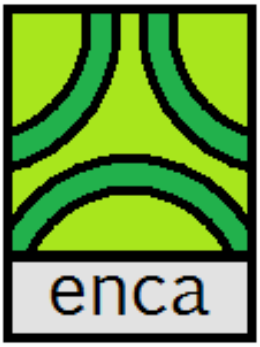


European Network of Heads of Nature Conservation Agencies (ENCA). ENCA is an informal network which fosters exchange of information and collaboration amongst its partners, identifies future challenges and offers information and advice to decision-makers in the field of nature conservation and landscape protection.
ENCA brings together scientific evidence and knowledge of practical application together with experiences in administration and policy advice in the context of biodiversity and ecosystem goods and services. More details can be found under www.encanetwork.eu.

Statements are positions approved on by ENCAs active participants for communication to a wider public.

**ENCA Position Statement 6-2010 - a contribution to the debate on the future of the CAP post 2013**

# Delivering biodiversity objectives through agri-environment measures of the CAP: evidence of success and scale of future needs

## Executive summary

Drawing from sharing experience among European Nature Conservatino Agencies (ENCA), the network and the signing agencies like to emphasize the following points:

- Agri environemental schemes (AES) have achieved much in terms of contributing to EU biodiversity objectives and progress continues to be made in design, application and the monitoring and evaluation of results.
- There is a need to continue improving processes involved in the evaluation of AES but this does not undermine the continued relevance and role of AES in meeting EU biodiversity objectives.
- Co-operation and exchange of lessons at both national and European levels can improve our understanding of the evidence base and it is important that research and evidence gathering efforts continue to be relevant to policy-makers.
- Future AES programmes need to recognise the need to provide incentives for securing biodiversity gain, moving beyond the logic of compensating primarily for income foregone by rewarding beneficial management practices and taking more account of the opportunity costs of maintaining High Nature Value Farming systems. Farmers should also be allowed to use their own initiative to a greater extent, and flexibility is necessary to ensure that management can be tailored to the specific needs of particular sites and species.
- More recognition is needed of the value of advisory and facilitation services in ensuring that land managers, have a better understanding of the purpose of agri-environment measures.

**Agri-environment measures of the CAP: evidence of success and scale of future needs**

- Evidence suggests that there is a shortfall in the resources available for the implementation of AES if the EU is to meet its biodiversity objectives, and that resources need to be better targeted.
- The estimates on the scale of need, based on three countries, indicate that meeting European biodiversity targets would require between 20 % and 33 % of the existing CAP budget, depending on the Member State involved. This does not necessarily imply that an increase in the total CAP Budget is needed. Better targeting of existing funds is very important and AES can play an important role in this.

**This statement has been elaborated by the ENCA Interest Group on Sustainable Land Use and Agriculture in Bonn/Bruxelles in August 2010 and was approved during the 7th ENCA plenary meeting held in Pomena/ Croatia on September 6th/7th 2010 by the following agencies:**

Agency for Nature Conservation and Landscape Protection (Czech Republic)
IHOBE S.A. Public-owned Company of environmental management of the Basque country (Spain - Basque Country)
Countryside Council for Wales (UK - Wales)
Federal Agency for Nature Conservation (Germany)
Federal Office for the Environment FOEN (Switzerland)
Environment Agency (Austria)
European Environment Agency EEA (Europe)
Institute of the Republic of Slovenia for Nature Conservation (Slovenia)
Institute for Nature Conservation of Serbia
Joint Nature Conservation Committee (UK)
Metsähallitus Natural Heritage Services (Finland)
Natural England (UK - England)
Netherlands Environmental Assessment Agency (Netherlands)
Scottish Natural Heritage (UK - Scotland)
Staatsbosbeheer (Netherland)
State Institute for Nature Protection (Croatia)
State Service of Protected Areas under the Ministry (Lithuania)

**Observers**
Environment Agency of England & Wales (UK)

The findings and conclusion presented here are the collective view of the Interest Group. They do not necessarily reflect the position of the respective ministries or of the governments of each member state. Further information can be obtained at http://encanetwork.eu/home

