## CAP Greening Review - Part 3 - Maps



The spatial distribution of the three 'standard' greening requirement, an assessment of the crop diversification measure, and the LFA grazing category breakdown of improved permanent grassland

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The James Hutton Institute

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#### **CONTENTS**

The	CAP Greening Review	3
1	Introduction To Part 3	
2	Permanent Grassland Requirement	4
3	Crop Diversification Requirement	5
4	Crop Diversification Assessment	5
5	Ecological Focus Area Requirement	6
6	Improved Grassland by LFA Status and Grazing Category	6
7	Permanent Grassland Requirement Map Series	7
8	Crop Diversification Requirement Map Series	22
9	Crop Diversification Assessment Map Series	37
10	Ecological Focus Area Requirement Map Series	52
11	Improved Grassland By LFA Status and Grazing Category Map Series	67

#### THE CAP GREENING REVIEW

This review was commissioned by the Cabinet Secretary for Rural Affairs, Food and Environment as part of the policy development process for the Common Agricultural Policy (CAP) Greening measures to be implemented from 2015. The scope of the review was agreed within government with the review managed by the Natural Heritage Management Team within the Environment and Forestry Directorate and supported by analysts from the Rural and Environment Science and Analytical Services Division. The particular focus of the review was on the use of equivalence measures. These are the measures designed and implemented within member states as alternatives or supplements to the standard mandatory measures prescribed in the EU Regulations. The review was conducted by staff of the James Hutton Institute between February and May 2015 with interim results used by policy makers (and stakeholders) in decisions announced by the Minister in June 2015. Given the freedom for member states to revise and update Greening equivalence measures this document is intended to provide a record of the evidence base provided by the Greening Review and to contribute to subsequent phases of policy development and implementation. It reflects the state of play in June 2015 and does not consider later revisions to Greening.

The report of the Greening Review comes in four parts.

Part 1 is an overview of the recent trends in key environmental indicators in Scotland, covering soils, biodiversity, water quality and climate change. In addition to outlining the state and trend of each component of the environment, Part 1 also identifies current and potential future pressures. Where any of these pressures are likely to stem from agricultural practices, they are specifically identified.

Part 2 is a technical report of the distribution of measures providing definitions of the standard and proposed equivalence measures as they stood when the review was commissioned. The report provides a sectoral and regional analysis of the distribution of businesses whose pattern of land use means they would need to undertake one or more of the three Greening requirements. For these businesses, the report also identifies (as far as possible) if their pattern of land use already meets the criteria contained in the Greening measures. This analysis is based on business returns made through the Single Application Form (SAF) for 2014.

Part 3 (this document) is a series of map books that are a product of the analysis contained in the distribution of measures technical report. These define the spatial distribution of the greening requirements. National maps for each of the three standard greening requirements are followed by maps for each of the 14 agricultural regions. In addition, data currently collected allows an assessment of the degree to which the crop diversification requirement is currently being met.

Part 4 is an Expert Review of the three standard Greening measures, and where relevant the (then) proposed draft equivalence measures. This draws on research in five fields of study: agro-ecology; biodiversity and landscape ecology; climate change adaptation and mitigation; soils, and waters and catchments. Questions addressed within the Expert Review include: localised and landscape effects, trade-offs, the consequences of implementation factors not specified in the regulation; context specific factors that should be included in guidance to ensure the measure is effective and opportunities for cooperation between businesses and coordinating types and locations of measures.

Part 1 thus provides the wider context, Part 2 the numbers, types and locations of businesses affected and thus the potential scope for benefits or burdens, Part 3 the spatial distribution of the measures, and Part 4 assessments of the (then) proposed equivalence measures set against the counterfactual of the standard greening measures that would otherwise have been implemented.

The James Hutton Institute 3 | Page

#### 1 INTRODUCTION TO PART 3

This part of the Greening Review contains maps of the areas subject to each of the three standard Greening requirements. For each Greening measure a map book has been created containing a national map followed by maps for each of the 14 agricultural regions. In addition, the data collected for the Crop Diversification Requirement allows the mapping of where that Greening measure requirement is already being met. The maps are built using land parcel boundary data together with claims data from the Integrated Administration and Control System (IACS) collected from Single Application Form (SAF) returns for 2014. In each case field boundaries are used as the basis of the maps shown. In instances where business level calculations are represented, and where there is more than one business with a claim in a single land parcel, the dominant category which applies to the land parcel is shown. This is for mapping purposes only and does not affect any of the calculations made in the Distribution of Measures Technical Report (Part 2 of this Greening Review). Note that in all cases the mapping reflects the situation that pertained in the 2014 returns; the maps are thus indicative and intended to inform debate on broad patterns at national and regional scales.

