

Recent losses of permanent grassland – an assessment of the evidence

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Executive Summary

Summary

- This report assesses recent trends in the amount of permanent grassland in England based on analysis of a number of different datasets. It examines the evidence for increased losses from 2011 onwards as a consequence of uncertainties around implementation of the permanent grassland measure under Pillar 1 Greening, for which the baseline year was originally set as 2015 in the draft text of the Direct Payments Regulations. There has been widespread concern that these factors have provided a perverse incentive to plough out existing permanent grassland as a means of securing maximum flexibility in farm practice ahead of the Greening requirements coming into effect.
- The definition of permanent grassland and the ratio approach applied under Greening is virtually the same as the permanent pasture requirement applied currently under cross compliance. However, the principal aim of the new requirement is to ensure maintenance of grassland as one of the most important carbon sinks for climate change mitigation rather than to maintain pastoralism per se.
- It is recognised that neither the existing or future permanent grassland ratio are designed to protect environmentally important grassland. However given the environmental significance of losses within this category Natural England sought to determine rates of loss through analysis of other datasets to allow an assessment of potential environmental impact, recognising that there is no formal surveillance system for these grasslands. A broad definition is applied to these grasslands recognising the biodiversity and ecosystem services they provide.

Changes in the overall level of permanent pasture in England since 2005

- Under existing cross compliance rules Defra are required to report annually on the percentage deviation from the 2005 baseline ratio of Total Permanent Pasture (TPP) to Total Agricultural Area (TAA) in England. Rural Payment Agency (RPA) data indicate that all % changes since 2005 have been well within the 5% decline threshold set by the Cross Compliance rules. In contrast the underlying data on Total Permanent Pasture and Total Agriculture Area have fluctuated over the time period, with the greatest change being declines of 8.25% and 5.92% respectively in 2008 relative to the 2005 baselines. The application of a ratio to track losses of permanent pasture has a number of limitations which are further discussed.

Changes in the absolute area of permanent grassland in England since 2005

- To contrast with the trend in the level of permanent grass relative to TAA, changes in the **absolute** area of permanent grassland were examined. These data show an absolute net loss of permanent grassland between 2005 and 2011 of 222,000 ha (6% net loss). The overall trend has been a steady decline in the area of permanent grassland activated for SPS payment since 2005, although there was little overall change between 2008 and 2011. Confirmed RPA figures for 2012 and 2013 are not yet available but recent correspondence indicates that they are likely to agree with findings of a Defra analysis which indicate a loss of 58,000 ha between 2011 and 2013 based on June 2013 figures.

Changes in the area of “environmentally important” grassland in England

- As trends in the area of “environmentally important” grassland are not assessed through any nationally implemented surveillance scheme or controlled through any regulatory system, they have instead been inferred from a number of data sources. Firstly, changes in the number of applications made under the Environmental Impact Assessment Regulations¹ were examined, and within these the area of grassland considered to fall within the scope of the Regulations in each year assessed. Secondly, the fate of grasslands previously under low or nil input options under the Classic Schemes (Environmentally Sensitive Areas and Countryside Stewardship Scheme) was examined on agreement expiry. These options were typically, though not exclusively, targeted at semi-natural/agriculturally unimproved or semi-improved grasslands so are judged to give an indication of losses to ploughing of such grasslands. The limitations of these analyses in accurately quantifying losses of environmentally important grasslands are discussed.

Evidence for increased threat level from EIA Regulation application data

- Applications to intensify or plough out grassland under the EIA Regulations have shown a marked increase from 2010 onwards with 234 applications received in 2012 compared to an average of 128 in the previous 10 years. Whilst the number of applications *per se* doesn't itself provide a measure of grassland loss it does serve as a useful indication of farmers' intentions in relation to this more valuable category of grassland, and by proxy level of threat.
- Natural England's EIA team report that enquiries regarding the ploughing out of permanent pasture almost doubled in 2012 from the number received in 2010 (from 575 up to 1005). This was judged to be attributable to the CAP reform proposals being widely reported in the farming press. Furthermore the EIA team, report an increase in tip offs about permanent pasture being ploughed up, from 23 in 2010 to 51 in 2012, and a number of these have been related to registered County Wildlife Sites of high environmental value, more than has been the case historically.
- The area of grassland affected by the EIA applications tracks the trend in application rates, increasing from 2009 onwards with marked increases from 2010 to 2011. The actual areas of grassland which fall within the scope of the regulations on which proposed agricultural projects are likely to have a significant effect form a small proportion of the total, constituting 77 and 239 ha's in 2011 and 2012 respectively. However, the area of grassland judged to fall within the Regulations but not have a significant effect if lost is significantly greater with 493 ha and 1006 ha for the same two years. The majority of land which falls in this category is judged to be uncultivated but not semi-natural or to fall under the 2 ha threshold.

¹ The Environmental Impact Assessment (Agriculture) (England) (No.2) Regulations 2006 came into force on 10 October 2006.

Trends in losses from expiring low to nil input options under the Classic Scheme

- The Classic Scheme analysis reveals an obvious peak in ploughing of low or nil input options in both CSS and ESA expiring grasslands in 2011, with the incidence of ploughing being limited to lowland enclosed grasslands in the CSS dataset highlighting a lowland vs upland pasture split. However, relative to the total areas of these options that are expiring the loss rates are very low. Between 2006 and 2013 the proportion of grassland under relevant CSS options types that had been ploughed equates to 1% (830/76,746 ha), whilst for ESA the rate is even less at 0.3% (188 ha ploughed out of an expiring population of 67,608 ha) over the same timescale. Losses whilst small were highest in the South Western ESAs of Exmoor (23 ha), South Wessex Downs (39 ha) and West Penwith (45 ha). Trends over time were inconsistent across ESAs.
- Furthermore, historically the vast majority of grassland previously under CSS or ESA low or nil input grassland management has come into Environmental Stewardship (ES) (either HLS or ELS) with the proportion remaining reasonably constant at around 70% by area in each year of expiry. As for CSS, 70% of these ESA grasslands are afforded continued protection under grassland management in ES having transferred into either ELS or HLS on expiry.

Trends in losses in land under expiring arable reversion options in England

- The Classic Scheme analysis indicates far higher rates of losses from permanent grassland under expiring arable reversion options, equating to a 13% loss rate between 2006 and 2013 in both the CSS and ESA schemes. Overall 4885 ha of expiring arable reversion options have been ploughed between 2006 and 2013. The temporal trend differs somewhat with CSS showing a clear peak in losses in 2011 when 18% of land previously under arable reversion was cropped on expiry (953 ha out of a total of 5,177 ha of land under expiring arable reversion options in that year) and ESAs revealing a peak in 2010, when 23% of reversion were ploughed on expiry.
- Furthermore for those arable reversion options which on agreement expiry have remained as permanent pasture, 40 to 80% (varying with year of expiry) has been transferred into ES grassland options. This reveals that the level of continued protection for arable reversion options is lower than for grasslands which had previously been under low or nil input option management.

Overall assessment of permanent grassland change in England

- All of the evidence evaluated reveals an increase in the rate of loss of permanent grassland from around 2010 onwards, with the actual peak loss rate varying between 2010 and 2012 depending on the dataset. Analysis of the Classic Scheme data suggests that rates of loss since 2010 vary between different categories of permanent grassland and are highest under arable reversion options (c 20%) compared to losses of less than 5% in peak year in those grasslands under low or nil input options, most likely to be environmentally valuable.
- Anecdotal evidence from members of Natural England's EIA team and from advisors confirms these temporal trends and suggests that the threat of new restrictions on permanent pasture in the CAP reform proposals and continued uncertainty about their implementation, alongside high prices for cereals, is likely to have been a significant driver of this change.
- It is clear that there are a number of constraints to the effective protection of permanent grassland through continued application of the permanent grassland ratio as the main mechanism for checking grassland loss. The ratio itself risks masking significant declines

in the absolute area of permanent grassland over time, with associated environmental consequences including for greenhouse gas emission reductions.

Assessment of changes in environmentally important grasslands

- Available evidence indicates an increased rate of loss from 2010 within grasslands **more likely** to be environmentally important, as evidenced by a peak of losses in 2011 from classic schemes expiries and in applications made to convert/intensify under EIA in 2012. Whilst this translates to an undesirable loss of **potentially** environmentally important grasslands (of at least 550 ha from 2006-2013), absolute losses remain extremely low especially compared to the area of these grasslands which has transferred into ES management.
- Despite the low loss rates revealed in these analyses there remains concern that in the absence of regular surveillance data there is no reliable way of estimating loss accurately for these grasslands and significant environmental public goods they provide.