## The role of agri-environment measures within the CAP: evidence of success and scale of future need

### 1. Introduction

Halting the decline of biodiversity within the European Union and securing its restoration remains a critical European target over the next decade. There are clear indications that the EU will not achieve the original target set in 2001 of halting biodiversity loss in the EU by 2010. On March 2010 the European Council adopted a new target of halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible[1]. This commitment acknowledges the need for completion of the network of Natura 2000 sites, and, for action beyond protected areas through the establishment of 'green infrastructure'[2]. European Environment Ministers have also made a commitment to identify High Nature Value (HNV) farmland in Europe and to put adequate conservation measures in place as a key target to halt biodiversity decline[3].

This Statement focuses on Agri-environment schemes (AES) as an essential tool for achieving these targets and as a means for integrating biodiversity into the Common Agriculture Policy (CAP). The Statement does not consider other public goods delivered by AES, the importance of multi-objective schemes or, the multiple benefits that arise from agri-environment programmes. All of these are important at this time of budgetary constraint.

There is a strong rationale for EU policies and investments that support biodiversity and agri-biodiversity in particular. Biodiversity underpins the various natural processes or ecosystem services which are essential for continued agricultural production and the maintenance of human life. These services include among others - soil formation, pest control, the maintenance of soil fertility, pollination and regulation of the water cycle[4]. Furthermore, biodiversity

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[1] On the 15th of March 2010 the Environment Council adopted conclusions (7536/10) setting out the EU headline target of "halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss". The target was endorsed in its conclusions of 26th of March 2010 by the European Council (EUCO 7/10).

[2] The concept of 'green infrastructure' is used in the Conclusions of the Council of the European Union (7536/10) to promote the integration of biodiversity into other policies, and to highlight the contribution these areas make to climate adaptation and mitigation, preventing habitat fragmentation and increasing connectivity. Green infrastructure " is defined in this document as an interconnected network of natural areas, including agricultural land, greenways, wetlands, parks, forest reserves, native plant communities and marine areas that naturally regulate storm flows, temperatures, flood risk and water, air and ecosystem quality".

[3] As part of the Kiev resolution on Biodiversity (2003) the European Ministers (Participating in the Pan-European Biological and Landscape Diversity agreed to identify High Nature Value (HNV) farmland in Europe and put adequate conservation measures in place. High Nature Value (HNV) farmland is applied to refer to those areas where farming practices support a high level of biodiversity (for more details on the concept see EEA High nature value farmland – trends, characteristics and policy challenges (2004) and M. L. Paracchini et al, JRC Scientific and Technical Reports High Nature Value Farmland in Europe, An estimate of the distribution patterns on the basis of land cover and biodiversity data (2008).

[4] See EEA 10 messages for 2010, Agricultural ecosystems (2010) at p. 4.

is not restricted by national borders. Habitat connectivity across national frontiers is critical for allowing species to migrate and adapt to climate change[5]. It is an area where action by the EU can add value[6]. The conservation of biodiversity is justified, to a substantial extent, already an area of EU competency and many European policies, including the CAP, have a significant effect on it.

Agriculture covers about 50% of the EU's land area[7], comprising an important part of the EU's biodiversity. This includes many threatened habitats and species, which are highly dependent on the continuation of certain agricultural systems[8]. At the same time, the twin processes of agricultural intensification, and land abandonment, have resulted in biodiversity decline. For example, recent figures show that grassland butterflies, a key biodiversity indicator, have declined almost by almost 70% since the 1990s and populations continue to decline[9]. A similar situation exists in the case of farmland birds. A major factor for these declines is that those farming practices which are most beneficial to wildlife and plants, and deliver public goods, are not rewarded by the market[10].

The forthcoming reform of the Common Agricultural Policy post 2013 provides an opportunity for European policy makers to take stock of the tools and resources needed to meet the EU's biodiversity targets. The CAP could be transformed into a system that rewards farmers for delivering biodiversity targets and other beneficial environmental practices, whilst continuing to produce the food that we all need.

