarly used when considering levels of agri-environment management, with the majority of articles considering agri-environment programmes. As can be seen in Table 4.1.2.3, data with a focus upon AEP have an 85% use of positive words with a p-value of <0.001, whereas the p-value for AES was insignificant at 0.366. Only one article was found which looked at the attitude of land managers towards a specific agri-environment measure and was therefore not included in the analysis.
Table 4.1.2.1 Positive or negative word count according to whether the media literature focus was upon the United Kingdom as a whole or its respective nations (Scotland, England, Wales and Northern Ireland)

<table>
<thead>
<tr>
<th></th>
<th>United Kingdom</th>
<th>Nations of United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>10</td>
<td>77%</td>
</tr>
<tr>
<td>Negative</td>
<td>3</td>
<td>23%</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>-</td>
</tr>
<tr>
<td>P-value</td>
<td>0.052</td>
<td></td>
</tr>
</tbody>
</table>

P-value for difference between regions <0.001

Table 4.1.2.2 Positive and negative word count according to nation

<table>
<thead>
<tr>
<th></th>
<th>England</th>
<th>Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>15</td>
<td>83%</td>
</tr>
<tr>
<td>Negative</td>
<td>3</td>
<td>17%</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>-</td>
</tr>
<tr>
<td>P-value</td>
<td>0.005</td>
<td></td>
</tr>
</tbody>
</table>

P-value for difference between regions 0.121

When classifying media literature according to the type of farming system that was considered within a study, it can be observed from Table 4.1.2.4, that positive and negative word use differed for neither the livestock nor the arable farming system types (p-values of 0.414 and 0.132 respectively). When looking at the total combined positive and negative word count, which is six for arable systems and 11 for livestock systems we can assume that this is because of a lack of data on the two types of system in general. On the other hand, within data from studies that focused upon farming systems as a whole the positive word use was significantly greater at 76% with
a p-value of 0.016. There was inadequate data on mixed farming systems to include them in the analysis.

Table 4.1.2.3 Influence of different levels of agri-environmental management upon positive and negative word use in media literature

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td></td>
<td>23</td>
<td>85%</td>
<td>7</td>
<td>64%</td>
</tr>
<tr>
<td>Negative</td>
<td></td>
<td>4</td>
<td>15%</td>
<td>4</td>
<td>36%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>27</td>
<td>-</td>
<td>11</td>
<td>-</td>
</tr>
<tr>
<td>P-value</td>
<td></td>
<td>&lt;0.001</td>
<td>0.366</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P-value for difference between level of agri-environment management: 0.139

Table 4.1.2.4 Influence of farming system upon use of words associated with a positive or negative attitude in media literature

<table>
<thead>
<tr>
<th>Arable</th>
<th>Livestock</th>
<th>Farming systems generally</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>4</td>
<td>67%</td>
</tr>
<tr>
<td>Negative</td>
<td>2</td>
<td>33%</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>P-value</td>
<td>0.414</td>
<td>0.132</td>
</tr>
</tbody>
</table>

P-value for difference between farming systems: 0.893

Table 4.1.2.5 displays the results for the final classification that was analysed as regards the media literature, which was that of media journal in which an article was found. The only journals, in which the 20% of media articles read in full were found, were Farmer’s Weekly and Farmer’s Guardian. There was no difference in terms of
word use between either journal, although Farmer’s Weekly did use a greater proportion of positive words (79%). There was no difference between positive and negative word use in the Farmer’s Guardian and once again this is likely to be because of limited data available.

**Table 4.1.2.5 Positive and negative word count according to media journal**

<table>
<thead>
<tr>
<th></th>
<th>Farmer’s Weekly</th>
<th>Farmer’s Guardian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word count</td>
<td>Word count</td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>Pct.</td>
<td>79%</td>
<td>67%</td>
</tr>
<tr>
<td>Negative</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Pct.</td>
<td>21%</td>
<td>33%</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>12</td>
</tr>
<tr>
<td>P-value</td>
<td>0.002</td>
<td>0.248</td>
</tr>
<tr>
<td>P-value for difference between journals</td>
<td>0.426</td>
<td></td>
</tr>
</tbody>
</table>

Analyses were carried out to compare the Welsh AES, Tir Gofal and Tir Cynnal, being the only AES that were the focus in more than one media article within the 20% of articles read. Despite this, a table has not been included here due to the fact that there was no difference in positive or negative word use for each scheme respectively, or when compared to one another. This is likely to be because very little data, in the form of quotes to be analysed in Yoshikoder, could actually be obtained from these articles.

4.2 ONLINE SURVEY RESULTS

Unfortunately, due to the fact that only six survey responses were obtained from a possible 4000 respondents, it was not possible to statistically analyse the results. The 4000 figure is used as the estimated quantity of possible respondents as, this is the number of farmers in receipt of the National Farmers Union (NFU) newsletter, within which was included a link to the online survey. Nonetheless, from the responses received, some strong opinions were expressed which are discussed in the following chapter.
CHAPTER 5: DISCUSSION

5.1 COMPARISON OF THE SCIENTIFIC AND MEDIA LITERATURE

Commencing with a discussion of the overall comparison between land manager attitudes portrayed in the media and scientific literature, the fact that they both indicated significantly more positive as opposed to negative word use was fairly surprising given the first impression that you have, when doing a preliminary search of the literature, which is that agri-environment policy ends to overlook land manager attitudes and opinions (Uthes and Matzdorf, 2012). There were a number of limitations to the study which could have been influencing these results. A first constraint was the fact that there was not enough time to read all of the scientific literature. On the other hand, an equal proportion (20%) of both science and media literature articles were read and analysed, which was subsequently deemed to be an adequate proportion to indicate any overall patterns emerging within the data.

