

Scotland's approach to rewarding public benefits from farming

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Leading the way in Agriculture and Rural Research, Education and Consulting

Who are Scotland's farmers and crofters?:



They are the managers of over 70% of Scotland's land area.

As such they have a key role to play:

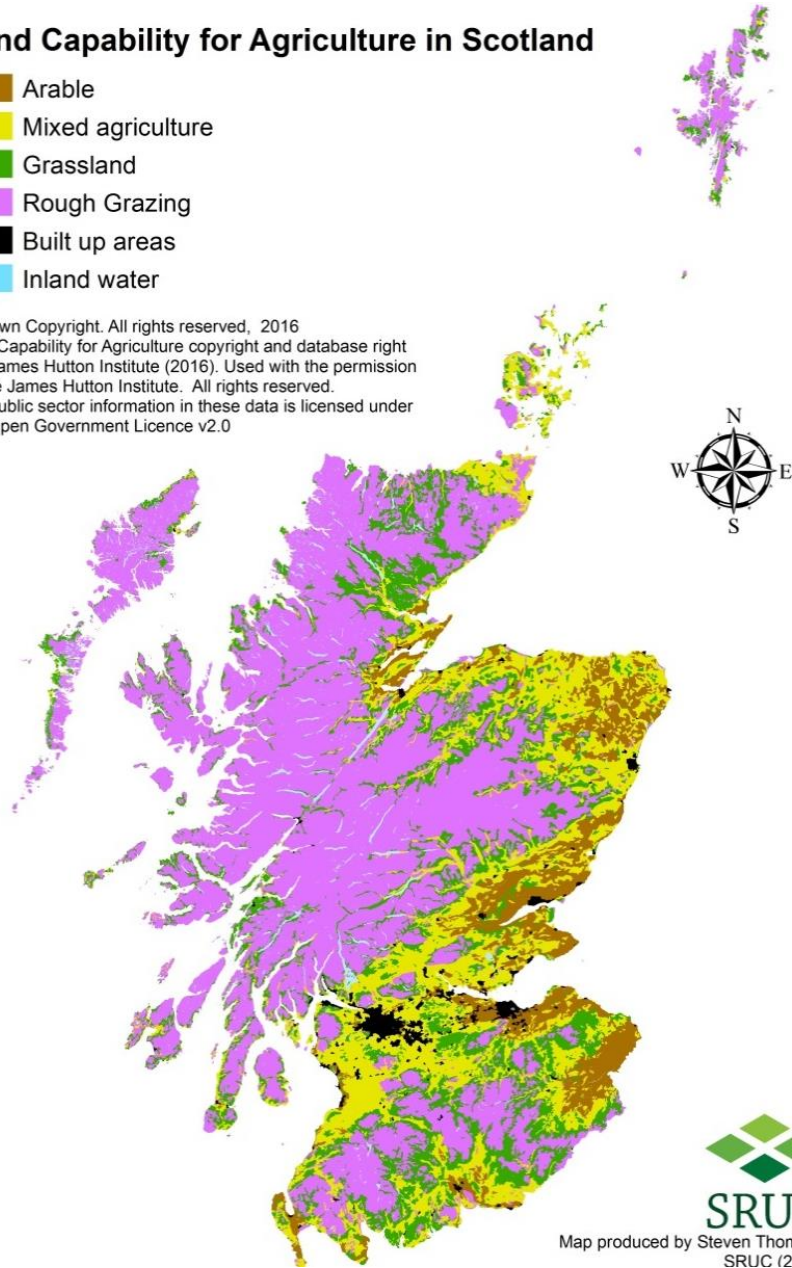
- **In maintaining food production**
 - **In managing the wide variety of habitats and wildlife species occurring on that agricultural land**
 - **In providing a wide range of other public benefits to society**
- 