The evidence we present in this document suggests that agri-environment measures are already making a major contribution to the delivery of biodiversity objectives, as well as

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[5] See also details on 'green infrastructure' above.

[6] See details on conclusions adopted by the European Council on the 15th of March 2010 (7536/10) on EU biodiversity and on the Kiev resolution on Biodiversity (2003) above. For more details on the rationale for EU intervention on the environment refer to paper by T Cooper, H. By and M. Rayment, IEEP 'Developing a more comprehensive rationale for EU funding for the environment' (2010).

[7] It is estimated that the area of UAA in Europe is 47% of the EU-territory, equivalent to 182 million hectares in the EU-27 (2005) (source T. Cooper, *Europe's Future Land Use Challenge: Food, climate and the Environmen*t, Presentation at the IEEP conference on Public goods, Brussels, 2010).

[8] For example, out of the 231 habitat types of European interest targeted by Annex I of the EU Habitats Directive, 55 depend on extensive agriculture. This also applies to 11 targeted mammal, 7 butterfly, 10 orthoptera and 28 plant species of Annex II of the EU Habitats Directive. See EEA 10 messages for 2010, Agricultural ecosystems (2010) at p. 4.

[9] Recent figures show that compared to 1990, the European populations of the 17 indicator species used have declined by, on average, almost 70%. Although the decline seems to have slowed a little in the last few years, it has not stopped. See Van Swaay et. al. (for the EEA) *The European Butterfly Indicator for Grassland species 1990-2009. Report VS2010.010* (2010) at p. 11. See also EEA Progress Towards the European 2010 Biodiversity target EEA report No 4/2009 (2009).

[10] The concept of public goods is examined in detail in T Cooper, K. Hart and D. Baldock, IEEP Provision of Public Goods through Agriculture in the European Union (2009). Public goods area defined as non-excludable and non-rival, and it is these characteristics that make it difficult to secure these goods through the market. The report by IEEP points out that a wide range of public goods area associated with agriculture, many of which are highly valued by society, and that the most significant of these are environmental. The report also clarifies that some goods can share both public and private characteristics. This document refers to those public goods that essentially have public goods characteristics.

meeting wider environmental land management benefits at EU level. These benefits include landscape maintenance, water management and resource protection as well as climate change adaptation and mitigation.

In publishing this document, our aim is to:

- Present evidence demonstrating that Agri-environment Schemes (AES) are an effective tool for delivering biodiversity.
- Emphasize the need to continue improving design and implementation of AES.
- Provide some initial evidence for the scale of the budget needed to meet EU biodiversity objectives.

It should be pointed out that the CAP can also have an important role in maintaining biodiversity in forested areas, though the amount of CAP funds available for these areas has been much lower than in agricultural areas. However, forestry measures are outside of the scope of this document.

## 2. Agri-environmental Schemes – evidence of success

Agri-environment schemes (AES) are a well-established mechanism within the CAP[11]. They help to support environmentally beneficial farming practices across Europe and have a long history in several Member States. A wide range of approaches have now been adopted across Europe with many schemes evolving over time.

This paper draws on the findings from evaluations of the agri-environment programmes in Estonia, UK, Austria and Germany. These provide substantial evidence for the benefits of AES[12]. A key conclusion that emerges is that well targeted AES measures have a significant role in both protecting and enhancing biodiversity. The case studies set out in Appendix 1 show that AES have been successful in:

- Maintaining marginal or traditional land use systems (such as orchards in Germany and Austria) that would otherwise fall into decline;
- The long term enhancement and maintenance of valuable habitats (such as species rich semi-natural grasslands in both Germany and the UK),
- Achieving increases in the populations of threatened species (such cirl bunting and corncrake in the UK) as well as increases in species diversity (Austria).