In terms of the Yoshikoder software, this programme was unable to incorporate and analyse data in tables as its main function is to compare written literature. Consequently, data within tables indicating land managers’ attitudes towards AES, such as tables including Likert statements towards which farmers have expressed the extent of their agreement, were not used despite potentially including valuable data linked to land managers’ attitudes. An example of this situation can be seen within a study by Guillem et al. (2013), whereby a questionnaire sent to Scottish land managers in the Lunan Catchment, asked them to rate a series of statements on a 5-point Likert scale. One category was linked to the land managers’ perceptions of AES and attitudes towards farmland birds (Guillem et al., 2013). The answers to the Likert statements were recorded in tables and included, for example, data indicating that 45.7% land managers disagree with the statement that “There is insufficient information about ER- AES to participate” (Guillem et al., 2013). Yoshikoder would not have captured this data and therefore, an additional aspect to incorporate into a future study would be to include a separate analysis looking at the data contained within tables such as these.

Once the Yoshikoder dictionary for this study had been written, while two categories of words indicating a negative attitude and positive attitude were created and then
applied to the science and media literature in turn, the Yoshikoder analysis was unable to distinguish whether or not a particular word within the data had been used within a relevant context or not. Using the root word ‘benefit’ as an example, which was included within the Yoshikoder dictionary as a word in the positive category, while words with ‘benefit’ as the root were found a number of times within the science literature data, it was not always in association with a positive phrase. Both the phrase ‘the financial benefit is the most important reason’ which indicates a positive outlook towards AES and their effectiveness and the phrase ‘AES may disproportionately benefit larger farms’, which does not, would have been counted as a positive hit within the analysis. An example of a Yoshikoder frame with relevant positive words that have been found can be seen in Appendix 8.

Nevertheless, the study, which compares key quotes from the science and media literature, maintains the ability for capturing the overall atmosphere in terms of whether land managers are content with AES and believe whether they are effective or not. The implications of the results obtained will be discussed in the following sections.

5.1.1 Scientific Literature

A positive result, implicated from the fact that of all the Yoshikoder dictionary words used with the scientific literature, 68% are positive, indicates that land managers across the EU could indeed be contented with AES. Returning to the Theory of Planned Behaviour (Ajzen, 1991), the fact that a positive view of AES is indicated throughout the results, leads to the suggestion that EU agri-environment schemes, provide an environment conducive to land managers having a high perceived behavioural control, in addition to stimulating a positive attitude towards agri-environmental management. These are both components that influence a land managers intentions and, in turn, behaviours with respects to agri-environment. Naturally, it is impossible to generalise across the whole EU and this theory can also be considered in the context of the various influential elements, such as geographical location which were also considered and analysed within this study. As regards the Functionalist Approach to Motivations for volunteering, the results also suggest that land managers’ are mostly satisfied with the programmes as they are at present.
Of course, looking at the scientific data as a whole like this provides a very broad picture. When the detail is explored further through the categorisation of data, for example by comparing attitudes according to farming system, an idea can be gained of just how complex a situation the EU wide agri-environmental programme is. The diversity of farming systems across the EU, levels of administration and even the diversification of AES themselves are all factors that could be influencing land managers’ beliefs as to whether agri-environment is an effective policy or not, and the key patterns that emerge when studying the literature from these different contexts are discussed in the later sections of this chapter.

The sources of studies read in full in this project covered a range of different journal types, the categories of which can be seen in Table 4.1.1.8 in the results section, with some journals approaching research from a more agricultural perspective, and others having a more environmental focus. This thus allowed a rounded perspective from researchers with different objectives. Examples of journals included under the different categories are the Journal of Rural Studies which was included under the category of agricultural journals and, the Journal for Environmental Planning and Management which belonged to the environmental and ecology science, management and conservation category. While the former has a focus upon different rural issues including agriculture and conservation (Elsevier, 2014), the latter publishes research related to any element of managing the environment and the sustainability of resources (Elsevier, 2014). It is good to note that studies from all journal categories, other than studies from journals with a focus on environmental policy and economics, indicated a positive land manager attitude towards agri-environment, and the latter did not indicate a strongly negative outcome, but rather, no difference between positive or negative word use.

5.1.2 Implications of the Media Literature

The media literature also follows the same trend as that of the science literature, with significantly more positive (75%) dictionary words used than negative. One important note is that, despite the fact that non-agricultural media sources were included within the Factiva database search, the majority of the studies were from agricultural media,
Farmer’s Weekly and Farmer’s Guardian specifically, and all of the 20% relevant articles read in full were from these two sources. It is possible to suggest therefore that consumers and the general public may not be receiving much information as to the status of AES, and whether they are believed to be effective at all. The implications of this are discussed below when the importance of consumer and the general public perceptions are considered.