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1 Introduction

- 1.1 The permanent grassland measure under the Greening requirements of the Regulation (EU) No 1307/2013 of the European Parliament and of the Council establishing rules for direct payments to farmers within the framework of the common agricultural policy requires Member States to ensure that the area of permanent grassland to total agricultural area ratio does not fall by more than 5% relative to the baseline ratio. The finalised text of the Regulation sets the baseline as the ratio of permanent pasture to TAA in full in 2012 (plus the area of permanent grassland in 2015 that wasn't permanent pasture in 2012). However in previous drafts the baseline year was variously 2014 and 2015. If the ratio falls by more than 5% relative to the baseline ratio then the Member State must put in place measures to require the conversion of former permanent grassland or former permanent pasture back to grassland to be set out in the delegated acts.
- 1.2 Member States have the option to calculate the ratio at the national, regional, sub-regional or farm level. Assessment of the existing permanent pasture ratio under Cross Compliance requirements is made at the regional scale, hence future application at any smaller scale, particularly at farm scale places greater restrictions on farmers. Defra have subsequently confirmed that they will be applying the ratio at sub-regional (England) scale.
- 1.3 There is widespread concern that the continued uncertainties about the scope and nature of the next CAP period and the baseline effectively been set in the future under the draft regulations, have provided a perverse incentive for farmers to plough out permanent grasslands ahead of implementation of greening in order to retain business flexibility. Forthcoming research by ADAS which used focus groups of farmers to assess potential responses to the new Greening measures confirms that some farmers are considering doing precisely this. However, farmers noted that the three Greening measures work to some degree in different directions in terms of incentives. Reducing permanent grassland would maintain flexibility to increase cropping in future but it would **increase** commitments under the **Crop Diversification** and **Ecological Focus Area** measures which apply to "arable land". Thus the overall response is uncertain and is likely to vary by farm type and holding (predicted impacts on different farming systems are given in the CAP Evidence paper).
- 1.4 The primary focus of this report is to examine the quantitative evidence for increased losses of permanent grassland since 2011 when proposals for the permanent grassland measure were aired in the farming press. Whilst Natural England recognise that neither the existing permanent pasture measure nor future permanent grassland measure are designed to protect environmentally important grassland or differentiate losses between permanent grasslands of differing ages or values, we have sought to determine specific rates of loss within this category in order to allow an assessment of potential environmental impact.

2 Methodology

2.1 The key sources of evidence presented are:

- Change in the absolute area of permanent grassland.
- Changes in the ratio of permanent pasture to total agriculture area (TPP:TAA).
- Trends in the number of EIA applications submitted to Natural England (and area of grassland affected by these).
- Analysis of the fate of grasslands expiring from Classic Scheme agreements.
- Natural England land management advisors on NE's Grassland Delivery Support Network were asked to provide their assessment of grassland losses in their areas in recent years and insight into the decisions farmers have been taking about grasslands.

2.2 The Classic Scheme analysis sought to determine the extent and distribution of ploughing of grassland which had previously been under low or nil input management options, or under arable reversions. The fate of grasslands under relevant Countryside Stewardship and Environmentally Sensitive Areas options/tiers were determined for each year from 2006 onwards by assessment of the Single Payment Scheme (SPS) Land Use codes which this land had transferred to on agreement expiry. This enabled a year by year assessment to be made of the absolute area and proportion, relative to the total area expiring which:

- a) fell into a cropped land code (and so had been ploughed);
- b) remained as permanent grassland within Environmental Stewardship management;
- c) remained as permanent grassland outside scheme management; or
- d) fell into another SPS category (for example, Temp Grass).

3 Changes in the area of permanent grassland in England

Changes in the ratio of permanent grassland to total agricultural area in England

- 3.1 Protection of permanent pasture is already a standard of Good Agricultural and Environmental Condition (GAEC) under Cross Compliance. Member States have to ensure that the ratio of permanent pasture to total agricultural area is maintained by establishing a baseline reference ratio based on dividing the area of permanent pasture by the total agricultural area in 2003 (2005)².
- 3.2 Each year an annual ratio must be reported to the Commission, which should not decrease by more than 10% relative to the reference ratio. As the decline in the annual ratio approaches 5% relative to the 2003 baseline ratio³, Member States must take action to halt it and prevent further loss of pasture. “Where it cannot be ensured the ratio doesn't fall by more than 10%, Member States must oblige farmers claiming the single payment to re-convert land back to permanent pasture. Where the ratio falls by 5%, an individual farmer obligation may be required”⁴.
- 3.3 It should be noted that this measure was introduced to prevent a significant conversion to arable land and maintenance of pastoralism. It was not designed to pick up intensification of grassland (for example, by reseeding and heavy fertilisation) which may occur whilst the land remains in the CAP permanent pasture category as is evident from the definition of permanent pasture used (below). It does not therefore provide a mechanism to protect environmentally valuable grasslands.

GAEC definition of permanent pasture

- 3.4 “Permanent pasture” means land used to grow grasses or other herbaceous forage that has not been included in the crop rotation of the holding for five years or longer. Grasses or other herbaceous forage are all herbaceous plants traditionally found in natural pastures or normally included in mixtures of seeds for pastures or meadows in the Member States whether or not used for grazing animals.
- 3.5 Grasses and other herbaceous forage can be grown naturally (self-seeded) or through cultivation (sown). Land under set-aside schemes cannot be considered as permanent pasture (i.e. long-term set-aside commitments under agri-environmental schemes and voluntary set-aside).
- 3.6 The recorded Total Agricultural Area (TAA) and Total Permanent Pasture area (TPP) as recorded by RPA Single Payment Scheme returns in each year from 2005 to 2011 are presented in Figure 1. The percentage ratio between TPP:TAA from the 2005 baseline is plotted for each year on the

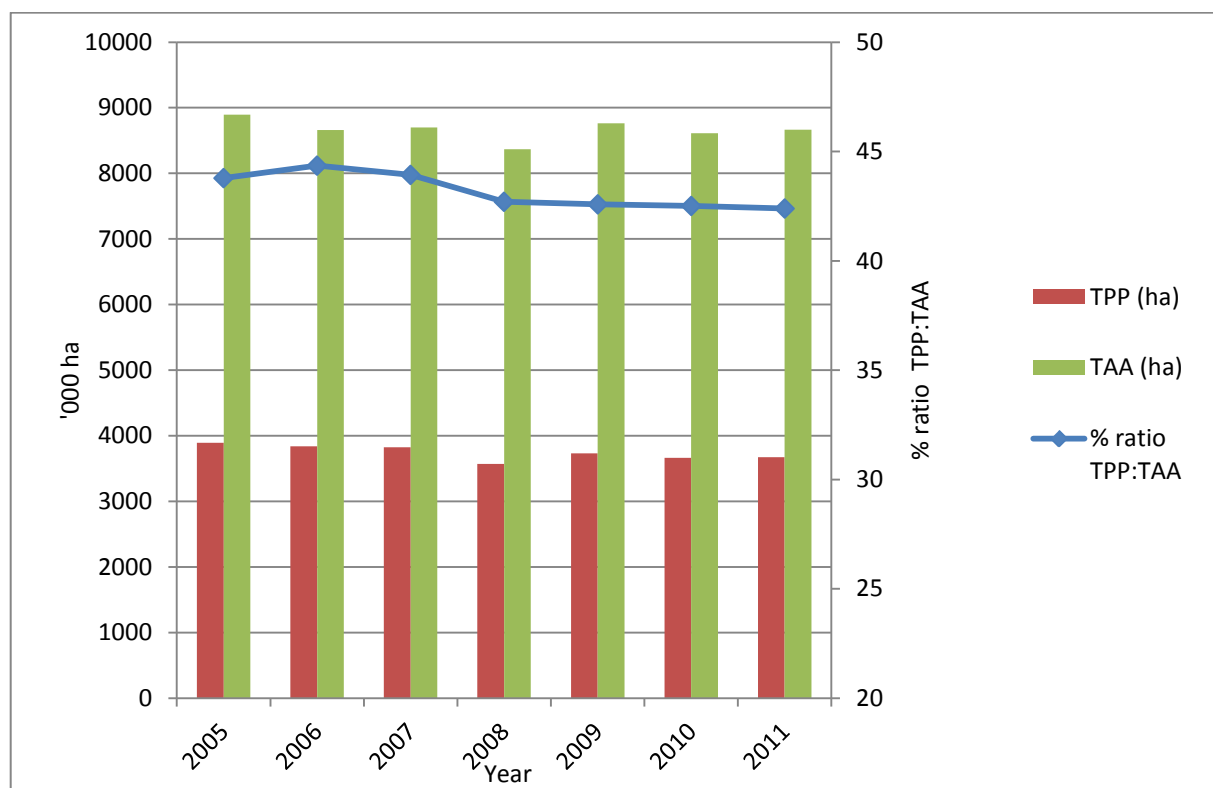
² Technically in the Regulations the 2003 Permanent Pasture figures provide the baseline plus extra that was declared in 2005 minus any areas of permanent pasture afforested under certain RD measures. As a consequence 2005 provides the baseline ratio and what's measured is the difference between that and the annually declared ratio. http://marswiki.jrc.ec.europa.eu/wikicap/index.php/Maintenance_of_permanent_pasture.

³ http://marswiki.jrc.ec.europa.eu/wikicap/index.php/Maintenance_of_permanent_pasture.

⁴ <http://rpa.defra.gov.uk/crosscompliance>.

secondary y-axis. Appendix Table A sets out the figures underpinning the calculation of the permanent pasture ratio as required by GAEC.

3.7 *N.B. The RPA are still working on agreed figures for 2012 and 2013, although they have recently confirmed that area figures for 2012 are in line with the Defra estimates. Since neither the exact area of TPP or TAA have been confirmed it is not possible to provide a ratio for 2012 or 2013 presently.*



Source: RPA figures.

Figure 1 Changes in absolute areas of Total Agricultural Area (TAA) and Total Permanent Pasture area (TPP) in England

3.8 The graph shows a degree of fluctuation in both the annually reported TPP and TAA, with the greatest change being a % decline in area of 8.25% (TPP) and 5.92% (TAA) in 2008 relative to 2005. The ratio between TPP and TAA changes little over the period examined with all changes well within the 5% decline threshold set by the GAEC rules.