Water Quality

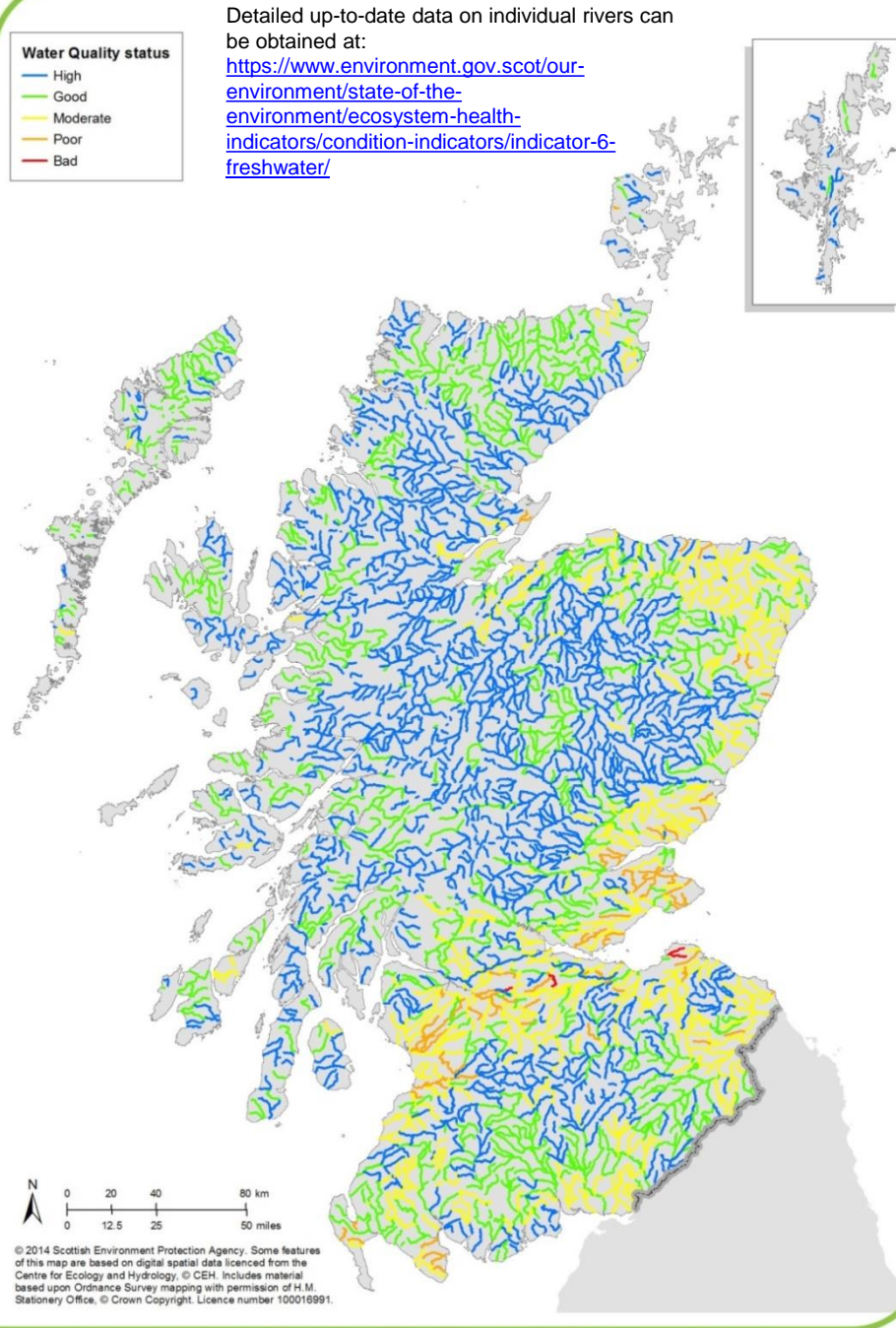
Land Capability for Agriculture in Scotland

- Arable
- Mixed agriculture
- Grassland
- Rough Grazing
- Built up areas
- Inland water