[11] Here we refer essentially to measures under Article 39 (Agri-environment payments) and Article 41(a) (Non productive investments linked to agri-environmental objectives) of Council Regulation (EC) No 1698/2005 of 20 September 2005. There are other articles within the Rural Development Regulation that play a significant role in delivering environmental and rural development objectives which it has not been possible to cover in the scope of this document.

[12] See Appendix 1.

- Enhancing biodiversity and encouraging a better understanding of the causal factors involved (such as increased flower density and the bumble bee populations dependent on this in Estonia).

These evaluations show that a wide range of measures are available, with many differences both within countries as well as between them. Measures may be available on any farm in a particular country or region or they may be targeted at specific habitats or species. In some cases support is broad based, whilst in others it may be more focussed. It may be available to underpin the continuation of extensive or traditional farming practices, whilst elsewhere it may involve changes such as modifications in mowing dates, input reductions or a shift to organic farming. On more intensively managed farms, support may be available for the establishment of arable margins, riparian habitats and other habitat creation and improvement measures.

We have found that in some cases, the scientific evidence for the environmental impact of the prescriptions on biodiversity is limited and that the results of the evaluations are mixed. Unfortunately, this has allowed some commentators to question the effectiveness of the entire agri-environmental programme. However, where the expected results have not been achieved, we find that measures have often been progressively improved. Overall, the evidence suggests that well designed AES represent an effective way of delivering biodiversity objectives. Monitoring and assessments of natural systems and changes in biodiversity is complex and requires considerable investments in data collection to ensure that any effects due to AES have been statistically verified. For instance a general problem is the time-lag between implementation of measures and desired results in terms of changes in biodiversity[13]. It is therefore important that the focus of research continues to address the most relevant questions, and that Member States do not duplicate research unnecessarily. Co-operating at national and EU levels, thinking more strategically and, pooling different experiences, can contribute to overcoming some of the existing gaps in information. In conclusion, the evaluation of AES is not a straightforward process, and whilst there is a need to continue improving the evidence base, such a requirement does not undermine the relevance of AES programmes in helping to deliver against a wide range of EU targets. Nevertheless monitoring and evaluation remain an essential component of any AES programme, critical to demonstrating the kinds of results that can be achieved using public money as well helping to improve the kinds of measures that can be put in place.

The design and application of AES has continued to improve, but more progress is possible. Farmers are critical to the success of AES and future programmes need to provide sufficient incentives to secure the necessary uptake. AES are primarily based on compensating for the income foregone but more emphasis is required on rewarding existing beneficial management above the required baseline. In addition, more emphasis needs to be placed on the full

[13] See report of the ENCA Seminar organized in Brussels, 22nd April 2010 "Environmental Land Management from the CAP – evidence of past success and the scale of future need " (2010).

costs of maintaining these kinds of less intensive farming systems which deliver widespread biodiversity.

In addition, an increased focus on achieving environmental outcomes, rather than overly prescriptive measures, would allow farmers more scope for innovation and encourage them to take ownership of the commitments they have made. This may bring further benefits. Developing suitable advisory services and ensuring good co-operation between farmers, advisors and programme officers is also important as part of improving the acceptability of agri-environment measures within rural communities[14]. Finally, as part of delivering the desired environmental outcome, it is important to ensure that, where necessary, individual management measures can be tailored to the specific needs of particular sites and species[15].

The evaluations we have examined show that some of the AES measures are focused on designated areas such as Natura 2000 sites. Whilst closely targeted AES will continue to be necessary, in future, it will also be important to tackle biodiversity objectives in the wider countryside. The wildlife associated with many Natura 2000 sites depends on the surrounding landscape retaining a biodiverse character. Ongoing climate change reinforces the need for species to be able to move from one site to another without encountering significant barriers. Other significant issues include the compatibility of AES with any future income support or safety net measures as well as how best to integrate existing AES with other EU environmental policies or objectives, such as tackling climate change and the drive to improve competitiveness in line with the EU 2020 strategy.