While the result for the chi square test comparing the scientific and media literature is significant with a p-value of 0.045, this is likely to be because of the overall larger quantity of data obtained from 20% of science as opposed to media studies. The fact therefore that the positive pattern implied from the media results follows the same general pattern as that of the science results is important as it suggests that both agricultural media and science literature indicate the same general pattern of land manager attitudes towards agri-environmental policy. As previously mentioned, media outlets are the first main source for communicating agri-environment information to land managers (Morris et al., 2000). A positive view of agri-environment within the agricultural media could subsequently encourage other land managers to join, or to implement specific agri-environmental management options that have received a favourable review. Continuing along this same line of thought, opinions of agri-environment portrayed within the media could form part of the subjective norm, one of the components influencing motivations within the TBP conceptual framework (Ajzen et al., 1991), thus having a significant influence upon a land manager’s intention to carry out an agri-environment related behaviour and subsequently perform the behaviour itself.

On the other hand, it is perhaps worrying to consider that messages as regards the success of AES from the point of view of land managers are not being transmitted towards the general public. Singh et al. (2014) suggest that while a range of policy measures acted as the push for the ‘Greening’ process of the 2013 CAP reform, whereby a new CAP framework was decided for the period 2014-2020 (EC, 2013), that consumers also created a pull through preferences for sustainable resource use along the food supply chain (Singh et al., 2014). The study goes on to imply that clear communication pathways as to the sustainable production of food on the farm and at
other points along the agro-food chain is required to create consumer awareness as to what they can trust to have been sustainably produced, but that this communication is not entirely there (Singh et al., 2014). This could thus be one reason as to a slow behavioural change in consumers as to the products that they are buying (Singh et al., 2014). While campaigns by big companies and supermarkets, through labelling schemes, as an example, may play a large part (Singh et al., 2014), the media also could enhance this communication channel if the correct messages as to how effective sustainable measures implemented through agri-environmental programmes really are.

As regards looking at the media literature from a European point of view, there was one main issue. All the media literature obtained was from the United Kingdom or the Republic of Ireland. While this is surprising as media sources that would cover issues from the rest of Europe were included into the Factiva database search, such as Euronews and EUobserver, it is perhaps to be expected as media literature is more likely than scientific to be written in the language of the region which it is discussing. It would certainly be worthwhile in a future study therefore, carrying out a multi-lingual search of the various media sources from across the EU. By incorporating, as was the initial objective, an EU wide focus into the media analysis, the trend observed may differ to that currently found in the results.

Another point to mention while discussing the media literature is the fact that it tends to look at AES by approaching topics from a national level rather than breaking them down into regional or local levels. As you move down the scale from a broad outlook to an observation of the finer details, it is likely that you get a more accurate picture of what is happening on a case-by-case basis. Had the media articles focused more closely upon specific regions, or specific elements of AES, as did many of the scientific literature sources, a more complex pattern in terms of how land managers perceive AES may have emerged.

An additional method of expanding research into how land managers’ perceptions of AES are portrayed in the media would have been to include other forms of media communication. Morris et al. (2000) indicate that in addition to the press, television
and radio are also important pathways of agri-environment communication. Furthermore, the social media, including features such as blogs, Apps and Twitter, are increasingly perceived as a tool for communicating opinions regarding aspects of scientific research (Bik and Goldstein, 2013) and could subsequently be a useful mine of information as regards agri-environmental policy, to be considered in future studies.

A final point to consider and which may have influenced the results obtained is that of media bias. Baron (2006) describes a number of ways in which bias can enter media news, for example through the public demanding news that correlates with their social or political opinions, but also indicates that society as a whole recognises this bias and may adapt decisions accordingly. This could subsequently link back to the issue of getting truthful information across to consumers as regards AES. In fact, an interesting future area of research would be to investigate directly whether consumers adjust their opinions according to whether they believe that media is biased and how much of an understanding of agri-environment and sustainable food production they have in the first place.

5.2 ONLINE SURVEY

While unable to perform any analysis upon the results from the online survey, it is still worth considering the responses that were received and pulling out key quotes and patterns. One main point that can be ascertained from studying the responses is the complexity and diversity of land manager’s opinions. Indeed, even from a tiny sample, of only six respondents, the variety of responses was surprising. When considering Question 10 of the online survey (see Appendix 7.), which asks land managers to rate on a Likert scale how effective they consider the AES in which they are participating to be for meeting their environmental objectives, answers included very, moderately and not at all effective. Similarly, when asked about their satisfaction with the scheme in which they were participating, land managers’ responses once again varied from very to not at all satisfied. While it was impossible to tell from the small samples obtained, with a greater number of responses it may have been possible to then determine correlations between level of effectiveness and level of satisfaction depending on factors such as farming system, type of AES, and so on.
Nonetheless, when looking at the overall issues with current AES and any suggestions for addressing these, the level of flexibility stood out as an important consideration. This can be seen from the examples of quotes below, taken from responses to Question 20, which asked whether land manager’s had any suggestions for improvements to the AES in which they were participating:

Farmer #1 “More flexibility...not every year is the same”

Farmer #3 “Schemes are very restrictive for some small farms so making it difficult to acquire correct number of points”

Farmer #6 “The replacement of strict dates and prescriptions by guidelines”

In addition to the predominant concern related to the inflexibility of current agri-environment prescriptions, other areas suggested by land managers as requiring improvements included reducing the quantity of paperwork (Land manager #4) and to encourage greater connection between AES (Land manager #3) at a landscape level in order to better protect arable birds. Indeed, conserving farmland birds was stated by a number of the land managers as being a motivation for entering AES along with conserving biodiversity generally and gaining a regular farm income. Additionally, both land managers #3 and #6 stated that one of their major sources of satisfaction from participating in AES was the fact that it enabled them to simultaneously conserve biodiversity and the environment whilst maintaining a high productivity.

