Indicators and trends

Monitoring climate change adaptation

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Indicator name			Version
NA9: Proportion of farmland (Utilised Agricultural Area) under High Nature Value (HNV) farming systems			**21/03/16**
Indicator type:	**Risk/opportunity**	**Impact**	**Action**
			X

SCCAP Theme	SCCAP Objective	CCRA risk/opportunity
Natural Environment	N3: Sustain and enhance the benefits, goods and services that the natural environment provides	BD21: Agricultural intensification AG26;AG27: Biodiversity/ wildlife changes

At a glance

- Climate change and other drivers are projected to lead to intensification of agricultural activity in Scotland
- Agricultural intensification may negatively impact biodiversity, adding to other pressures including climate change
- High Nature Value (HNV) farming describes agricultural land that supports a high level of biodiversity
- This indicator was developed by the Scottish Government and provides an estimate of the percentage of farmland that is considered to be of High Nature Value

Latest Figure

Year	Area (ha)	Proportion of farmland (%)
2013	2,432,000	44%

Calculations based on total farmland (utilisable agricultural area) of 5,556,000 ha.

Trend

No significant trend

Why is this indicator important?

High Nature Value (HNV) farming (and forestry) refers to farming (and forestry) systems that are important for the environmental benefits they provide, including support for a range of habitats and species (such as butterflies and birds) which are considered to be of high nature conservation importance (Scottish Government, 2014). Across Europe, half of all species depend on habitats associated with agriculture (SRUC, 2015).

The HNV farming indicator (along with that for HNV forestry) was developed by the Scottish Government to support the monitoring of the Scottish Rural Development Programme (SRDP) and Scottish Government strategies such as the Land Use Strategy. It is anticipated that in future the indicator will be complemented with a further HNV indicator that will show uptake of particular Rural Development Programme measures related to HNV Farming.

The indicator classifies farm types as HNV to provide an estimate of overall HNV farming, rather than identifying specific sites on the ground. The indicator is not intended to be used to inform site specific management decisions but rather to monitor how rural development measures are impacting upon the extent of HNV farming as a whole.

This Scottish Government indicator is being utilised here to help understand how farming systems may be working to reduce or increase the risk that agricultural intensification, which is expected to increase due to climate change, will negatively impact on biodiversity.

To support the HNV farming headline indicators, a number of supporting indicators have been developed. These indicators are used to aid the interpretation of the headline indicators.

Supporting Scottish Government indicators that inform this indicator are:

- Total Utilised Agricultural Area (UAA) (ha) (including common grazings)
- Total number of holdings
- Total number of HNV holdings
- % of UAA which is common grazing

Related Indicators:

NF3: Proportion of total woodland under High Nature Value (HNV) forestry

NA5: Trends in breeding farmland birds

NB3: Extent and condition of natural landscape connections: hedgerows and ponds

What is happening now?

In 2013, 44% of the total UAA was estimated to be under HNV farming, an area of 2,432,000 ha. The HNV farming holdings support low intensity farming and therefore tend to be relatively large in area. This is evident from the fact that the 2,089 HNV holdings make up only 4% of the total number of holdings in Scotland (Scottish Government, 2014).

	2013
Total UAA (ha) (including common grazings)	5,556,000
Total number of holdings	52,760
Total number of HNV holdings	2,089
% of UAA which is common grazing	11%

Table 1: Total UAA area, holdings and HNV holdings (Source: Scottish Government, 2014)

What has happened in the past?

A change to the classification of farm types in the 2013 June Agricultural Census means that figures from 2009-2012 cannot be directly compared with 2013 figures (see section below on 'Methodology' for further details). As such Scottish Government (2014) state that the 2013 figures should be regarded as 'the preferable baseline' for the assessment of future policies (such as the 2014-2020 SRDP).

Between 2009 and 2012 the percentage of UAA estimated to be HNV farming remained stable.

	2009	**2010**	**2011**	**2012**
Headline indicators				
% of UAA estimated as HNV farming	41	42	41	42
Total area estimated to be HNV farming (ha)	2,368,000	2,412,000	2,339,000	2,342,000
Supporting indicators				
Total UAA (ha) (including common grazing)	5,757,000	5,726,000	5,643,000	5,578,000
Total number of holdings	52,030	52,310	52,540	52,630
% of UAA which is common grazing	10.3	10.2	10.3	10.5
Total number of HNV holdings	2195	2176	2135	2108

Table 2: Area and proportion of HNV farming 2009-2013 (Source: Scottish Government, 2014)

HNV farming systems are traditional low intensity systems, typically with a mix of moorland, grassland and woodland. Historically, these systems have declined because of poor economic viability (SRUC, 2015).