### 3. Scale of future need

Safeguarding existing European biodiversity and restoring many of the features lost in recent years requires much more than can be delivered by the existing Cross Compliance requirements under the first pillar of CAP. Cross-compliance cannot really ensure the active management of ecosystems rich in biodiversity[16]. Biodiversity as one of the desired environmental public goods provided by farmers, which due to their character are not delivered in the desired quantity and quality via the market[17]. Two main questions emerge from this:

- What supply of biodiversity do we require?
- What budget is needed to meet these requirements?

We have drawn on studies from three different countries; the Netherlands, Germany and the UK to examine what is thought to be necessary in monetary terms to meet European biodi-

[14] Evaluations in Estonia have found that training sessions can help the understanding of environmental issues and the results sought by AES. The majority of farmers in the evaluation reported an increased interest in sustainable agriculture after joining an AES.
[15] See for example experience with moorland and lowland heath in the UK case study in Appendix 1.
[16] EEA 10 messages for 2010, Agricultural ecosystems (2010).
[17] See the reports produced by The Economics of Ecosystems and Biodiversity (TEEB) project, which highlight the importance of valuing the benefits we derive from nature for free and their costs to society.

versity goals. These studies go beyond what has already been done on Natura 2000 sites[18]. Each of the studies we have examined has taken a different approach and made different assumptions. All of the studies conclude that society's current demands for biodiversity are not being met[19]. All three of the studies we have examined are based on the situation in Northwest Europe.

All three of the studies look at the costs of measures rather than the benefits these measures provide for society. For the objective of calculating a required budget this seems appropriate. The studies acknowledge that in some situations, several different environmental goods and services can be achieved simultaneously through AES, thus optimizing the budget available[20]. In this paper, however, we have focussed solely on biodiversity. For all three studies, the calculations are based on the assumption that the stated goals of both European and Member State biodiversity policies should be met.

The percentage of the total agricultural area identified in the studies as required to be managed to achieve the agreed biodiversity objectives varies between 15% in Germany, 9 % to 22 % in the Netherlands (conservative estimate), and 53% in the UK. The costs estimated for each of the measures also vary substantially within countries. Some areas need measures that reduce production almost to zero, while other measures hardly influence production at all. Hence, the level of payments to the land managers (farmers) also varies substantially[21]. However compared with the total CAP Budget in each country, the total biodiversity budget required is less than 20% of annual spending in Germany, between 10 and 33% of the Dutch expenditure, and 28.5% for the UK.

The evidence we found, implies, that In the case of the EU-15, an increase is needed in the budget allocated to achieving biodiversity goals. However, this does not necessarily imply an increase in the total CAP-budget. The German study concluded that better targeting of existing funds was more important than an increase in the overall budget. The current, relatively low, spending of CAP budgets on biodiversity in the EU-12[22] suggests that the EU-12 will be unable to meet their biodiversity targets. However, for the EU-12 it might be more important to allocate any budget to support continued agricultural land use which is strongly associated with a high level of biodiversity.

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[18] S. Gantioler, P. ten Brinck, S. Bassi, M. Rayment et. al. "Financing Natura 2000 – Financial needs and socio-economic benefits resulting from investment in the network", Background Paper for the Stakeholder conference on Financing Natura 2000, 15th und 16th of July 2010.

[19] In Appendix 2 we briefly present the methodology and the main findings and we draw some conclusions which support the above statements.

20 For instance well designed AES prescriptions intended primarily to benefit water can often deliver for carbon

[21] The models applied in the studies indicate that on average payments of € 700-800 (NL), € 653 (D) and € 67-115 (UK) per ha would be necessary. Note that these are management costs, not restructuring costs. The variation in land area and the per ha payment required is due to differences in the methodology used.

[22] EEA Distribution and targeting of the CAP budget from a biodiversity perspective, Technical report No 12/2009 (2010).