5.3 GEOGRAPHICAL LOCATION

Having considered the influence of geographical location upon results from media studies previously, this section will focus upon the scientific literature, approaching the topic from two different contexts, firstly by geographical location within Europe and subsequently by administrational level within a particular country. By comparing the literature according to the country in which research was carried out, it may be possible to identify Member States that have well-designed agri-environment programmes that are perceived as successful by the land managers involved. While literature focusing on research from the UK, Ireland, Scotland and Wales, indicated no
difference in terms of negative and positive words used, the Netherlands and Sweden indicated very positive results. When looking at relevant quotes from studies from these two countries we can indeed see that land managers are content with certain aspects of the AES, such as the financial benefits and level of compensation in AES in the Netherlands (Berentsen et al., 2007) and the subsidies and help available to land managers in AES in Sweden (Hansson et al., 2012). However, this does not mean that land managers from these Member States are unanimously happy with the agri-environment management options on offer and believe that they are entirely successful. For example, while land managers in Sweden stated that help was available they also suggested that it was up to the land managers themselves to take an interest in going after the information themselves (Hansson et al., 2012). Moreover, land managers in the Netherlands thought that agri-environment administration was complicated and took up a lot of time (Berentsen et al. 2007).

On the contrary to Sweden and the Netherlands, Germany uses only words with a negative association. When looking at quotes from articles with a German focus, a number of factors were perceived negatively by German land managers such as transaction costs that are too high when applying for agri-environment compensation (Mante and Gerowitt, 2009). By identifying these areas therefore where agri-environment programmes appear to not be very effective from the point of view of the land manager, allows effort for improving policies to subsequently be redirected to these areas. Furthermore, lessons learnt from areas where agri-environment does appear to be successful can also be applied to these areas. It is not fair to say however, that the German AES are entirely unsuccessful as data for this State was limited and additional time and the reading of a greater proportion of studies may have allowed a greater quantity of data to be obtained and broken down according to different German regions or AES.

Analysis within and between Member States was only carried out for the aforementioned countries as these were the only ones to have been the focus of agri-environment research in more than two of the scientific studies. In light of this, it would appear that research into the effectiveness of AES, from the point of view of the land manager, is lacking in both Southern and Central Eastern European (CEE) Member
States. This is not surprising considering the fact that it was only in 2004 that the EU-10 which mainly consisted of CEE States or Southern European States namely, the Czech Republic, Estonia, Cyprus, Lithuania, Latvia, Hungary, Malta, Poland, Slovenia and Slovakia acceded into the EU. Moreover, in this project relevant data was mainly found in studies that looked at one Member State in particular, and it has been suggested that agri-environment research within both Mediterranean and some Eastern European countries tends to be found in studies with a focus upon more than one Member State at any one time (Uthez and Matzdorf, 2013). In this project not enough studies were read, that focused upon more than one member state, to use within the analysis and this could be another reason explaining the lack of data from these two broad European regions. Nonetheless, the apparent lack of research within these two regions should be addressed, especially given the biodiversity conflicts in the Mediterranean and CEE of both agricultural land intensification in certain areas and simultaneous abandonment in others (Henle et al., 2008).

Considering geographical location from the second context, that of administrative level, there actually appears to have been no difference in terms of how positively land managers view agri-environment policy whether studies focused upon agri-environmental management options from a nationwide level right down to a local level. Due to limited data, the ‘regional’ category incorporated studies from regions varying in size, including for example the whole of Southern Sweden as well as a single county within Lithuania. Once again, time to read a greater proportion of studies may have allowed further distinctions to be made within each of these broad administrative categories.

5.4 Farming System and Level of Agri-Environment Management

Interestingly, from the results for both the science and media literature, there does not appear to be any difference between farming system in terms of how positive an attitude land managers from particular system have towards agri-environmental programmes. On the contrary, the level of agri-environment management which has been used as the focus within a particular study certainly appears to have an important influence.
Studies which have focused upon agri-environmental measures use significantly more negative words than those which have focused upon agri-environment programmes or schemes as a whole. This suggests the importance of looking at opinions at a finer scale so that improvements can really be made to agri-environmental policy as a whole. For example, it may be that land managers are unhappy with particular measures concerning field margins, as is the case in one of the scientific studies used in the analysis by Mante and Gerowitt (2009) whereby farmers indicated that a greater diversity of measures to prevent weeds spreading should be allowed. Linking back to the social theories discussed in this report, addressing a particular measure, such as this, could ultimately improve the overall contentment with the programme in question, for example by increasing a land managers’ perceived behavioural control within the TPB conceptual framework (Ajzen, 1991).

In light of the discussion of the importance of considering agri-environment policies according to different management levels it is interesting that the majority of media literature articles appear to focus upon agri-environment programmes as a whole, and indicating that land managers view these favourably. In fact there was so little data available within the media literature that targeted opinions towards specific agri-environment measures that they could not be included as a category within the analysis. Furthermore, the limited data available for AES perhaps explains why there is no difference between positive and negative word use for this category. In order to correctly convey the opinions that land managers have for different aspects of agri-environment policy, both to the public in general and other land managers, a more realistic picture may be achieved should the media incorporate opinions from different levels along the agri-environmental management scale.