Agricultural intensification has been the primary driver of losses in the ecosystem services delivered by UK agriculture (Firbank *et al.*, 2011 cited in Barnes and Poole, 2012). Intensification is associated with the loss of features such as hedgerows, semi-natural grasslands and wetlands, and of biodiversity (SRUC, 2015).

What is projected to happen in the future?

Because of the importance of HNV farming for biodiversity, under EU legislation member states are obligated to monitor, support and maintain their HNV farming systems. This requirement is contained within the Rural Development Programme (RDP) and remains an EU key priority through to 2020. Monitoring is also achieved through the RDP. In light of this statutory requirement, it would be expected that the proportion of UAA under HNV farming would at least remain constant. Scotland's Rural College (SRUC) are working with European partners to identify the many types of traditional HNV farming across Europe and develop a framework for a cohesive EU-wide approach to identifying and assessing HNV farmland. This should improve accuracy of data pertaining to the extent and condition of HNV farming (SRUC, 2015).

Patterns of change

The proportion of HNV farming per SRDP Rural Priorities Regional Proposal Assessment Committee (RPAC) area and the contribution of each RPAC to the total HNV Farming area has been calculated for the years 2009 and 2013 (see Charts 1 & 2 and Tables 1 & 2 below and Annex One). Despite changes to the methodology between these years, the Scottish Government considers it worthwhile considering these figures, at the very least to better understand the 2013 figures.

From Chart One it can be seen that the largest percentage increase (6%) in HNV farming occurred in the Highlands. The largest decrease (2%) was in the Northern Isles. There is significant regional variation in the percentage of farmland that is HNV. In 2013 the Western Isles had the highest percentage of UAA land as HNV (77%) whilst Grampian and Moray has the smallest (17%). From Chart 2 it can be seen that Highlands contributes the most (43%) to HNV farming in Scotland, followed by Argyll (11%), Tayside (10%) and the Western Isles (10%).

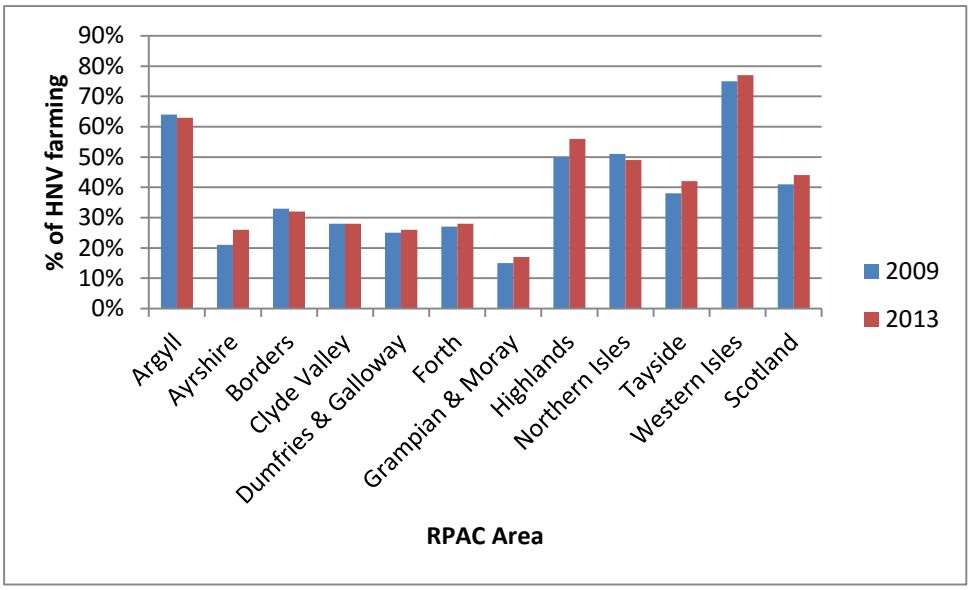

Figure 1: HNV by RPAC, 2009 and 2013 (Source: Scottish Government, 2014)

RPAC area	2009	2013
Argyll	64%	63%
Ayrshire	21%	26%
Borders	33%	32%
Clyde Valley	28%	28%
Dumfries & Galloway	25%	26%
Forth	27%	28%
Grampian & Moray	15%	17%
Highlands	50%	56%
Northern Isles	51%	49%
Tayside	38%	42%
Western Isles	75%	77%
Scotland	**41%**	**44%**