The evidence demonstrates that CAP is able to finance biodiversity needs even in this time of budgetary constraint. However, if biodiversity needs were to be met through both first and second pillars there would be a need to take account of the different finance arrangements. Currently most biodiversity and nature related measures are part of the second pillar and have to be co-financed. Co-financing reflects the European interest and follows the additionality principle. However, there may be increasing difficulties with co-financing AES schemes in the current financial climate. For that reason it has been suggested that the level of co-financing should better reflect the scale of European interest of the measure[23].

Throughout the EU changes in agricultural land use are strongly associated with biodiversity decline. Whilst we recognise that the three studies do not reflect the reality in many Southern and Eastern Member States, the need to maintain existing environmentally beneficial farming systems there may well be even greater than it is in North-Western Europe.

## 4. Overall Conclusion

Drawing from our shared experience at EU level, ENCA would like to emphasize the following points:

- AES have achieved much in terms of contributing to EU biodiversity objectives and progress continues to be made in design, application and the monitoring and evaluation of results.
- There is a need to continue improving processes involved in the evaluation of AES but this does not undermine the continued relevance and role of AES in meeting EU biodiversity objectives.
- Co-operation and exchange of lessons at both national and European levels can improve our understanding of the evidence base and it is important that research and evidence gathering efforts continue to be relevant to policy-makers.
- Future AES programmes need to recognise the need to provide incentives for securing biodiversity gain, moving beyond the logic of compensating primarily for income foregone by rewarding beneficial management practices and taking more account of the opportunity costs of maintaining High Nature Value Farming systems. Farmers should also be allowed to use their own initiative to a greater extent, and flexibility is necessary to ensure that management can be tailored to the specific needs of particular sites and species.
- More recognition is needed of the value of advisory and facilitation services in ensuring that land managers, have a better understanding of the purpose of agri-environment measures.

[23] Rainer Oppermann Agriculture and Public Goods, Presentation at the conference on "The CAP post 2013", Brussels 19-20 July 2010.

**Agri-environment measures of the CAP: evidence of success and scale of future needs**

- Evidence suggests that there is a shortfall in the resources available for the implementation of AES if the EU is to meet its biodiversity objectives, and that resources need to be better targeted.
- The estimates on the scale of need, based on three countries, indicate that meeting European biodiversity targets would require between 20 % and 33 % of the existing CAP budget, depending on the Member State involved. This does not necessarily imply that an increase in the total CAP Budget is needed. Better targeting of existing funds is very important and AES can play an important role in this.

- **Appendix 1 Case studies on the benefits of Agri-environmental schemes**

### 1.1 Agri-environmental schemes in Germany:

In Germany[24] the implementation of AES at Laender level provides a high variety of measures with different environmental objectives. Biodiversity considerably benefits from agri-environmental schemes that provide incentives to farmers to maintain traditional land use patterns. It can be generally observed that flat-rate payments and self-selection are leading to a concentration of support in less favoured areas, where farms tend to be the ones with higher biodiversity. Besides biodiversity, mitigation of GHG emissions is becoming a key objective of AES in Germany, in this regard it is important to consider synergies and conflicts with biodiversity objectives.

***Positive findings:***

- AES represent important instruments for the long-term development of species rich grassland (such as mountainous mineral soils, e.g. Eifel) and they contribute their share to the minimization of endangered species.
- AES are a crucial instrument for the preservation of traditional orchards, which represent important habitats for a multitude of animal and plant species and which are important in maintaining the viability of rural areas.
- Biodiversity-oriented AES achieved successes with wild plants and endangered plants on arable land.

### 1.2 Agri-environmental schemes in the United Kingdom (UK):

In the United Kingdom[25] AES have a long tradition and they have made substantial contributions to the achievement of the UK Biodiversity Action Plan targets for certain habitats and species. AES are seen as the main vehicles for achieving the aim of reversing the decline in farmland bird populations. The maintenance of species rich grasslands had been one of the key objectives of agri-environment schemes since their implementation in the UK. Another issue addressed is halting biodiversity decline on arable land.