5.5 TIME FRAME

It was interesting to discover within the scientific literature, that the time periods 2006-2008 and 2009-2011 had a significantly less positive result than either the 2003-2005 or 2012-2014 time periods. This implies that various external factors could have been influencing perceptions of AES from 2006-2011. Certainly, 2007-2008 saw the international financial crisis generally (Bordo, 2008) and a huge increase in food
commodity prices (Piesse and Thirtle, 2009) specifically, creating pressured times for land managers. Moreover, both 2000 and 2003 saw CAP reforms (Gay et al., 2005) and it is possible that the resulting changes to agri-environment programmes had a knock on effect of disturbing the stability and hence influencing land managers’ opinions of agri-environmental policy in the following years. These results therefore imply the relevance of looking at agri-environment policies in the context of larger global events that are taking place, and perhaps granting land managers greater understanding during these times which may be challenging for them.

5.6 WHERE CAN IMPROVEMENTS BE MADE?

While the overall outlook is very positive and appears to indicate that land managers’ have a positive attitude towards agri-environment, it is clear that a number of issues surrounding the effectiveness of AES remain. The most frequently brought up issues in the scientific and literature data relate to the inflexibility of AES and this is found at both the agri-environment measure (Mante and Gerowitt, 2009) and agri-environment scheme level (Cross, 2007). The survey results also indicate the inflexibility of schemes in terms of fitting in with current farm management plans as being the main issue. AES elements found to be requiring improvements in this study are in therefore in keeping with those found in others. Uthes and Matzdorf, (2013) also indicate policy lacking in coordination and rigid management as being limiting factors in land manager uptake of schemes. Furthermore, they suggest that agri-environment measures most in line with land managers’ current circumstances are most accepted (Uthes and Matzdorf, 2013).

Considering land managers’ attitudes towards AES is the start to understanding a complex network of stakeholders involved in the process of EU agri-environment policy. Only by considering the attitudes of all the different stakeholders involved will a thorough understanding of the areas where agri-environment policy is working be gained and conversely, the areas where improvements could be made. While the results of this study have indicated that land managers’ attitudes are generally positive towards AES in both the science and media literature, supporting as a whole the hypotheses presented at the beginning of the report, limitations to the methodology which could have been influencing the results are also discussed. The implications of
the positive trend being the same within both the science and media literature are considered along with variables such as geographical location that may have influenced land manager’s attitudes.

Perhaps the key point to be drawn from this study is the enormous complexity of land manager attitudes across the EU, which ultimately makes it all the more important to understand attitudinal patterns according to various scheme components and external factors such as location. As a final concluding remark, it is important also to place a consideration of agri-environment schemes in a greater International context, with large external events like the 2007-2008 financial crisis potentially having a significant impact upon land managers. In challenging times such as these, it is all the more important to address the needs and requirements of land managers in order to maintain their confidence in and support of agri-environmental policy.
CHAPTER 6: REFERENCES


APPENDICES

APPENDIX 1. Main search string used for the scientific literature review

The following search string was designed in the Science Direct and Factiva databases and was the main search string used for obtaining studies within the scientific databases.

"Agri-environment*" AND ("European Union" OR EU OR "Common Agricultural Policy" OR "Europe* agricultur*") AND (Farmer OR Landowner) W/15 (view OR opinion OR survey OR attitude OR rationale OR perspective OR respon* OR perception OR perceiv* OR interview*) AND (ineffectiv* OR effectiv* OR worr* OR hope* OR hoping* OR pessimis* OR optimis* OR fail* OR success* OR negative* OR positive* OR disadvantage* OR advantage* OR benefit* OR uncertain* OR certain* OR infuriat* OR angry OR anger* OR praise* OR believ* OR belief* OR concern* OR fear* OR understand* OR support* OR shock* OR recognis* OR reason* OR happy)

APPENDIX 2. Variations to the main search string

Search string used for JSTOR:

("Agri environment" OR "agri environmental") AND ("European Union" OR EU OR "Common Agricultural Policy") AND (Farmer OR Landowner)

Search string used for Web of Science:

"Agri environment*" AND ("European Union" OR EU OR "Common Agricultural Policy" OR "Europe* Agricultur*") AND (Farmer OR Landowner) NEAR/15 (view OR opinion OR survey OR attitude OR rationale OR perspective OR respon* OR perception OR perceiv* OR interview*) AND (ineffectiv* OR effectiv* OR worr* OR hope* OR hoping* OR pessimis* OR optimis* OR fail* OR success* OR negative* OR positive* OR disadvantage* OR advantage* OR benefit* OR uncertain* OR certain* OR infuriat* OR angry OR anger* OR praise* OR believ* OR belief* OR concern* OR fear* OR understand* OR support* OR shock* OR recognis* OR reason* OR happy)
APPENDIX 3. Search string used for the media literature database Factiva

("agri environment" OR "agri environmental") AND (Farmer$1 OR Landowner$1) near15 (view$1 OR opinion$1 OR survey$1 OR attitude$1 OR rationale$1 OR perspective$1 OR respon* OR perception$1 OR perceiv* OR interview*) AND (ineffectiv* OR effectiv* OR worr* OR hope* OR hoping* OR pessimis* OR optimis* OR fail* OR success* OR negative* OR positive* OR disadvantage* OR advantage* OR benefit* OR uncertain* OR certain* OR infuriat* OR angry OR anger* OR praise* OR believ* OR belief* OR concern* OR fear* OR understand* OR support* OR shock* OR recognis* OR reason* OR happy)

APPENDIX 4. Inclusion criteria for relevant abstracts in the scientific literature

- The abstract will have some mention of land managers’ attitudes* or indicate that direct opinions of land managers have been sought either through a survey or interview. Alternatively, they will indicate that land managers have been involved in the policy/decision making process as if this is the case they may have given opinions as to what they think of agri-environment management.