Table 3: HNV by RPAC, 2009 and 2013 (Source: Scottish Government, 2014)

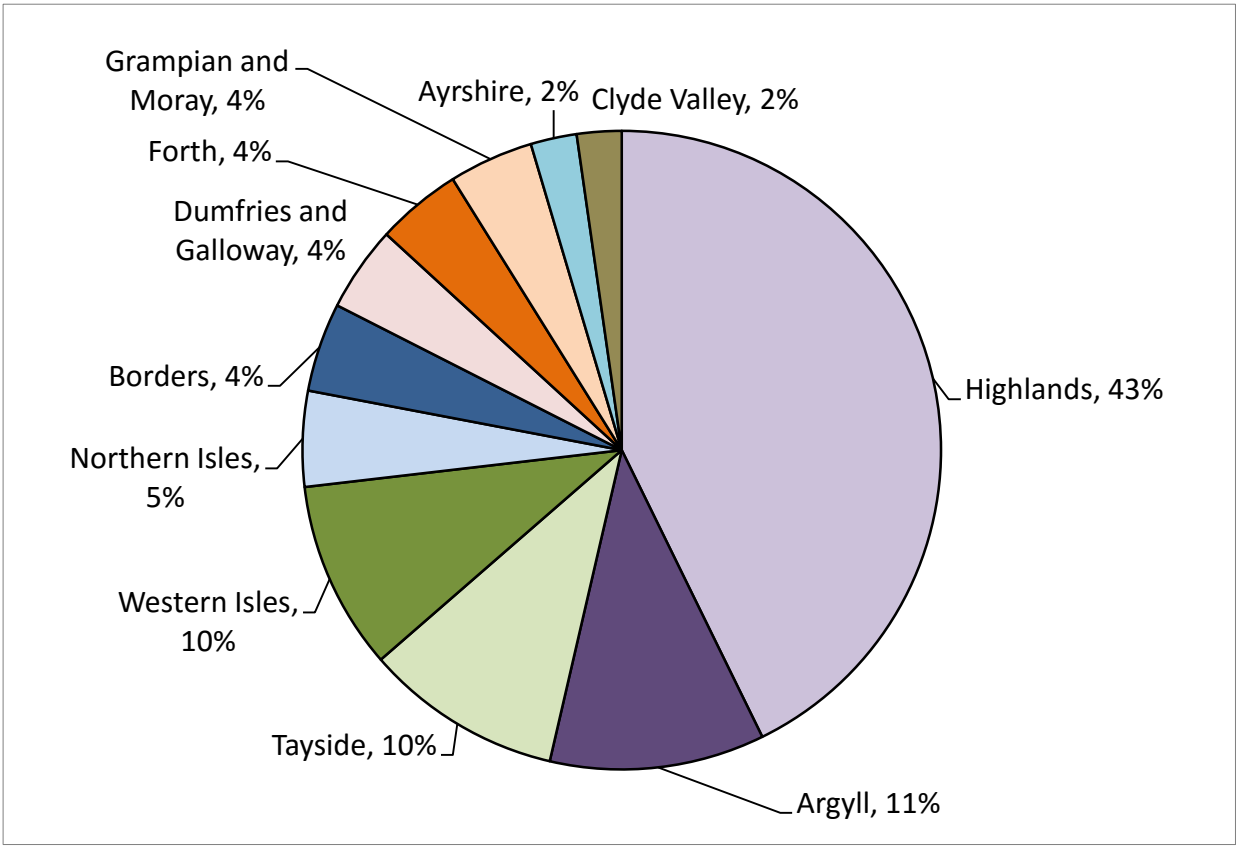

Figure 2: Contribution to Total HNV farming by RPAC area, 2013 (Source: Scottish Government, 2014)

RPAC	*P-HNV as % of total P-HNV **
Highlands	43%
Argyll	11%
Tayside	10%
Western Isles	10%
Northern Isles	5%
Borders	4%
Dumfries and Galloway	4%
Forth	4%
Grampian and Moray	4%
Ayrshire	2%
Clyde Valley	2%
Scotland	**100%**

Table 4: Contribution to Total HNV farming by RPAC area, 2013 (Source: Scottish Government, 2014)
* Does not include common grazing

Interpretation of indicator trends
There was no significant change in the estimated percentage of farmland that was HNV between 2009 and 2012. Scottish Government (2014) note that the change in the classification of agricultural holdings in the 2013 June Agricultural census may have had an influence on the increase seen between 2012 and 2013 in the area of HNV farming land and the proportion of total UAA that is HNV.