3.9 However, there are problems with the application of a ratio per se. It doesn't distinguish between grassland lost to agriculture and grassland lost to arable or distinguish fluctuations in long-term rotational grassland in arable systems. Instead it simply tells you if the rate of loss of permanent grassland exceeds the rate of loss of agricultural land overall. Further if the areas of both TPP and TAA decline at the same rate, losses in the former trigger no response. Finally the Regulations effectively enable a 'rebasin' of the permanent grassland reference level as we enter the new programming period, meaning that even if at an England level we had come close to the 5% level in the last programming period those losses are effectively written off and the baseline reset.

Changes in absolute area of permanent grassland in England

3.10 Changes in the absolute area of permanent grassland are calculated from the RPA Single Payment Scheme dataset.

Table 1 Changes in area of permanent grassland in England since 2005 (RPA)

Year	Permanent Pasture (thousand ha) RPA figures	Between year change %	Difference from baseline (thousand ha)	% cumulative loss
2005	3894		0	0
2006	3840	-1.37%	53	1.37
2007	3821	-0.46%	72	1.85
2008	3572	-6.53%	321	8.25
2009	3731	4.40%	163	4.18
2010	3661	-1.87%	233	5.97
2011	3672	0.30%	222	6.03
2012	tbc	tbc	tbc	tbc
2013	tbc	tbc	tbc	tbc

3.11 According to the RPA figures supplied to the Commission there has been a cumulative loss of c 6% since 2005.

3.12 In the absence of more recent data from RPA, separate analysis by Defra statisticians shows the following trends (Table 2). Figures related to areas of those fields (or part fields) that have been activated for SPS payments under codes PP1 to PP4 in each year, including only those fields where the grid reference falls within England (i.e excluding Scottish or Welsh fields on English holdings). Figures exclude claims for common land.

Table 2 Changes in the area of permanent grassland in England based on field area activated for SPS payments

Year	Permanent pasture (thousand ha) Defra figures	Between year change %	Cumulative ha lost from baseline (thousand ha)	% cumulative loss (activated SPS claimed)
2005	3603		0	0
2006	3535	-1.88	68	1.92
2007	3487	-1.38	116	3.33
2008	3450	-1.05	153	4.43
2009	3442	-0.23	161	4.68
2010	3460	0.51	143	4.13
2011	3450	-0.3	153	4.43
2012	3416	-0.97	187	5.47
2013	3392	-0.69	211	6.22

Note: Figures courtesy of Steve Langton (Defra Agricultural Change & Environment Observatory).

3.13 The Defra figures show a cumulative loss of permanent grassland of 211,000 ha between 2005 and 2012. The overall trend has been downward although there was little overall change between 2008 and 2011.

3.14 Data from 2011 indicate a 58,000 ha loss to 2013 based on June 2013 figures. These results confirm that following a 0.5% increase in 2010 there has been a reduction in the claimed area of permanent pasture since 2011, although the magnitude of the decline is less than was seen in 2007-08 in response to the very high cereal prices at the time of planting. It is likely that the high prices for cereals are once again driving this change, although it is entirely possible that the threat of new restrictions on permanent pasture in the CAP reform proposals is exacerbating the situation (Steve Langton, Defra observatory).

Influence of sector on changes in area of permanent grassland in England

3.15 Table 3 shows aggregate areas and percentage changes for each farm type.

Table 3 Total permanent pasture areas in 2012 and 2013 in England for the 55,000 businesses that can be matched to June data to determine farm type

Farm type	Permanent pasture claimed area		
	2012 (000 ha)	2013 (000 ha)	% change
cereals	160	161	0.6
general crop	118	119	0.5
horticulture	15	15	0.2
pigs	6	6	0.3
poultry	13	13	0.3
dairy	347	344	-0.9
lfa grazing	734	732	-0.2
lowland grazing	594	593	-0.2
mixed	195	195	-0.1
other	5	6	0.9
All	2188	2184	-0.2

Note: These figures exclude common land and are based on farms meeting the following conditions: i) applying for SPS in both years, ii) not changing their total area by more than 2%, iii) able to be matched to June Survey records. The total area is therefore considerably less than that shown in Table 1. (Steve Langton, Defra). There is a marked difference between the overall fall in permanent pasture of -0.69% in Table 1 and the fall of -0.2% for the farms that can be matched to June data in Table 2. It should be noted that biases may be introduced by the matching to June data which is not so complete. In previous years these initial analyses of the un-validated data have tended to underestimate the change.

3.16 The figures show a similar trend to 2011 data (Appendix Table B) with by far the biggest decrease in permanent grassland seen on dairy farms, presumably because they frequently have a mix of permanent grassland and cropped land. Most of the fall appears to be in the livestock areas in the west, rather than the arable east. Cereals farms again have the highest increase. Areas of permanent pasture suitable for cultivation had already been ploughed in 2008 on most cereals farms, leaving only small, steep or poor fields in permanent pasture limiting opportunity for further loss. The increase may be attributable to some farms classified as cereal being mixed enterprises which may have had temporary grassland which has reached 5 years old and therefore moved into the permanent grass category. Areas coming out of long term set aside in 2007/2008 which were not subsequently ploughed may now qualify as permanent grassland since 5 years have elapsed. Finally land placed under arable reversion options within Higher Level Stewardship may also now qualify as permanent grassland. By contrast, dairy farms retain

large areas of grassland and will be looking to find ways of reducing the current very high feed costs. Hence ploughing the better permanent pasture fields for fodder crops is an attractive option.

- 3.17 The environmental implications of these results are interesting, but not completely clear without more detailed field-level analysis. Dairy farms tend to be quite intensive, which may mean that the pasture fields lost are not of high biodiversity value. In addition if these fields are located in predominantly pastoral areas, it is possible that converting them to arable may increase landscape-scale diversity.

4 Trends in the loss of environmentally important grassland in England

- 4.1 With the exception of grassland communities designated under Article 17 of the EU Habitats Regulation there is no requirement to assess changes in the extent of grasslands which may be considered “environmentally important”.
- 4.2 The value of wildflower-rich semi-natural grassland is well recognised both in view of its intrinsic biodiversity value and the ecosystem services⁵ it provides with many types being recognised as priorities for conservation under Section 40 of the NERC Act (2006). Natural England holds inventories on the location and extent of those grassland types, but despite recent improvements these do not provide a comprehensively reliable and up to date means of identifying known localities of species-rich grassland.
- 4.3 In addition to these species-rich, semi-natural grasslands other categories of grassland may also be classed as environmentally important. These include:
- Good quality semi-improved grassland, which whilst not meeting priority status, supports sufficient number and frequency of wildflowers to be an important resource for pollinators.
 - Permanent grassland which may not be botanically diverse but may support important populations of rare and declining species or species assemblages, for example, breeding or wintering waders of coastal flood plain grassland or waxcap fungi which are commonly found on semi-improved grasslands.
 - Permanent grasslands adjacent to water courses and/or on steep slopes, where conversion to arable would result in serious erosion and/or pollution issues, with resultant quality and potential Water Framework Directive impacts.
 - Permanent grasslands buffering designated sites from the impacts of intensive agricultural management and therefore helping attainment of favourable condition status.
- 4.4 Within the context of this report the term environmentally important is considered to apply to all grassland types above.
- 4.5 In the absence of surveillance data, changes in the level of threat of conversion and in the loss of these grasslands are inferred from evaluation of a number of different datasets. These include:
- Using trends in the number of applications made under the EIA (Agriculture) Regulations (2006) as indicator of threat.
 - Examining the area (ha) grassland within these applications judged by Natural England as falling within the scope of the regulations.
 - Analysis of the fate on expiry of Classic Scheme grasslands previously under low or nil input management options/tiers (on the assumption that these options were generally targeted at high value/unimproved grasslands).
 - Anecdotal evidence from Natural England advisors.
- 4.6 The limitations of using these data sources as proxies are discussed.

⁵ Bullock et al. (2011) Chapter 6 Semi-Natural Grasslands

Trends in applications made under the EIA (Agriculture) Regulations (2006)

4.7 Trends in applications to intensify or convert semi-natural areas under the EIA (Agriculture) Regulations 2006 are presented in Figure 2. An overwhelming majority of these applications (>95%) relate to proposals to either plough or intensify permanent grassland.