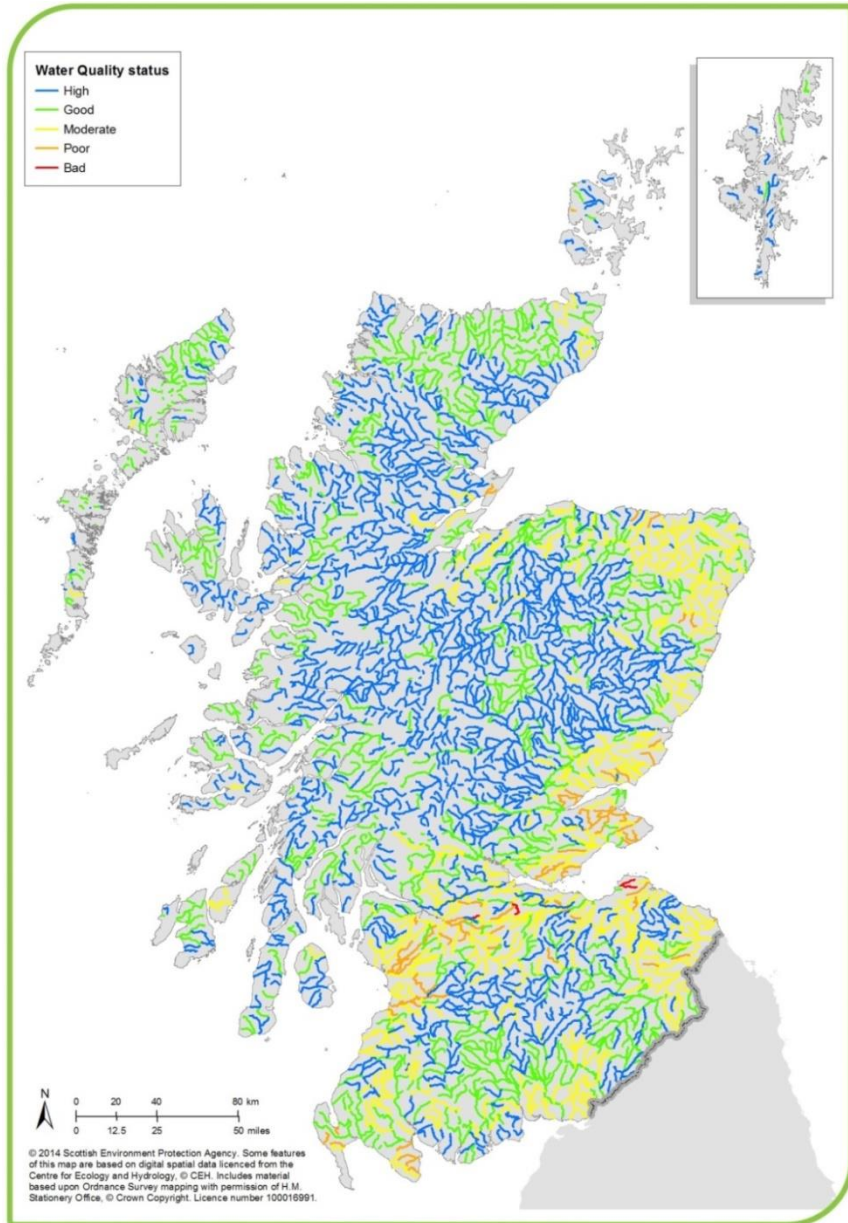
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