- Articles can be excluded at this stage if they specify that the land managers’ attitudes/opinion are on matters other than agri-environment e.g. how well they think a particular farming system will do in the future).

- The focus of the article has to be in Europe. It does not have to mention the European Union as not all studies will mention this in the abstract stage.

- The abstract must include either a direct mention of agri-environment schemes, policy implemented under CAP, or actions/policy undertaken to prevent ecological degradation of some sort (could include ecological services, landscape, biodiversity as a whole or certain species).

- Unless the abstract specifically mentions part of the CAP that is unrelated to agri-environment, if land manager’s attitudes towards CAP have been approached, include these abstracts as they could include aspects of attitudes towards agri-environment.
• Include any abstract that mentions an evaluation of agri-environment programmes, as these studies could also include details of land manager’s attitudes even if this is not explicitly mentioned in the abstract.

• If other aspects of the CAP reform have been explicitly mentioned as being the focus of the study, but the study doesn’t involve AES, then the study shouldn’t be included.

• If the abstract mentions all stakeholders/people involved, it can be included as it may include land managers within this description.

• If the abstract discusses land manager opinions of a particular agricultural practice don’t include it, unless it also mentions the practice as a component of agri-environment schemes.

*Note: Here attitudes has been taken to incorporate motivations

Any studies that focus entirely on any of the following should not be included (Note: Some studies may have several aspects to them and consider, as an example, both the effectiveness of a particular measure, in addition to land manager attitudes. In this case the study may be included for the next stage of the refining process):

• Should not be a study that simply identifies the effectiveness of a particular agri-environment measure without considering land managers’ attitudes.

• Should not be a study simply measuring the ecological effectiveness of agri-environment schemes, i.e. those that study the effect of agri-environment measures upon species and/or particular ecosystem services.

• Should not be a study demonstrating the effectiveness of a new technology that can be applied to an agri-environment scheme.

• Should not include studies modelling future scenarios according to current trends or potential alternative trends, unless it is related to choices that farmers would make under different agri-environment situations.

• Should not be a study only looking at the attitudes of stakeholders other than land managers.
APPENDIX 5. Inclusion criteria for relevant science and media articles

Selection of relevant criteria for full articles:

- Land managers attitudes/opinions towards any aspect of agri-environment schemes are directly stated
- Attitudes/opinions are directly relevant to EU agri-environment schemes, can include any programmes from any country/geographical area/ farming system/ scheme type and so on.

APPENDIX 6. Media literature sources searched for relevant articles, within the Factiva database

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<tr>
<th>Agricultural Media Sources</th>
<th>Non-agricultural Media Sources</th>
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<tr>
<td>Farmers weekly</td>
<td>The Guardian (UK)</td>
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<td>Dairy Farmer</td>
<td>The Times (UK-all sources)</td>
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<td>Farmers Guardian</td>
<td>Financial Times (All sources)</td>
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<td>What’s new in farming</td>
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<td>Euronews (France)</td>
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<td>Euractiv (All Sources)</td>
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<td>The Independent and Free Press</td>
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<td>The Irish Times</td>
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APPENDIX 7. Agri-environment Programme Effectiveness Online Survey:

Agriculture is an essential contributor to England’s economy, providing rural employment opportunities, maintaining rural communities and consisting of the foundations of a food chain which supports many jobs from processing to retailing. Maintaining the high productivity of the land, through providing market goods and other ecosystem services, while also conserving and protecting wildlife and the environment, is what the current agri-environment schemes in England aim to do.

I am conducting a survey that comprises part of a research project for my Masters degree, and has the broader objective of looking at rural land managers, opinions on the effectiveness of English agri-environment schemes. These schemes include the Environmental Stewardship Scheme and the Classic Schemes of Environmentally Sensitive Areas (ESA) and the Countryside Stewardship Scheme (CSS). Land managers are defined, within the survey, as anybody who participates in agricultural or other land management activities, either as an owner or a tenant of the land.

While the survey is voluntary, your participation would be very much appreciated. Should you not wish to answer a particular question, you may of course leave the response space blank. All responses will be kept confidential, and your identity will remain anonymous. Only myself and my supervisor, Dr. Andrew Knight, will have access to the survey information.

If you have any queries or comments, please feel free to contact myself or my supervisor, Dr. Andrew Knight (andrew.knight1@imperial.ac.uk) for further information.

Best regards and thank you in advance for your response,

Sarah Barnsley

Imperial College London

Email Address: sarah.barnsley13@imperial.ac.uk

1. Please describe the agricultural activities that you carry out on your land.
   - Cropping
     - Wheat
     - Barley
     - Oats
     - Rye, mixed corn and triticale
     - Oilseed Rape
     - Linseed
     - Sugarbeet
     - Maize
o Peas and field beans
o Potatoes
o Oilseeds
o Vegetables grown outdoors
o Orchard fruit
o Outdoor flowers and plants
o Glasshouse crops
o Soft fruit and wine grapes
o Other crops: Please Specify

• Livestock
  o Dairy Cattle
  o Beef Cattle
  o Sheep and Lambs
  o Pigs
  o Poultry
  o Other: Please specify

• Uncropped arable land (All arable land not in production e.g. game cover)
• Woodland
• Temporary grassland
• Permanent grassland
• Other: please specify

2. a.) Are you currently participating in the Environmental Stewardship Scheme?