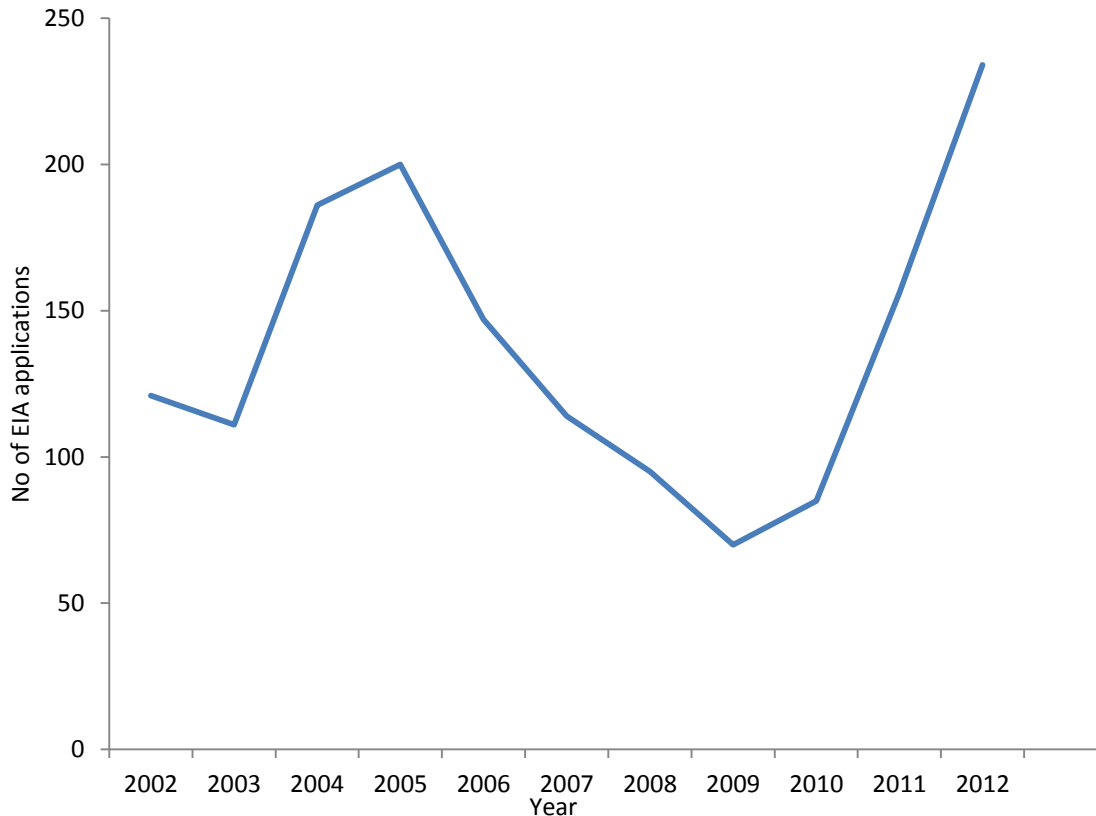


Figure 2 No of applications made under Environmental Impact Assessment Regulations

4.8 In 2012, 234 applications were received compared to an average of 128 in the previous 10 years. Applications to August for 2013 stand at 163 compared to 180 up to August 2012. This compares with a mean of 102 applications up to August in previous years demonstrating a clear upward trend since late 2010. Whilst the number of applications *per se* doesn't itself provide a measure of loss of environmentally important grassland it does serve as a useful indication of farmer's intentions, and by proxy level of potential threat.

4.9 Furthermore, Natural England's EIA team reported that enquiries regarding the ploughing out of permanent pasture almost doubled in 2012 from the number received in 2010 (from 575 up to 1005). This was judged to be attributable to CAP reform proposals being reported in the farming press. Nearly every call mentioned the CAP reform and the fact that farmers may not be able to plough out above a certain threshold based on a set area in 2014, latterly 2015. The team report that whilst there is still some concern amongst callers about the CAP reforms fewer now mention it. Many farmers seemed concerned that the RPA's criteria for permanent pasture would mean some long term leys in longer rotations would get caught up in these reforms. Others were concerned that they would not have the flexibility to change farming practice if required. More worryingly, members of the EIA team report that there has been an increase in tip-offs of permanent pasture being ploughed up, 23 in 2010 up to 51 in 2012, and a number of these have been registered as County Wildlife Sites of high environmental value, more than has been the case historically.

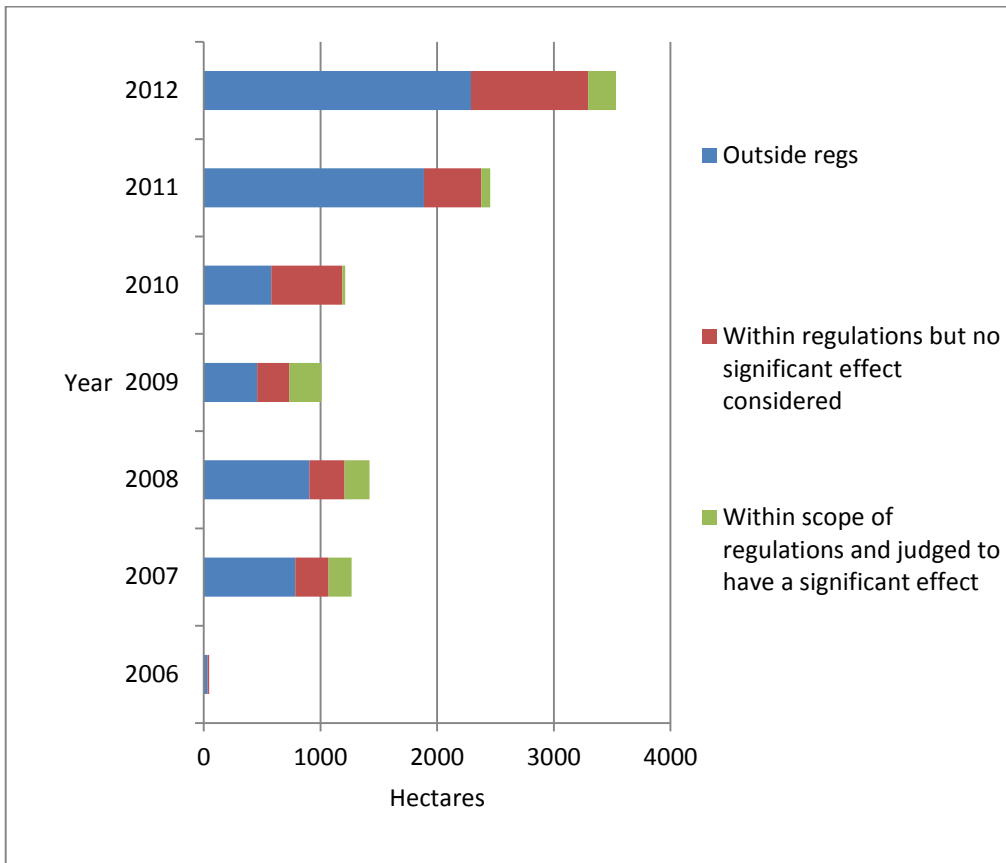


Figure 3 Shows the relative areas of grassland judged to be outside or within the Regulations, distinguishing further those whose loss is considered to have a significant effect. (N.B. This figure does not include applications in which grasslands are described as improved or applications which were subsequently been withdrawn).

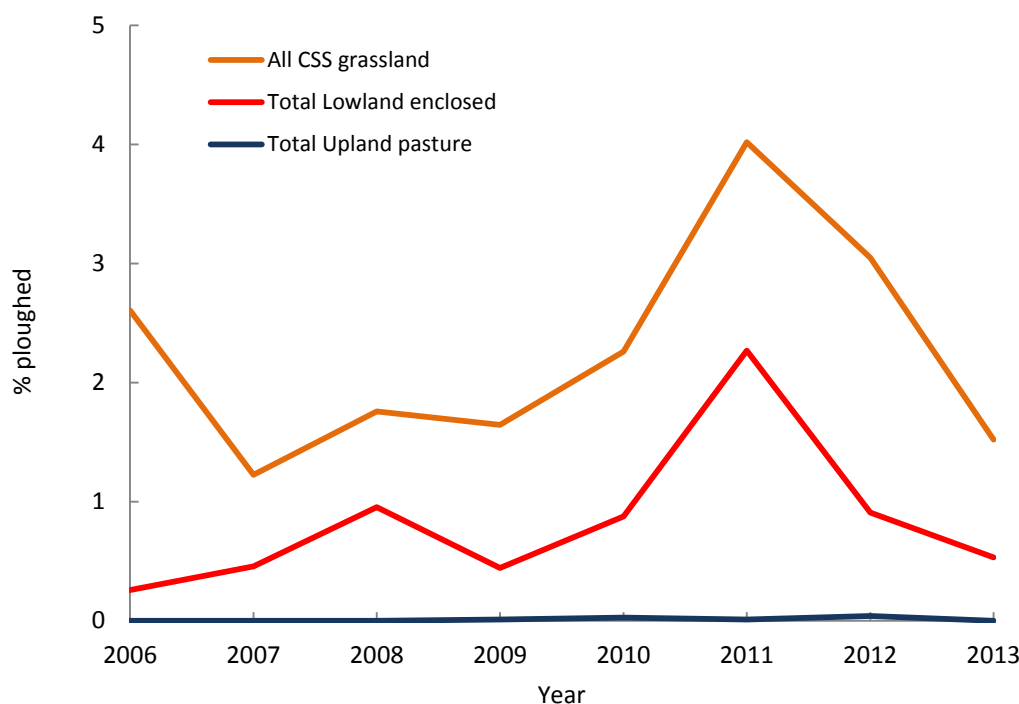
- 4.10 Figure 3 shows that the relative area of grassland affected by the EIA applications tracks the trend in application rates, increasing from 2009 onwards with marked increases from 2010 to 2011. In each year the actual areas of grassland which fall within the scope of the regulations **and** on which proposed agricultural projects are judged likely to have a significant effect form a small proportion of the total, constituting 77 and 239 ha in 2011 and 2012 respectively. These projects require consent from Natural England and a full environmental impact assessment with the production of an environmental statement. The grassland cannot be cultivated unless consent is granted. The screening decision letter indicates this and provides information on the consent application process.
- 4.11 The area of grassland judged to fall within the Regulations **but not** have a significant effect if lost is significantly greater with 493 ha and 1006 ha for the same two years. Grasslands under this category can legitimately be intensified or ploughed and include those under the 2 ha threshold at which the regulations apply, as well as those determined not to be semi-natural or have significant historic or landscape value.
- 4.12 Presently the relative balance of these reasons is not captured so it is not possible to ascertain the absolute area of small sub 2 ha parcels of semi-natural grassland which has been lost. Whilst small, the value of these small fragments of grassland can be high especially where they have been well managed. Indeed Natural England and its predecessors have notified grassland parcels as small as 0.6 ha as SSSIs. Their importance to insect pollinators is also recognised within the schemes and in the Campaign for the Farmed Environment. The case for lowering of the EIA threshold has been made repeatedly but unsuccessfully despite being at odds with other elements of environmental policy.