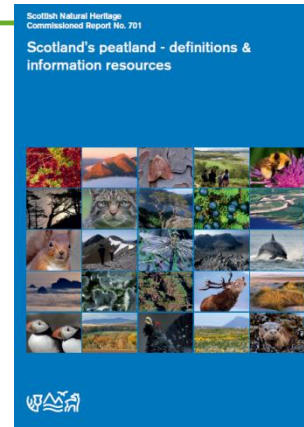
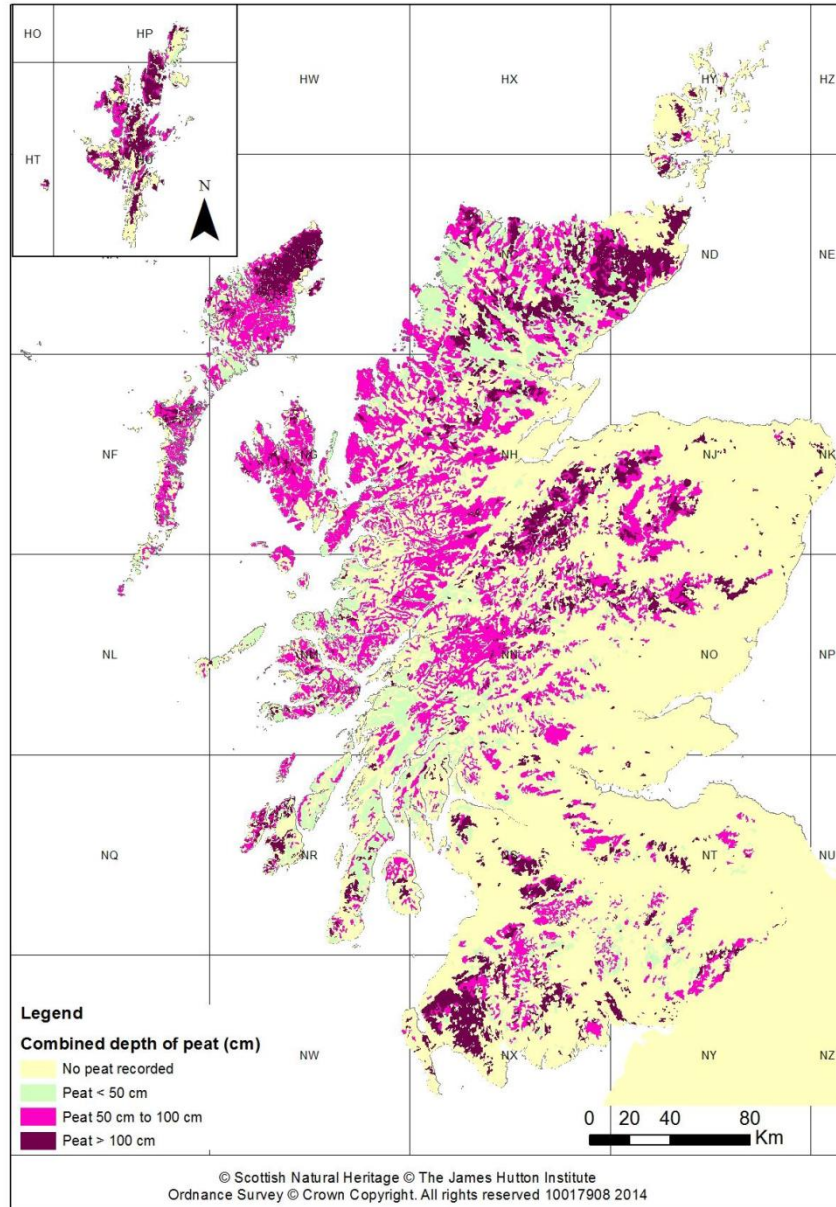
Map produced by Steven Thoms
SRUC (2016)