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[24] Source: B. Osterburg Evaluating Agri-Environmental Schemes in Germany – some considerations for the post 2013 period. Presentation at the ENCA Seminar, Brussels, 22nd April 2010 "Environmental Land Management from the CAP – evidence of past success and the scale of future need " (2010).

[25] Data source: Boatman, N. et al. (for the Land Use Policy Group) A review of environmental benefits supplied by agri- environment schemes (2008) See Presentation at the ENCA Seminar, Brussels, 22nd April 2010 A review of environmental benefits supplied by agri- environment schemes in the UK (2010).

***Positive findings:***

- The Arable Stewardship Pilot Scheme (ASPS), especially the Arable Option for uncropped cultivated margins has been successful in conserving rare arable flora and had a positive effect on the abundance and the diversity of invertebrate.
- A Countryside Stewardship (CS) special project for stone curlew and cirl bunting has been highly successful. For more widespread bird species, ASPS has shown positive responses at the field scale. (In this case the results of evaluations, coupled with the strong underpinning research base, suggest that arable options are effective).
- AES support is helping to maintain the quality of semi-natural grassland. In England grasslands within agri-environment agreements were shown to be almost twice as likely to be in a favourable condition as those outside agreement.
- AES are probably making a substantial contribution to the UK target area for maintenance of lowland meadows.
- Management to enhance habitat for corncrake has been successful in achieving a substantial increase in population of this species within its core range in Scotland.
- In terms of moorland and lowland heath the evidence for benefits of AES is mixed; most of the designated lowland heaths are in an unfavourable condition, but more of those in AES were in favourable condition.
- The reduction of woodland grazing caused by the AES has had a positive influence on tree regeneration and the ground flora. The UK could also observe a high uptake of boundary options within the AES, in this context monitoring indicates objectives are likely to be met, but benefits have not been measured directly in scheme evaluations. Moreover there is also evidence for the benefits delivered by grass margins for invertebrates and small mammals and also some for birds.
- In general the condition of wetlands under AES in the UK has been maintained or improved.
- There is robust evidence of positive scheme results for landscape protection and enhancement.

### 1.3 Agri-environmental schemes in Austria:

Austria[26] has a very complex agri-environment programme with about 32 different measures. The agri-environment measures are designed at national level and can be applied in the entire territory. Most farmers participate in the Austrian agri-environment programme. The agri

[26] Data source: Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (2005): Evaluierungsbericht 2005. Update Evaluierung des Programms für die Entwicklung des Ländlichen Raums, Wien.

environment measures with the highest uptake are environmentally friendly management of land, input reduction and organic farming. Well targeted measures focusing on biodiversity increased within the programme period, but the acceptance is still rather low and there are great regional differences in the acceptance of these measures.

***Positive findings:***

- Input reduction measures lead to a significant higher bird abundance on arable land and a higher plant diversity on grassland.
- Organic farming on arable land leads to a higher plant and bird species diversity.
- Biodiversity focused agri environment measures and measures maintaining extensive farming have a positive influence on bird density and the density of endangered bird species respectively.
- Natura 2000 areas with biodiversity focused agri environment measures show a more favourable conservation status than areas without the measures.
- The agri-environment schemes e.g. the measure maintenance of meadow orchards supports the preservation of traditional orchards.

### 1.4 Agri-environmental schemes in Estonia:

In Estonia[27] agri-environment measures were funded since its entry into the European Union in 2004. For the country the AES is important for helping to maintain farming in marginal areas. In general many farmers are joining AES, so semi-natural community farming systems and large organic farms rely heavily on AES support. If this support was withdrawn, there would be a risk of land abandonment and the loss of biodiversity. For the Estonian evaluation of AES data is now collected from 66 monitoring farms. This allows testing of AES in a relatively controlled environment.

***Positive findings:***

- The number and the diversity of bumble bees was significantly lower in farms that had not joined the agri-environment support scheme due to the higher flower density in farms participating in AES.

[27] Data source: I. Selge Positive benefits of Agri-environmental policies in Estonia. Presentation at the ENCA Seminar, Brussels, 22nd April 2010 "Environmental Land Management from the CAP – evidence of past success and the scale of future need" (2010).