Classic Scheme Expiries: Extent and distribution of ploughing relative to grassland that has come out of Agri-Environment Scheme agreements in England

- 4.13 The area of grassland expiring from all low or nil input management options under both the CSS and ESA schemes was assessed from 2006 onwards and the fate of each parcel determined. Whilst these types of low input options were generally targeted at higher value, unimproved to semi-improved grasslands it is important to recognise that the schemes and options were multi-objective in their nature. In some instances the principal reason for selecting the option may have been for landscape, historic environment or access purposes rather than biodiversity or environmental considerations.
- 4.14 As a consequence whilst these grasslands are **more likely** to be environmentally important than those in the basic grassland management options they will still encompass a wide range of grassland qualities as evidenced by AES monitoring studies⁶. In the absence of other data they nonetheless serve as a useful proxy of loss rates to ploughing.

Countryside Stewardship Scheme

- 4.15 The area of grassland (under all low or nil input management options) transferring to different SPS codes was calculated in each year from 2006 onwards. From these data it was possible to determine the extent of ploughing (cropped SPS codes) relative to expiring CSS grassland in any one year and by doing so work out absolute loss and trends in loss rates.

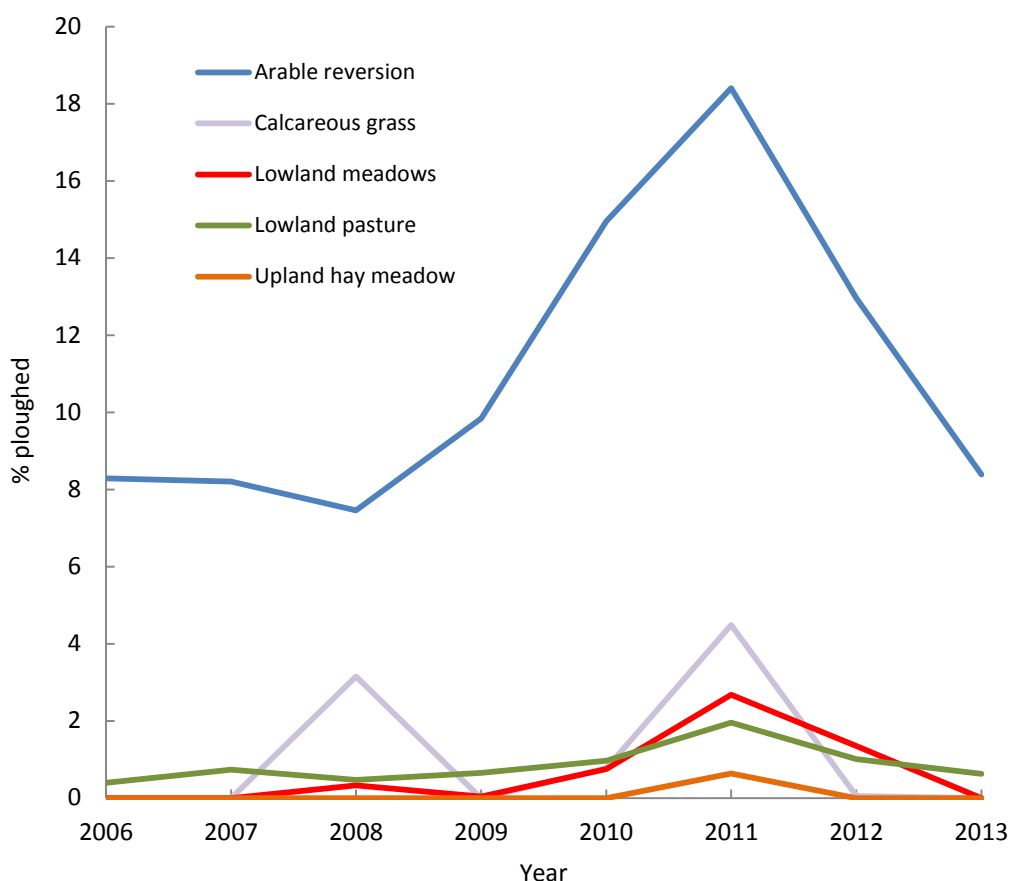


Note: 2013 data up to June is presented.

Figure 4 Proportion of CSS grassland (by all CSS grassland, lowland enclosed or upland pasture broad categories) ploughed in each year of expiry

⁶ Natural England (2009) Agri-environment schemes in England report.

- 4.16 These data show the disparity in the incidence of ploughing out of enclosed lowland grassland in contrast to upland pasture where no conversions to arable have taken place.
- 4.17 Figure 4 shows a peak in the ploughing out of grassland previously in low or nil input options in 2011 equating to 4% of those expiring. Within grasslands under lowland enclosed grassland options this equates to 362 ha being ploughed out of a total expiring area of 15,948 ha from these options in that year. Within low or nil input options targeted at different types of semi-natural grassland % loss rates on expiry were greatest on calcareous grassland, with peaks in 2008 and 2011, equating to losses 32 ha of 1,002 ha and 87 ha of 1,934 ha expiring overall from calcareous grassland options.
- 4.18 Although there was an obvious peak in ploughing of low or nil input CSS grassland in 2011, it should be recognised that these loss rates are very low (losses within the arable reversion category are discussed separately in Section 5 below). Indeed between 2006 and 2013, the proportion of grassland expiring from lowland enclosed options under CSS which has been ploughed is 1% (830/76,746 ha). Furthermore Figure 6 demonstrates that the vast majority of grassland previously under CSS low or nil input grassland management has come into Environmental Stewardship (ES) (either HLS or ELS) with the proportion remaining reasonable constant at around 70% by area in each year of CSS expiries.



Note: 2013 data up to June is presented.

Figure 5 Percentage of CSS grassland by grassland type ploughed in each year of expiry

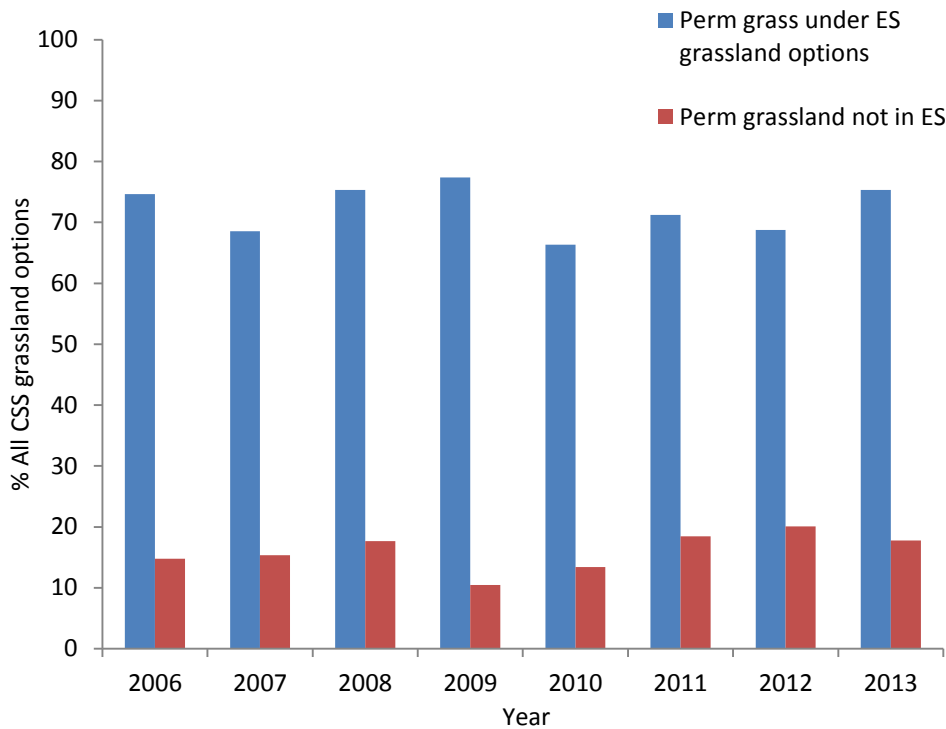


Figure 6 Proportion of CSS grasslands which came into Environmental Stewardship grassland options by year

4.19 Collectively these data demonstrate losses of 1% of environmentally valuable grassland previously under CSS management, with almost three quarters being afforded continued protection under grassland management in ES.

Environmentally Sensitive Areas (ESAs)

4.20 As for CSS, the area of grassland (under all low or nil input management options) transferring to different SPS codes was calculated for each ESA and in each year from 2006 onwards. From these data it was possible to determine the extent of ploughing (cropped SPS codes) relative to expiring ESA grassland in any one year and by doing so work out absolute loss and trends in loss rates.