Water Quantity



Wider countryside: peatlands

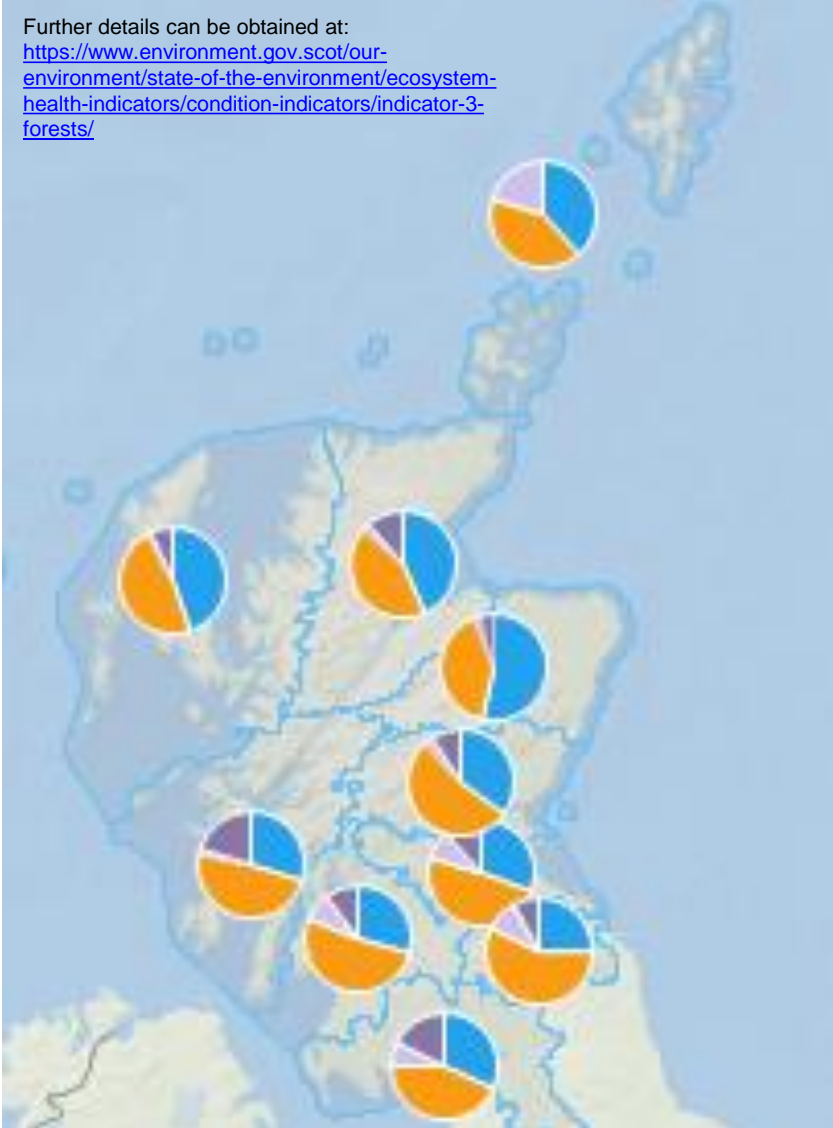
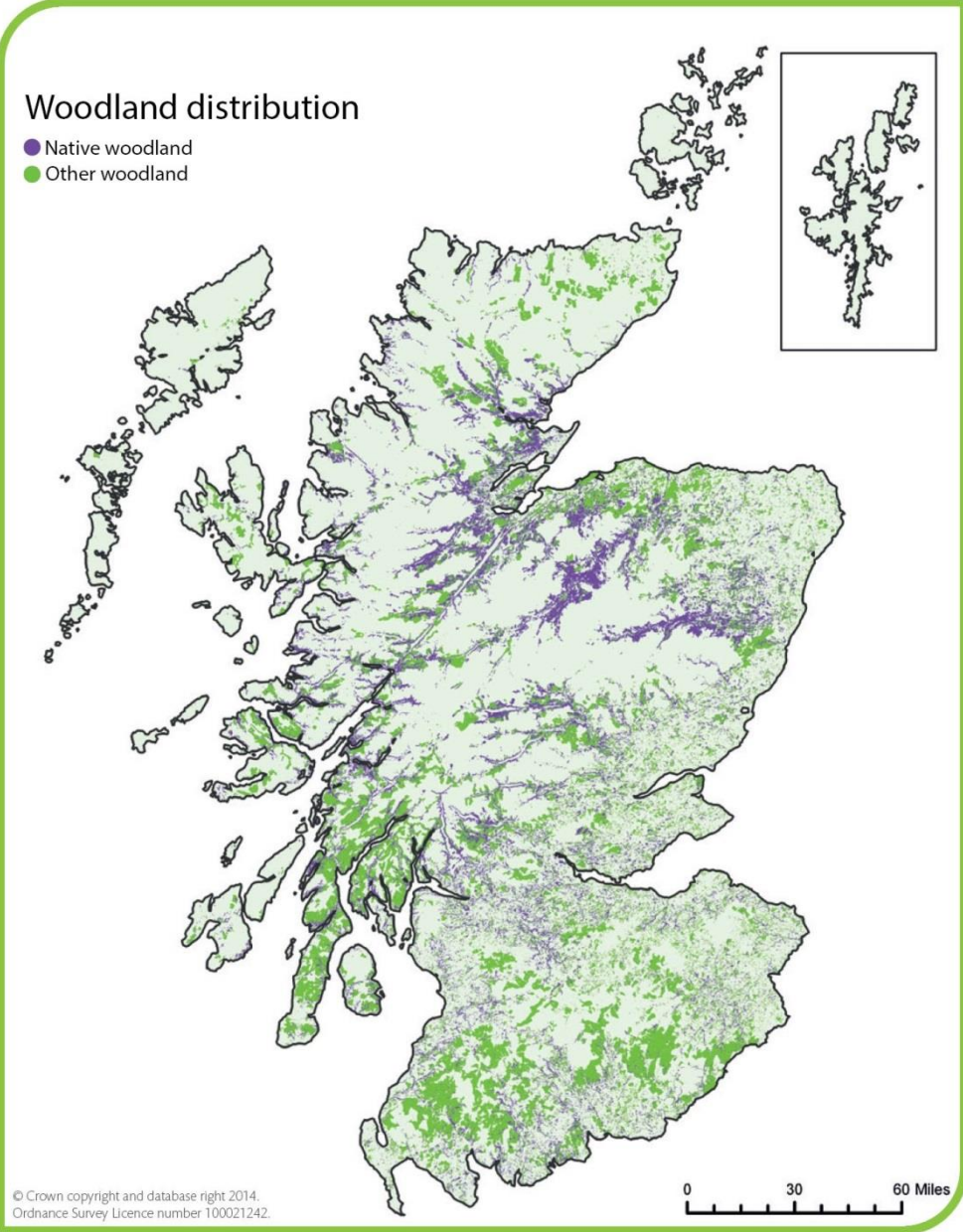