## Appendix 2 Scale of future need

### Germany

This study[28] attempted to calculate the cost of achieving specified conservation goals, as have been stated in legal requirements.

The area requirements are substantiated on the basis of demand for nature conservation and secondly by amenity and recreation. Multifunctional agriculture was used as a reference for the study, understood as agricultural land where productive capacity is combined with nature conservation. The costs in this study are based on economic calculations of the inputs and outputs of the various agricultural systems within the agri-environmental measures and the alternative. Four elements of a multifunctional agriculture were distinguished

1. Preserving and proper Management of the entire remaining low-input grassland (1.000.000ha)
2. Conversion of 10% of high-yielding into low-input grassland (400.000 ha)
3. De-intensification of 10% of less-than-average cropland (300.000 ha)
4. Conversion of 7% of highly productive and average cropland into unused biotopes – 600.00 ha

The costs were taken from reality looking at the various costs relevant to different situations.

The total land requirement calculated in this study is 2,3 Million hectares or 15% of the agricultural area in Germany. Total cost add up to 1.5 billion euro (with an uncertainty of several hundred millions), which is built up from costs of 300, 500, 700 and 1000 Euro/ha in the four different management categories identified. This averages to 652 euro per ha.

### Netherlands

Current Dutch and EU policy goals are used as a proxy for society's demand. Since biodiversity is regarded as a public good the demand for biodiversity from society is not easy to determine directly. In determining the area and budget needs, existing agri-environmental measures were used as a basis. To include in the calculations uncertainty in the uptake of measures, two options were considered. One option with a core area with all uptake necessary for achieving the goal; and a second option with a one country wide approach where all farmers may participate, but the effectiveness may vary. Again, consequences of the absence of pillar 1 measures or other substantial changes in the agricultural context were not considered.

For the Netherlands it was calculated that with 9 to 22 % of the agricultural area under agri-environmental measures the biodiversity policy goals can be met. Average payments per ha will be 700-800 Euro. This calculation excluded policy objectives other than biodiversity, and

[28] See U. Hampicke, at Budget Needs for Multifunctional Agriculture – Considerations for Germany, slides and text presented at the ENCA Seminar (2010).

overlap between measures was not taken into account. Total budget needs for biodiversity in the Netherlands add up to € 111-326 mln.[29]

### United Kingdom

The UK study[30] differed to the other two in that a whole range of public goods and services were considered in the funding estimations including: biodiversity, landscape, climate change mitigation, flood risk management, farmland historic environment, soil quality, water quantity, resource protection, public access, climate change adaptation. Calculations were based on the current agri-measures and payment rates and do not include measures that currently are not represented. The consequences of removing pillar 1 measures were not considered. Overlaps between measures for the various objectives were removed from the calculation.

Without taking overlap into account the area requirements were calculated around 48 mln ha. Biodiversity needs were estimated to be 53% of agricultural and forestry lands in the UK. Costs of meeting all policy objectives was calculated to be nearly £2 billion Euro (with a reported uncertainty range of £1-3, and taking overlap into account), of which the larger share, 51% (£1 bln), was on biodiversity. This figure is some what biased since in the determination of overlap, biodiversity was taken as the first objective to meet. This was because biodiversity measures were considered the most successful in covering additional objectives as well. Costs per hectare run between £56 (Scotland) and £96 (England).

[29] K. Overmars, Netherlands Environmental Assessment Agency, Forthcoming: Possible contribution of the Common Agricultural Policy to meeting policy goals for environment, nature and landscape. See also presentation 'Assessing the land and budget requirements to meet biodiversity policy objectives in the Netherlands' at the ENCA Seminar (2010).

[30] Y. Cao, J. Elliott, D. McCracken, K. Rowe, J. Whitehead and L. Wilson (for the UK Land Use Policy Group) Estimating the Scale of Future Environmental Land Management Requirements for the UK (2009).