Table 4 Summary of areas of low or nil input grassland ploughed between 2006 - 2012 by ESA

Hectares cropped	ESAs
≤10ha cropped	Avon, Blackdown Hills, Clun, Dartmoor, Essex Coast, Lake District, North Peak, Pennine Dales, Shropshire Hills, Somerset Levels, South West Peak, Suffolk River Valleys, The Broads
11 ≤ 20	Breckland, Cotswold Hills, South Downs
21 ≤ 50	Exmoor (23 ha), South Wessex Downs(39 ha), West Penwith (45 ha)

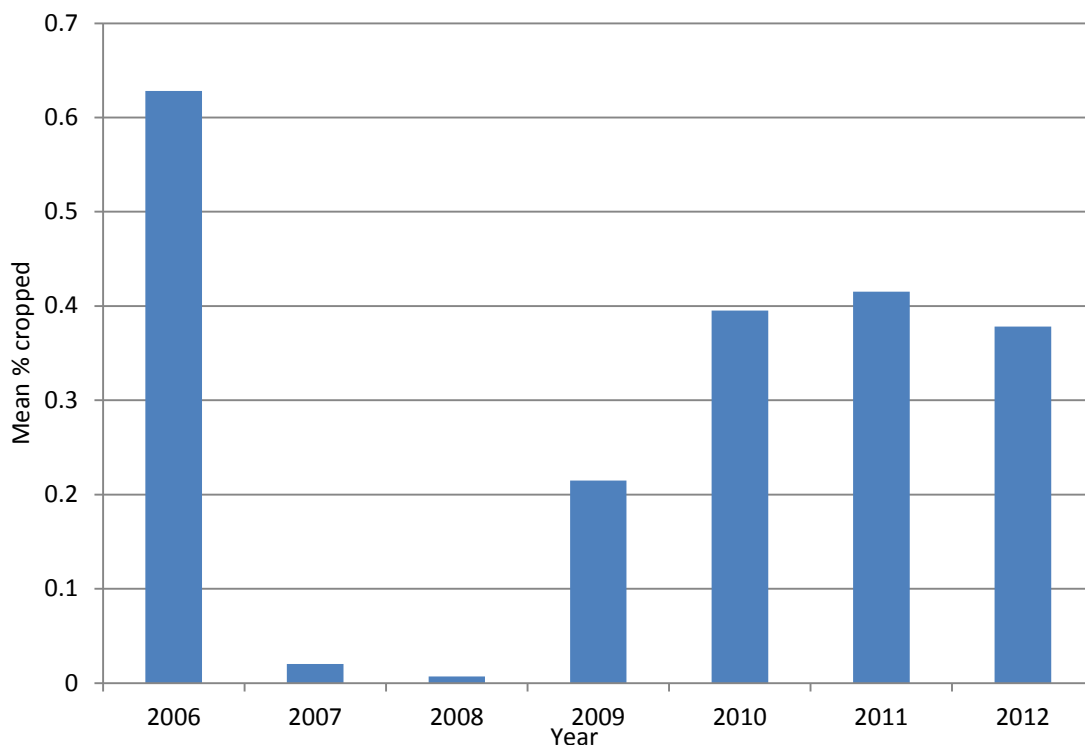


Figure 7 Mean % of low or nil input grasslands ploughed by year – all ESAs

- 4.21 The peak in 2006 is almost entirely attributable to 9% (10.2ha) of low or nil input grassland being ploughed out in this year in the South Wessex Downs.
- 4.22 As for CSS grasslands, this analysis suggests that whilst an increased loss rate is again evident around 2011, the rate of loss to ploughing on expiry within ESA low or nil input grasslands is very low with mean annual loss less than 1%. An overall area of 188 ha out of an expiring population of 67,608 ha was lost between 2006 and 2013, representing a 0.3% overall loss rate between 2006 and 2013. Losses were highest in the South Western ESAs of Exmoor (23 ha), South Wessex Downs (39 ha), West Penwith (45 ha) although trends over time were inconsistent, though Exmoor's losses have occurred principally since 2010 onwards. As for CSS, 70% of these ESA grasslands are afforded continued protection under grassland management in ES having transferred into either ELS or HLS on expiry.

Evaluation of evidence for losses in important grassland in England

- 4.23 The increase in applications made to convert/intensify grassland under EIA in 2012 and contextual information from the EIA team confirms that grasslands have been at increased risk of loss. Available evidence indicates an increased rate of loss from 2010 within grasslands more likely to be environmentally important, as evidenced by a peak of losses in 2011 from classic schemes expiries. Whilst this undoubtedly translates to an undesirable absolute loss of potentially valuable grasslands the classic scheme expiry analysis indicates that rates of loss are extremely low especially compared to the area of these grasslands which has transferred into ES management.
- 4.24 Despite the low loss rates revealed in these analyses there remains concern that in the absence of regular surveillance data there is no reliable way of estimating loss accurately for these grasslands and significant environmental public goods they provide. Furthermore the EIA (Agriculture) Regulations (2006) are recognised to have significant limitations.

4.25 Finally, it must be recognised that without further details of the ecological value of the specific grasslands lost or their location within the landscape it is not possible to determine the actual environmental impact of these losses and their local, regional and national significance.

5 Losses of permanent grassland in expiring arable reversion in England

- 5.1 As for analyses of the low or nil input management options within CSS and ESA, the total area of arable reversion transferring to different SPS codes was calculated for each ESA and for CSS in each year from 2006 onwards to determine the extent of ploughing (cropped SPS codes) or continued persistence as permanent grassland under ES management.
- 5.2 As for grasslands coming under nil or low input options in some instances the principal reason for undertaking an arable reversion may have been for landscape, historic environment or access purposes rather than biodiversity or environmental considerations.
- 5.3 As a consequence the quality of grassland resulting from these reversion is variable as evidenced by AES monitoring studies⁷. In the absence of other data they nonetheless serve as a useful proxy of loss rates to ploughing.

Countryside Stewardship Scheme

- 5.4 Figure 5 in Section 4.1 above shows that almost 18% of land previously under arable reversion was cropped on expiry in 2011 equating to 953 ha out of a total of 5,177 ha of land under reversion options expiring in that year). This plough rate falls to 13% in 2012 (1085 ha of total area of 8374 ha of expiring reversion). Overall 3305 ha of expiring reversion under CSS have been ploughed out of an overall of 24,734 ha, representing a 13% loss rate between 2006 and 2013.

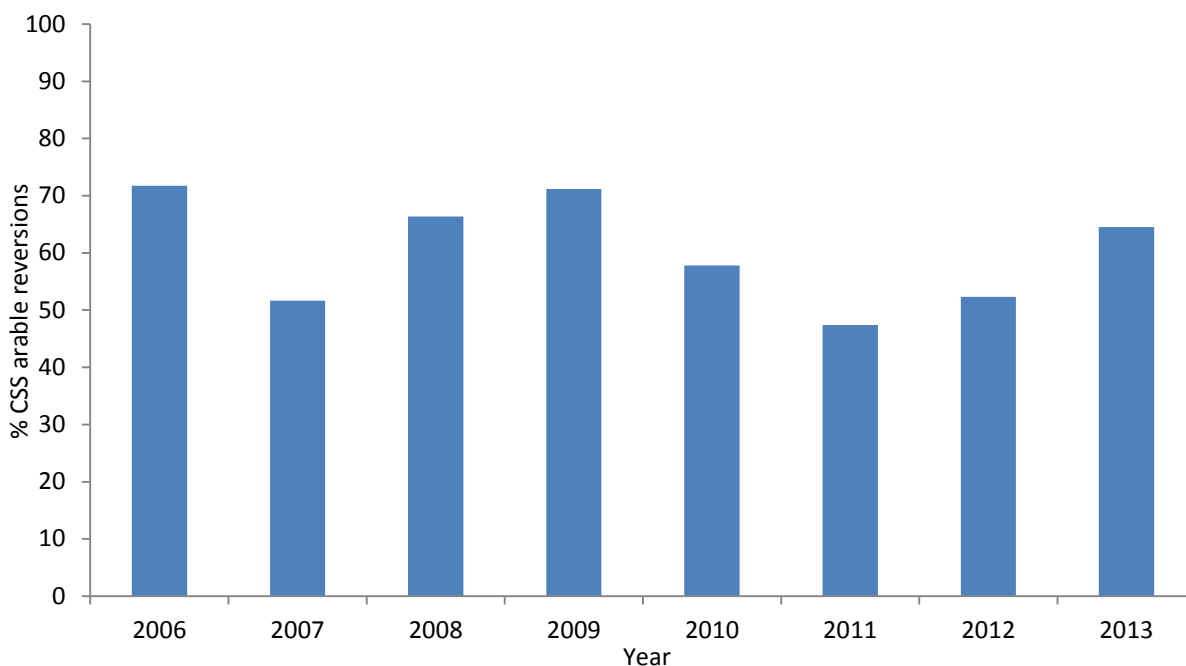
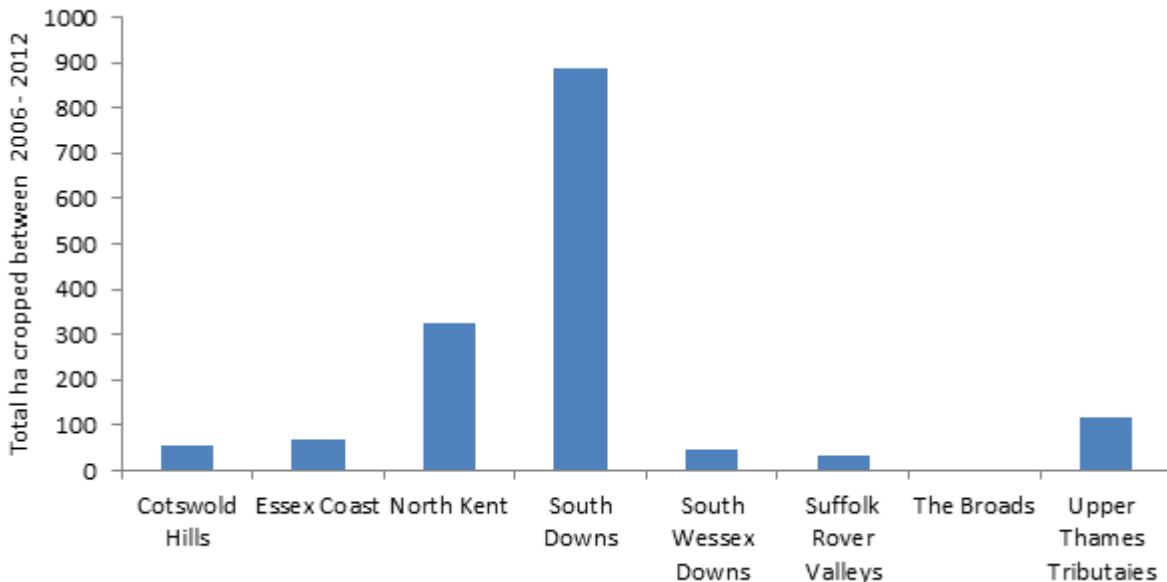