Extent in uplands stable but some decreases in plant species richness and many emitting rather than sequestering carbon

Table 8. Countryside Survey data for Scotland, showing Broad Habitat extent. (Extract from Countryside Survey – Scotland results from 2007- chapter 7)

	1990 Area ('000s ha)	1998 Area ('000s ha)	2007 Area ('000s ha)	Direction of significant trends 1998-2007
BH – Fens, marsh and swamp				
Total Scotland	289	261	238	NO SIGNIFICANT CHANGE
EZ4 (Lowlands)	58	72	71	
EZ5(Intermediate Uplands and Islands)	151	109	95	
EZ6 (true Upland)	80	80	72	
BH – Bog				
Total Scotland	1,922	2,039	2,044	DECREASING
EZ4 (Lowlands)	158	160	156	
EZ5(Intermediate Uplands and Islands)	832	872	890	
EZ6 (true Upland)	932	1,006	998	

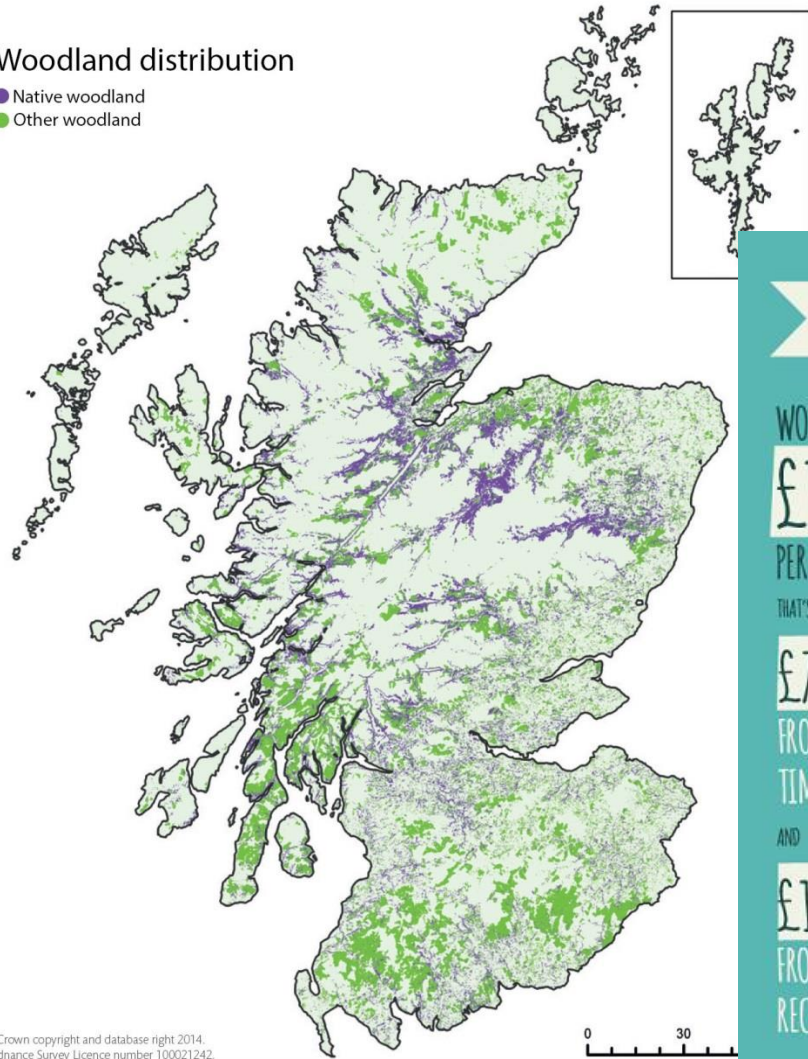
Wider countryside: native woodlands (NWS 2014)



What future for woodland and forestry in Scotland?

Woodland distribution

- Native woodland
- Other woodland



FORESTRY'S ECONOMIC CONTRIBUTION TO SCOTLAND

WORTH ALMOST
£1 BILLION GVA*
PER YEAR
THAT'S

£771,000,000 GVA
FROM FORESTRY AND
TIMBER PROCESSING

AND
£183,000,000 GVA
FROM FOREST
RECREATION AND TOURISM

EMPLOYS OVER
25,000 FTE
PEOPLE
THAT'S

19,555 FTE
IN FORESTRY AND
TIMBER PROCESSING

AND
6,312 FTE
IN FOREST
RECREATION AND TOURISM



*GROSS VALUE ADDED AND FULL-TIME EQUIVALENT TAKEN FROM "THE ECONOMIC CONTRIBUTION OF THE FORESTRY SECTOR IN SCOTLAND, 2015"

Pressures on farmland biodiversity: landscape simplification



7 December 2011 Last updated at 02:32

Butterflies: 72% of UK species in decline

By Daniel Boettcher
Environment Correspondent

Almost three quarters of UK butterfly species have declined in abundance over the past decade.

According to a study compiled by Butterfly Conservation and the Centre for Ecology and Hydrology (CEH), even common species have seen a fall of 24%.

It found that 72% of species had declined in abundance and that the distribution of 54% had been reduced.



Duke of Burgundy butterfly

British moths have crashed in numbers over past 40 years as part of widespread decline



MICHAEL MCCARTHY | FRIDAY 01 FEBRUARY 2013

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News in pictures



EU proposes to ban insecticides linked to bee decline

Three neonicotinoids, the world's most widely used insecticides would be forbidden across the continent for two years

Damian Carrington
guardian.co.uk, Thursday 31 January 2013 16:32 GMT



Latest UK Countryside Survey released and not good news for pollinators.

Posted by Kevin Heath on October 27th, 2010 at 11:28 am



The 2007 Countryside Survey is now available for download, the latest audit of the UK countryside reveals more information about declining pollinator - especially bees - numbers in the wild. The survey undertaken regularly since 1978 is one of the worlds leading land use surveys and offers insights into trends of land use.