However Scottish Government (ibid) also notes that 'the increase in the proportion of UAA that is HNV can also be attributed to the decline in the reported UAA, which has been steadily declining since 2009. The combination of these two factors may mean that although the reported proportion of HNV has risen between 2012-2013 it may not represent a real increase in area on the ground' (Scottish Government, 2014).

In the future, the Scottish Government will seek to understand emerging trends in HNV Farming by identifying the influence of key drivers of change such as stocking rates, number of holdings no longer keeping livestock and farmers' attitudes. They will use case studies to illustrate changes in farming practices that are known to be important in terms of impact on biodiversity and will also cross-check trends in HNV farming against other critical indicators such as relevant Scottish Biodiversity Strategy indicators and information on farming practices from the EU Farm Structure Survey (Scottish Government, 2011).

Limitations

As has been noted, in 2013 changes were made to the farm type classifications made in the June Agricultural Census (see section below on 'Methodology' for further details). This may have had an impact on the estimate of the area of HNV farming. The Scottish Government however considers the 2013 figures to provide a useful benchmark for monitoring HNV farming into the future.

Lack of spatial data for HNV farming is an omission that has limited the level at which HNV farming can be calculated and mapped. Scottish Government has acknowledged that data needs to improve in this respect.

References

Barnes, A.P. and Thomson, S.G. (2014) Deriving an index of sustainable intensification: how far can secondary data go. *Ecological Indicators* **36**, 213-220

Scotland's Rural College (SRUC) (2015) *High Nature Value Farming* (online). http://www.sruc.ac.uk/info/120464/research_impact/937/high_nature_value_farming (Accessed April 2015).

Scottish Government (2014) *High Nature Value Farming and Forestry Indicators 2009 – 2013*, an Official Statistics publication for Scotland, Agriculture Series, 27th March 2014. http://www.gov.scot/Publications/2014/03/8273

Further information

Scottish Government (2011) *Developing High Nature Value Farming and Forestry Indicators for the Scottish Rural Development Programme – summary report of the Technical Working Group on High Nature Value Farming and Forestry Indicators*. July 2011. Rural and Environment Science and Analytical Service, Scottish Government. http://www.gov.scot/Publications/2011/08/10135254/0

Acknowledgements

The information in this template comes from Scottish Government reports on High Nature Value Farming and Forestry (Scottish Government 2011 and 2014).

Suzanne Martin (RBGE) contributed as lead author on this indicator.

Gilly Diggins (Scottish Government) provided guidance.

Appendix One: Indicator metadata and methodology

Table 1: Indicator metadata

	Metadata
Title of the indicator	Proportion of farmland (Utilised Agricultural Area) under High Nature Value (HNV) farming systems
Indicator contact: Organisation or individual/s responsible for the indicator	Ruth Monfries (CXC/Royal Botanic Garden Edinburgh)
Indicator data source	The Scottish Government
Data link: URL for retrieving the indicator primary indicator data.	http://www.gov.scot/Publications/2014/03/8273

Table 2: Indicator data

	Indicator data
Temporal coverage: Start and end dates, identifying any significant data gaps.	2009 – 2013
Frequency of updates: Planned or potential updates	Annual
Spatial coverage: Maximum area for which data is available	Scotland
Uncertainties: Uncertainty issues arising from e.g. data collection, aggregation of data, data gaps	Lack of spatial data
Spatial resolution: Scale/unit for which data is collected	Farm unit
Categorical resolution: Potential for disaggregation of data into categories	Regions (RPAC areas)
Data accessibility: Restrictions on usage, relevant terms & conditions	Publicly accessible free of charge

Table 3 Contributing data sources

Contributing data sources Data sets used to create the indicator data, the organisation responsible for them and any URLs which provide access to the data.
HNV Farming figures are estimated from the June Agricultural Census (representative of all agricultural holdings in Scotland) and from the Single Application Form (SAF) part of the Integrated Administration and Control System (IACS).