Figure 8 Proportion of CSS Arable reversion options which came into Environmental Stewardship grassland options on expiry

⁷ Natural England (2009) Agri-environment schemes in England report.

5.5 The proportion of arable reversions coming into ES grassland options reveals dips in 2007, coinciding with the peak in commodity prices and again in 2011, rising to around 65% in 2013. Overall the level of continued protection afforded by transfer into ES grassland management is lower than for grasslands previously under low or nil input options and varies by year of expiry from 40 to 70% coverage, in 2012 just over 50% of arable reversions came under ES.

Environmentally Sensitive Areas



Note: No ploughing of expiring reversions appears to have taken place within Breckland, Clun and Avon.

Figure 9 Summary of areas of arable reversions ploughed between 2006 - 2012 by ESA

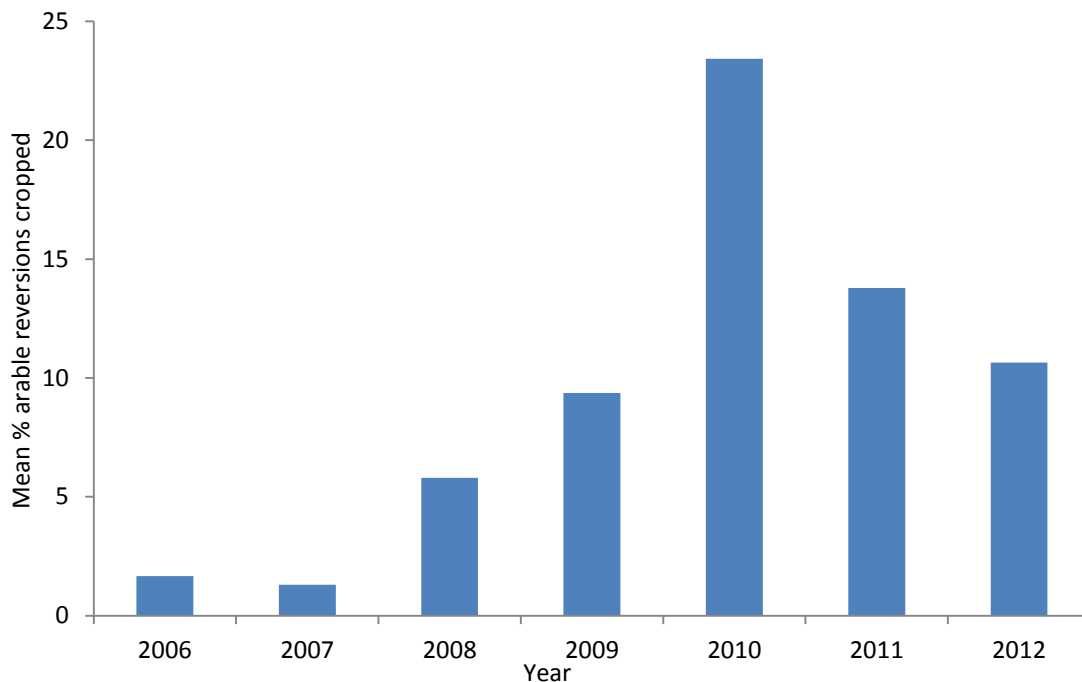


Figure 10 Mean % of expiring reversions ploughed by year – all ESAs

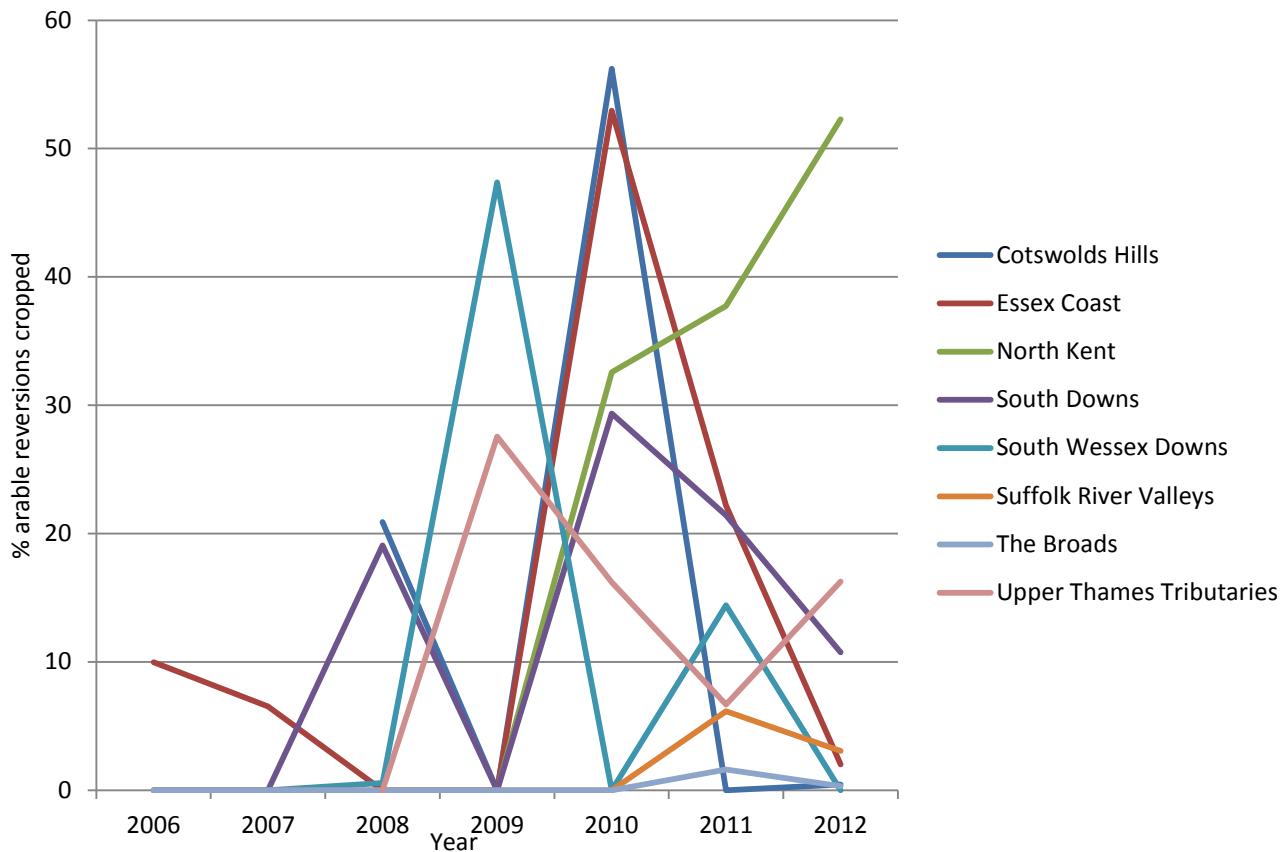


Figure 11 Temporal trends in loss rates by ESA

5.6 The profile of losses of arable reversion to ploughing across all ESAs peaks in 2010 as shown by Figure 10, this is primarily attributable to the very high loss rates with the Cotswold Hills, Essex Coast and to a somewhat lesser extent South Downs in that year as shown by Figure 11. Temporal trends in losses to ploughing across ESAs are variable.