The latest survey highlights how changes in small patches of land could be influencing the survival of insects that pollinate our crops and plants. The culmination in area of small patches between 1990 and 2007 the numbers of nectar plants have number of species in sample plots. The numbers appear to



NATURE NEWS

UK bird population down by 44m since 1966, report finds



Range of public goods which farming has a role in providing:



Example - Forest Carbon

Forest Carbon is the leading developer of woodland creation projects for the UK voluntary carbon market.

Since 2006 we have been planting forests:

- In the UK
- Of all shapes and sizes
- Funded by the sale of certified carbon credits
- Trees sequester carbon & provide wide ranging co-benefits
- That are quality assured under the government's Woodland Carbon Code

We also:

- Developed the UK's first (and only) carbon peatland restoration project
- Are active in developing a new peatland carbon market and quality assurance standard
- Developed Ireland's first ever forest carbon projects, on behalf of Microsoft, in partnership with Natural Capital Partners



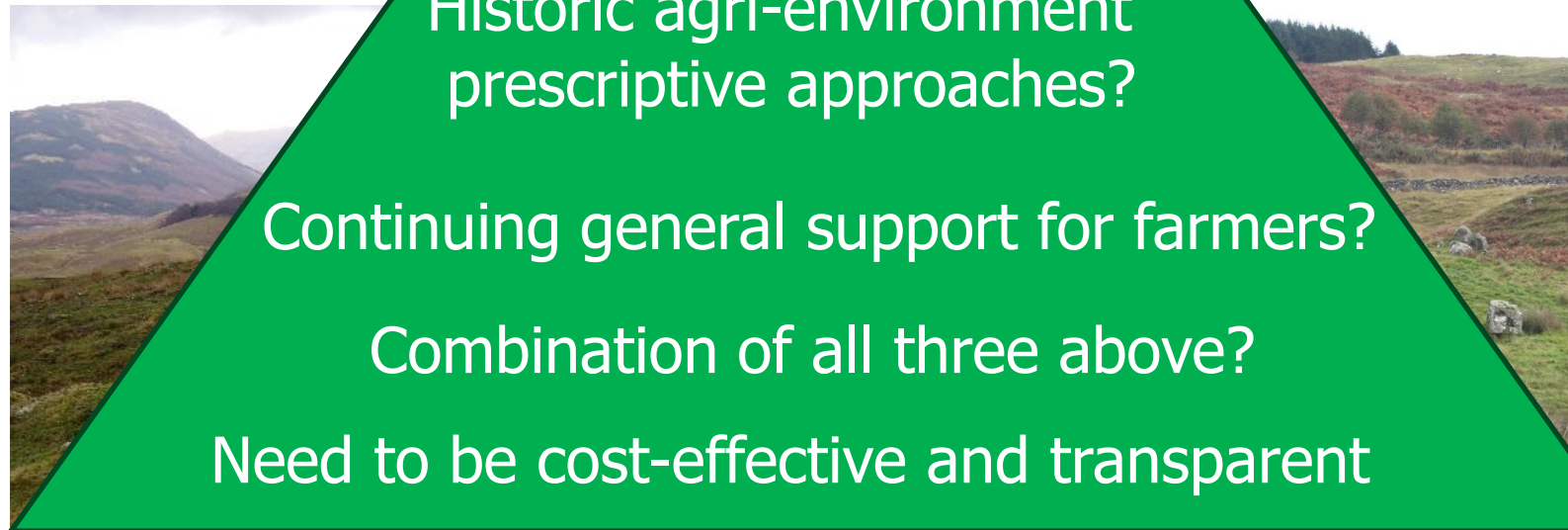
Project Location Map

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Rewarding the delivery of public benefits?



Outcome/Results based approaches?



Historic agri-environment prescriptive approaches?

Continuing general support for farmers?

Combination of all three above?

Need to be cost-effective and transparent

Acknowledgements



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- **Global Food Security's 'Resilience of the UK Food System Programme'**, with support from **BBSRC, ESRC, NERC** and **Scottish Government**.



Innovation = Doing Things Differently



Precision Agriculture
and the
Internet of Things (IoT)



Engineering & Technology

Systems
& ecology



Knowledge
Transfer



Biological Sciences