Table 4 Indicator methodology

Indicator methodology The methodology used to create the indicator data
The definition of HNV land is based on European Commission guidance for Rural Development Programmes which categorises HNV land as follows: • Type 1: land with a high proportion of semi- natural vegetation • Type 2: land with a mosaic of low intensity management and natural and structural elements • Type 3: land supporting rare species or a high proportion of European or wold populations. The HNV farming indicator is based on the area estimated to be under Type 1 HNV, because semi-natural vegetation is a common and dominant feature of all types of HNV farming in Scotland. Types 2 and 3 are usually a sub-set or closely associated with Type 1 farming. To be classified as an HNV farming holding through the census data, holdings must: • Be categorised as a "Cattle & Sheep (LFA)" holding under the June Census farm type classification. • Have more than 70 per cent of the holdings UAA classed as rough grazing. • Have an overall stocking density of less than 0.5 livestock units per ha5 For holdings classified as HNV their whole UAA counts towards the area of HNV. Common grazings (sourced from a separate data source to the June Census) were added in to provide a fuller estimate of the area of UAA under HNV systems. In 2013 a change was made to the classification of agricultural holdings in the June Agricultural Census. Until 2012 there were ten types of farm of which the 'LFA cattle and sheep' category was used to calculate HNV farming. Since 2013 there have been only eleven categories and while the 'LFA cattle and sheep' category still exists, there has been a change in the farms included in this category – with some moving into it and some moving out of it. Although the HNV farming indicators were developed alongside HNV forestry indicators, each use a slightly different methodology (the HNV farming indicator shows estimated HNV whereas the HNV forestry indicator shows actual HNV). As such they are not summed together and are presented in separate indicator templates. A full explanation of the methodology used to calculate HNV farming is available at: http://www.gov.scot/Publications/2011/08/10135254/0

Annex One: HNV Farming by RPAC area, 2009 – 2013 (Source: June Agricultural Census)

	2009				2010			
RPAC	UAA	HNV	HNV as a % of UAA	HNV as a % of total HNV	UAA	HNV	HNV as a % of UAA	HNV as a % of total HNV
Argyll	433,439	278,293	64%	12%	427,890	267,999	63%	11%
Ayrshire	221,797	47,621	21%	2%	220,670	59,837	27%	2%
Borders	352,429	117,308	33%	5%	348,780	114,182	33%	5%
Clyde Valley	197,770	55,321	28%	2%	199,115	55,417	28%	2%
Dumfries & Galloway	419,114	104,433	25%	4%	416,236	104,427	25%	4%
Forth	378,937	103,916	27%	4%	375,284	94,425	25%	4%
Grampian & Moray	625,395	96,265	15%	4%	623,607	105,360	17%	4%
Highlands	1,990,220	988,280	50%	42%	1,978,338	1,028,610	52%	43%
Northern Isles	235,895	121,188	51%	5%	234,321	119,126	51%	5%
Tayside	602,566	229,808	38%	10%	593,878	230,279	39%	10%
Western Isles	299,732	225,832	75%	10%	307,632	232,259	75%	10%
Total	**5,757,294**	**2,368,264**	**41%**	**100%**	**5,725,750**	**2,411,921**	**42%**	**100%**

	2011				2012				2013			
RPAC	UAA	HNV	HNV as a % of UAA	HNV as a % of total HNV	UAA	HNV	HNV as a % of UAA	HNV as a % of total HNV	UAA	HNV	HNV as a % of UAA	HNV as a % of total HNV
Argyll	421,882	266,795	63%	11%	419,480	263,759	63%	11%	422,540	264,503	63%	11%
Ayrshire	219,223	58,452	27%	2%	218,985	55,449	25%	2%	217,768	56,766	26%	2%
Borders	347,705	112,573	32%	5%	347,034	111,834	32%	5%	346,604	109,360	32%	4%
Clyde Valley	194,462	48,041	25%	2%	194,615	50,799	26%	2%	195,083	54,926	28%	2%
Dumfries & Galloway	414,325	104,404	25%	4%	412,462	100,058	24%	4%	412,332	105,146	26%	4%
Forth	373,445	90,801	24%	4%	374,556	93,984	25%	4%	372,096	104,908	28%	4%
Grampian & Moray	618,517	96,408	16%	4%	606,556	92,813	15%	4%	606,379	104,083	17%	4%
Highlands	1,923,936	986,491	51%	42%	1,884,011	987,656	52%	42%	1,861,287	1,039,399	56%	43%
Northern Isles	237,588	116,676	49%	5%	239,713	116,517	49%	5%	240,234	117,568	49%	5%
Tayside	584,824	225,988	39%	10%	575,368	237,217	41%	10%	580,480	242,932	42%	10%
Western Isles	307,184	232,600	76%	10%	305,448	231,681	76%	10%	301,094	232,103	77%	10%
Total	**5,643,091**	**2,339,228**	**41%**	**100%**	**5,578,228**	**2,341,769**	**42%**	**100%**	**5,555,900**	**2,431,697**	**44%**	**100%**