Yes/ No/ Not yet, but have applied to join a scheme/ Not at present, but am considering it/ were previously, but am no longer/ Unsure.

b.) Please specify which type of Environmental Stewardship you are participating in

• Entry Level Stewardship (ELS)
• Higher Level Stewardship (HLS)
• Organic Entry Level Stewardship (OELS)
• Organic Higher Level Stewardship (OHLS)
• Uplands Entry Level Stewardship (UELS)

c.) If you are currently participating in Environmental Stewardship, or have in the past, please provide details of when you joined the scheme and, if applicable, when you left.

3. a.) Are you currently participating in the Environmentally Sensitive Areas (ESA) scheme?
Yes/ No/ Not yet, but have applied to join a scheme/ Not at present, but am considering it/ were previously, but am no longer/ Unsure.

b.) If you are currently participating in the Environmentally Sensitive Areas (ESA) scheme, or have in the past, please provide details of when you joined the scheme and, if applicable, when you left.

4. a.) Are you currently participating in the Countryside Stewardship Scheme (CSS)?

Yes/ No/ Not yet, but have applied to join a scheme/ Not at present, but am considering it/ were previously, but am no longer/ Unsure.

b.) If you are currently participating in the Countryside Stewardship Scheme (CSS), or have in the past, please provide details of when you joined the scheme and, if applicable, when you left.

5. If you have previously participated in one of the above agri-environment schemes but are no longer, please describe why you left.

6. If you are not participating in an agri-environment scheme, please outline any reasons as to why you are not interested in participating.

7. Is there anything that is, or may be, preventing you from participating? You may select as many as you feel reflect your reasons. Please rank them from 1 being the most important.

- The funding provided is inadequate
- Agri-environmental measures don’t have any environmental benefits
- Joining an agri-environment scheme could affect the productivity of the farm
- The individual management options/measures are too restrictive or inflexible
- Individual agri-environment measures aren’t specific enough to provide benefits to wildlife and the environment in your area
- There is too much administration on your part to warrant your involvement
- Joining a scheme would lead to an increase in labour
- The advice and support provided to landowners/tenants participating in the scheme is inadequate
• You feel that you haven’t been provided with enough detail about the aims of different agri-environment schemes and what they would involve, to warrant joining one
• You don’t know enough about the risk associated with joining an agri-environment scheme
• Participation is not common in your area, and so you feel disinclined to join
• The agri-environment schemes don’t fit into your farm management system
• The length of the agreements are too long
• There is inadequate communication with the governing organisations
• The schemes are too complicated to enter into on your own
• Your family don’t agree with you joining an agri-environment scheme
• Your friends disagree with the principals of the agri-environment schemes currently on offer
• The application procedure is too long
• Farmers have a responsibility to conserve nature without receiving subsidies for doing so
• Other: please specify

8. What specific agri-environmental measures do you have/did you put in place?

• Measures for boundary features (e.g. managing hedgerows)
• Measures for trees and woodland (e.g. maintaining woodland fences)
• Measures for landscape and/or historic features (e.g. maintaining traditional farm buildings)
• Managing buffer strips (e.g. different strip width on cultivated land)
• Measures for managing arable land (e.g. providing a seed mixture for wild birds)
• Measures for establishing a variety of crops (e.g. under sowing spring cereals)
• Measures for protecting water and soil (e.g. buffer strips for watercourses)
• Measures for protecting grassland outside Severely Disadvantaged Areas (SDAs) (e.g. Permanent Grassland with low inputs)
• Mixed stocking on grassland
• Measures for moorland and grassland within Severely Disadvantaged Areas (SDAs) (e.g. low inputs on permanent grasslands in SDAs)
• Other: please specify
Specifically for Higher Level Stewardship (HLS) schemes:

- Measures for boundary features (e.g. managing hedgerows of a high environmental value)
- Measures for trees, scrub and woodland (e.g. restoring woodland)
- Measures for managing orchards (e.g. restoring traditional orchards)
- Measures for landscape and/or historic features (e.g. restoring a traditional water meadow)
- Measures for managing arable land (e.g. providing an enhanced seed mixture in plots for wild birds)
- Measures for protecting water and soil (e.g. seasonally removing livestock from grassland with no restriction on inputs)
- Measures for protecting grasslands (e.g. providing enhanced buffer strips on intensive grassland for particular species)
- Measures for moorland and upland rough grazing (e.g. maintaining moorland)
- Measures for providing educational access (e.g. providing education access through a base payment)
- Measures for lowland heathland (e.g. restoring lowland heathland)
- Measures for coastal and inter-tidal locations (e.g. restoring and/or maintaining sand dunes)
- Measures for wetlands (e.g. restoring and/or maintaining reedbeds)
- Other: please specify

9. What were your main reasons/motivations for participating in an agri-environment scheme?

- Joining a scheme allows you to gain a regular farm income
- Joining a scheme provides you with financial security in a time of Common Agricultural Policy reform
- Joining a scheme helps to improve your business (for example through a reduction of inputs)
- Entering your farm into a scheme will better prepare you for adapting to climate change
- Entering your farm into a scheme will allow you to help mitigate the effects of climate change
- You are able to enhance the use of the least productive areas of your farm (e.g. wet areas) which are often good habitat for wildlife.
- Entering a scheme allows you to help preserve historic features which are important for you.
• Entering a scheme allows you to help preserve birds which are important for you.
• Entering a scheme allows you to help conserve biodiversity which is an important factor for you.
• Entering a scheme allows you to help preserve landscape features which are important for you.
• You are keen to reduce soil erosion
• You are keen to enhance water quality
• Many people in your area are involved in an agri-environment scheme
• Your family encouraged you to join an agri-environment scheme
• Your friends agree with and support the principals of a particular agri-environment scheme
• Other: please specify

10. Overall, please describe how effective you consider the agri-environment scheme, in which you are/were participating, to be for meeting its environmental objectives?