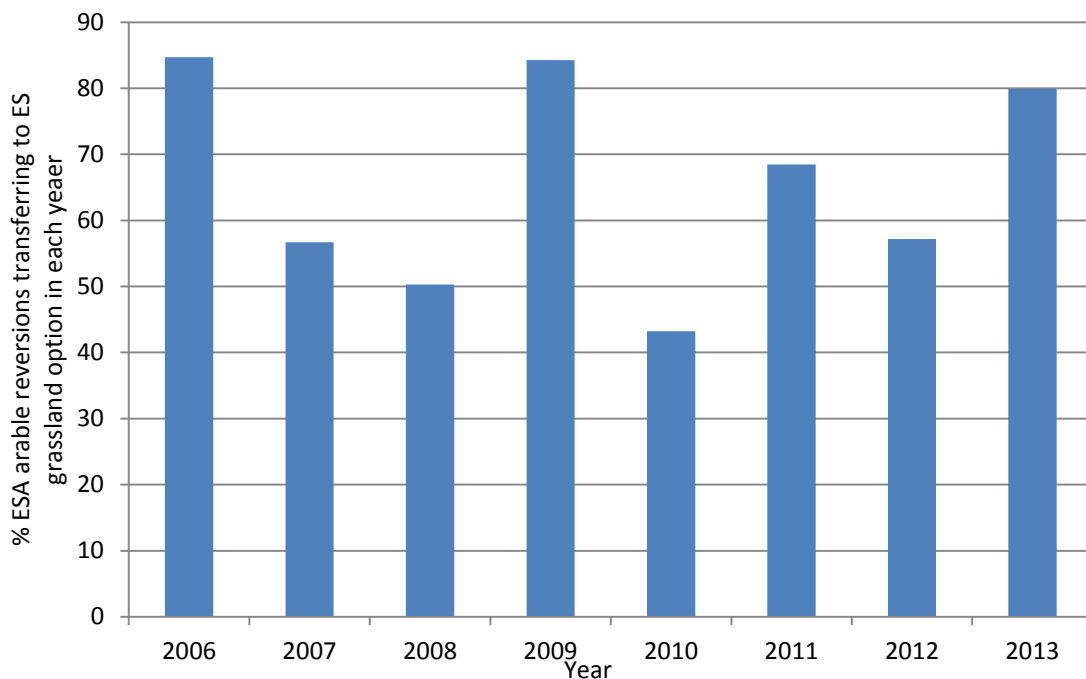


Figure 12 % of ESA arable reversion which have transferred into ES grassland management options on expiry by year

- 5.7 Overall 1535 ha of expiring arable reversion out of a population of 11,960 ha have been ploughed representing a 13% loss rate. Furthermore the level of continued protection afforded by transfer into ES grassland management is lower than for grasslands previously under low or nil input options and varies by year of expiry from 40 to 80% coverage, perhaps reflecting farmer's desire to retain flexibility how they farm the reversion, in 2012 around 55% of arable reversions came under ES. It should also be recognised that in some areas, for example in the South Downs, some species poor ESA reversions were actually put back to arable under Environmental Stewardship management to help support recovery of farmland birds populations, for example Corn bunting.
- 5.8 In summary, the classic scheme analysis indicates far higher rates of losses from permanent grassland under expiring arable reversions representing a 13% loss rate between 2006 and 2013 in both the CSS and ESA schemes. Overall 4885 ha of expiring arable reversions have been ploughed between 2006 and 2013. The temporal trend differs somewhat with CSS showing a clear peak in losses in 2011 when 18% of land previously under arable reversion was cropped on expiry (953 ha reversions out of a total of 5,177 ha expiring in that year) and ESAs revealing a peak in 2010, when 23% of reversions were ploughed on expiry.
- 5.9 These findings concur with reports from Natural England's EIA team of an increased number of enquiries about grasslands, mainly reversions coming out of CSS and ESA agreements, where farmers are looking to put these back into rotation. When the option has been down for 15 years or less there would be no requirement for a screening application, irrespective of their environmental interest, as the fields would not fall under the EIA regulations according to the Natural England 2012 guidance. This approach was taken to avoid discouraging farmers from entering 10 year agri-environment scheme agreements under Higher Level Stewardship. In contrast English Heritage scheduled monument consent is required on land that has been out of cultivation (for example, arable reversion) for over 6 years and that contains a scheduled monument. Interestingly evidence from a NE commissioned research project which explored the risk of losing land in arable reversion through farmer survey found very similar rates of losses on agreement expiry with a 15% of a sample of 92 farmers converting back to arable. Of those farmers with live agreements (n =163) 62% reported that they were definitely/likely to retain the reversion, whilst 3% reported that they were definitely not/unlikely to retain the land in arable reversion leaving 35% undecided⁸.

⁸ ADAS (2013) Securing and maximising the Environmental Gain from Arable Reversion through Agri-Environment Schemes. Draft Final Report to Natural England.

6 Anecdotal evidence from Natural England advisors

- 6.1 Anecdotal evidence received from members of the Grassland Delivery Support Network confirms the trends apparent in the EIA, Defra permanent grassland area and Classic Scheme expiry data. EIA workloads have increased in recent years amongst all those who responded, sometimes significantly. The value of grassland lost is judged to be of variable quality, although loss of reasonable quality grassland of borderline EIA quality thresholds has been noted by some (for example, Breckland, East Kent). Concern has been expressed about intensification or conversion to arable and impacts on water quality in priority catchments, (for example, in the catchment for the Freshwater Pearl Mussel in the Clun).
- 6.2 In certain areas (for example, North Devon) widespread ploughing and/or re-seeding of grassland over the past 18 months has been reported. Whilst in Devon this has been attributed to CAP reform proposals and introduction of greening measures the motivation in other areas (for example, Norfolk) conversion of grassland has been more to do with re-structuring their businesses to take a advantage of arable incomes (particularly set against the relatively low potential HLS payments). Several advisors flag that uncertainty about greening more widely (for example, EFA requirement) is having an equally important impact on influencing farmers decision tending to result in avoidance of schemes.

7 Overall assessment

- 7.1 The evidence evaluated reveals an increase in the loss of permanent grassland from around 2010 onwards, with the actual peak loss rate varying between 2010 and 2012 depending on the dataset. The Defra statistics indicate there has been an absolute loss in the area of permanent grassland of 58,000 ha between 2011 and 2013. RPA have indicated similar losses from 2012.
- 7.2 Evidence for losses in environmentally important grassland from EIA applications indicates an increased pressure for conversion/intensification of such grasslands from late 2010 onwards. Similarly analysis of the fate of grassland under low or nil input options within classic schemes on expiry indicates a peak in losses to ploughing in 2011 ($\leq 5\%$). Whilst this undoubtedly translates to an undesirable absolute loss of valuable grasslands (550ha between 2006-2013), it should be noted that loss rates remain extremely low ($\leq 1\%$), especially when the area of these grasslands (around 75%) which has transferred into ES management and therefore continues to be protected is considered.
- 7.3 The classic scheme analysis on loss of expiring arable reversion similarly reveals peaks in losses in CSS in 2011 when 18% of land previously under arable reversion was cropped on expiry and a peak in 2010 across ESAs, when 23% of reversion were ploughed on expiry. The evidence suggests that permanent grassland under expiring reversion is at by far the greatest level of risk of conversion with a 13% loss rate between 2006 and 2013 in both the CSS and ESA schemes. Overall 4885 ha of expiring arable reversion have been ploughed between 2006 and 2013.
- 7.4 Feedback from members of Natural England's EIA team and from advisors confirms these trends and suggests that the threat of new restrictions on permanent pasture in the CAP reform proposals and continued uncertainty about their implementation is likely to have been a significant driver of this change, alongside high prices for cereals.

Further work

- 7.5 It may be possible to quantify the environmental impacts of permanent grassland loss within regions/ in a given geographic area. This may be possible by looking at where losses in grassland have taken place at the field scale, alongside other spatial datasets (for example, priority catchments and designated sites).
- 7.6 A breakdown of the relative coverage of expiring classic scheme low input grassland and arable reversion, under HLS versus ELS grassland options, and by individual option ES is possible.
- 7.7 Further analysis could be done to predict the fate of classic expiries in future years based on the analysis undertaken to date, which may be interesting as ELS ceases to be available.

Appendix 1

Table A Figures underpinning calculation of the permanent pasture ratio as required by GAEC

Year	Total Permanent Pasture (TPP) (ha)	Year on year change in PP (ha) (RPA data)	% PP change from baseline	Total Agricultural Area (TAA) (ha)	% TAA change from baseline	ratio
2005	3,893,699.77	n/a	n/a	8,893,160.00	n/a	43.78
2006	3,840,412.92	-53,286.85	-1.37%	8,658,608.16	-2.64%	44.35
2007	3,821,779.77	-18,633.15	-1.85%	8,700,129.22	-2.17%	43.93
2008	3,572,285.22	-249,494.55	-8.25%	8,366,685.55	-5.92%	42.70
2009	3,731,069.88	158,784.66	-4.18%	8,762,143.48	-1.47%	42.58
2010	3,661,123.57	-69,946.31	-5.97%	8,611,869.41	-3.16%	42.51
2011	3,672,116.81	10,993.24	-5.69%	8,663,134.75	-2.59%	42.39
2012	tbc	tbc	tbc	tbc	tbc	tbc
2013	tbc	tbc	tbc	tbc	tbc	tbc

Source: RPA

Data are based on 'Total field areas' include both those activated for SPS payments areas as well as those which have not been activated for, or are ineligible for SPS payment.

Table B Total permanent pasture areas in 2011 and 2012 for the 47,000 businesses that can be matched to June data to determine farm type

Farm type	Permanent pasture claimed area		
	2011 (000 ha)	2012 (000 ha)	% change
cereals	144	146	0.9
general crop	107	107	0.2
horticulture	13	13	1.4
pigs	6	6	-1.1
poultry	10	10	0.0
dairy	286	279	-2.3
lfa grazing	582	581	-0.2
lowland grazing	494	491	-0.6
mixed	173	173	-0.5
other	5	5	-1.1
All	1822	1812	-0.6

Source: Steve Langton ((Defra Agricultural Change & Environment Observatory)



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