Extremely effective/ Very effective/ Moderately effective/ Slightly effective/ Not at all effective/ Unsure

11. Did you have any specific expectations when joining the agri-environment scheme(s) (e.g. level of support you would receive, etc.)

12. Has the agri-environment scheme in which you are/were participating met your expectations?

13. Please describe any benefits that you believed you would or have gained by joining an agri-environment scheme. (These don’t necessarily have to be physical or tangible benefits but can be any type of advantages you feel that you gain from participating in the scheme.)

14. Have the benefits that you thought you would receive been delivered to your satisfaction?

15. To what degree are you/were you satisfied with the agri-environment scheme?
16. What are/have been the major sources of your satisfaction?

- The regular payments that you receive
- You feel more financially secure
- Your business has improved (for example through having reduced inputs)
- Now being better prepared for climate change
- Implementing measures that will help to mitigate the effects of climate change
- You have received good advice and support throughout
- The level of administration has been appropriate for the situation
- The length of the scheme
- You have been able to enhance the use of the least productive areas of your farm (e.g. wet areas) which are often good habitat for wildlife.
- The agri-environment scheme has fit well into your farm management system
- Joining an agri-environment scheme has enabled you to conserve the environment and biodiversity while maintaining a high productivity on your farm
- You have been enabled to take steps towards conserving biodiversity and wildlife
- The scheme has helped towards the conservation of historic features
- The scheme has helped towards the conservation of the landscape
- The scheme has helped reduce soil erosion
- The scheme has helped reduce soil run-off from your farm
- The scheme has helped enhance water quality
- The scheme has enabled you to reduce the quantity of inputs to your farm (pesticides, fuel, etc.)
- You feel part of the agri-environment community
- Your family think you made the right choice by entering a scheme
- Your friends think you made the right choice by entering a scheme
- Other: please specify

17. Do you think that the majority of land managers in your area see value in joining an agri-environment scheme?

Yes/No/Unsure
18. How likely is it that you would recommend another land manager that they join an agri-environment scheme?

Extremely likely/ Very likely/ Moderately likely/ Not very likely/ Not at all likely/ Unsure

19. If you answered that you are Extremely, Very or Moderately likely to recommend another land manager that they join an agri-environment scheme, what are the reasons why you would advise them to join?

20. Do you have any suggestions for improvements to the agri-environment scheme in which you are/were participating?

21. Do you have any additional comments or suggestions that you would like to present regarding your participation in agri-environment schemes?
Yoshikoder Frame

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<th>Dictionary</th>
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### Dictionary

- Advantage
- Disadvantage
- Impact
- Risk
- Opportunity

### All SIR studies.txt

- More widespread adoption of AESs would reduce the fragmentation in space. However, despite over 20 years experience in developing AESs, there still remain some barriers to their adoption. One of these relates to the costs and complexity involved in joining the schemes, the so-called transaction costs (Falcoover, 2000). It was largely a desire to reduce the transaction costs incurred by both farmers and government which led to the recent UK Policy Commissioner's call for 'broad and shallow' AES structures. Transaction costs encompass the initial outlay in time and money which a farmer must expend to join a scheme. These costs can have a significant impact on levels of participation. For example, the Swepak Project found that, in the UK, the most popular explanation offered as to why a farmer opted not to join an AES was: 'application is too costly' (ibid, 2000). Transaction costs also include the complexity and amount of paperwork required. This can be a major disincentive to some farmers, particularly those who have other major personal concerns, such as health (Housey, Edwards & Edwards-Jones, 2000).

- Transaction costs also apply to the body implementing an AES and can be related to action such as informing landowners about the AES, which represents a major communications and marketing task. The EU Farm Survey in 1997 showed that a quarter of nonparticipants said that they had not known about relevant AESs (the same number that gave financial reasons for not joining). (Wilson, 2000). The problem of communication is complicated, as messages must be delivered to an extremely heterogeneous audience which do not access the same sources of information. Often the most convincing evidence for adoption derives from demonstrating the successful implementation of environmental schemes on neighbouring farms (Wilson, 2000). Smithers & Farman, 2003; Strachan & Holmes-Ling, 2003; Holstein, 2009), but communicating these benefits to large areas of farmers via farm walks and the like can be very resource-intensive.  

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### Benefits

- To save on purchases and benefits
- Through subsidies and discounts The benefits
- The loss of a primary amenity such as a scenic view
- Of some form of conservation (Wilson, 2000). The benefits
- As insufficient without any doubt
- Is the most important reason
- Was made important for potential
- Was a major constraint to the benefits
- Was thought to be the benefits
- From life style appears to the benefits
- Large farms over small farmers

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