#### 2 PERMANENT GRASSLAND REQUIREMENT

The maps in this section show the spatial distribution of the categories associated with the permanent grassland requirement. Only those fields which contain grassland categories are displayed. Maps are presented at the national level followed by each Agricultural Region in turn. The four categories reflect the distinctions between improved and unimproved grassland and between NATURA and non-NATURA sites made in the permanent grassland guidance. This generates the following classification:

- Improved Grassland describes PGRS<sup>1</sup> not in a NATURA site.
- Improved Grassland within NATURA describes PGRS<sup>1</sup> within a NATURA site.
- Unimproved Grassland describes RGR<sup>2</sup> (and similar<sup>3</sup>) claims not in a NATURA site.
- Unimproved Grassland within NATURA describes RGR<sup>2</sup> (and similar<sup>3</sup>) claims within a NATURA site.

In cases of mixed categories within a single field the largest category by area is used to assign the field (for mapping purposes only). Colours in the categories match those used in the charts in section 3.2 in Part 2 of the Greening Review.

In practice the permanent grassland requirement places a set of restrictions on grassland management, many of which already exist. Of the four categories in the maps, the "Improved Grassland" (in pink) is the land which could be converted into other use. All of the remaining categories have varying degrees of restriction in place which prevents the conversion of that land into other land types.

In terms of the relative proportions of the four grassland categories, Fife has the largest proportion of the improved permanent grassland category with over 60% of all grassland in Fife under non-NATURA improved grassland (in pink). In terms of total area of this category the largest area of improved permanent grassland is in Dumfries & Galloway with over 155,000Ha. See section 3.2 of Part 2 of the Greening Review for further analysis of the Permanent Grassland Requirement.

The James Hutton Institute 4 | Page

<sup>&</sup>lt;sup>1</sup> PGRS is the crop code for "Grass Over 5 Years".

<sup>&</sup>lt;sup>2</sup> RGR is the crop code for "Rough Grazing". Note that some other crop codes were also allocated to the Rough Grazing land type.

<sup>&</sup>lt;sup>3</sup> See Table 1 of the Distribution of Measures technical report for crop codes associated with Improved and Unimproved Grassland in the analysis.

#### 3 CROP DIVERSIFICATION REQUIREMENT

The maps in this section show the spatial distribution of the categories associated with the crop diversification requirement. All fields against which a claim was made in 2014 are included. Maps are presented at the national level followed by each Agricultural Region in turn. Under the crop diversification measure, businesses may be subject to, or exempt from, the requirement according to the areas and relative proportions of arable, temporary grassland and permanent grassland. The result is that a business may fall under one of the following four categories:

- 2-crop rule applies
- 3-crop rule applies
- 3-crop 'special' rule applies
- Exempt

These measures apply at the business level. In the case of more than one business using a field, the category applying to the largest claimed area within a field has been used to classify the field (for mapping purposes only). Where a business is subject to the crop diversification requirement, but no arable land exists within a particular land parcel, then the land parcel has been symbolised in red to represent non-exempt fields with no arable land.

Section 3.3 in Part 2 of the Greening Review gives the breakdowns in terms of counts of businesses and total arable area of businesses where the crop diversification requirement applies. Colours used in the maps match colours used in the charts. In terms of counts of businesses, regionally the impact is proportionally highest in Fife (66%), followed by Lothian (58%), Tayside (51%) and North East Scotland (50%). In area terms the picture is similar with 95% of arable land in Fife subject to the measure with values of 92% in Lothian, 91% in Tayside and 85% for North East Scotland respectively.

#### 4 CROP DIVERSIFICATION ASSESSMENT

The maps in this section show the spatial distribution of the test result of businesses subject to the crop diversification measure. All fields against which a claim was made in 2014 are displayed. Maps are presented at the national level followed by each Agricultural Region in turn. Under the crop diversification measure, businesses may be subject to, or exempt from, the requirement according to the areas and relative proportions of arable, temporary grassland and permanent grassland. The result is that the following categories exist when the crop diversification test is applied:

- Two Crop Passed
- Two Crop Failed
- Three Crop Passed
- Three Crop Failed
- Three Crop 'Special' Passed
- Three Crop 'Special' Failed
- Exempt

These measures apply at the business level. In the case of more than one business using a field, the category applying to the largest claimed area within a field has been used to assign the field (for mapping purposes only). Where a business is subject to the crop diversification requirement, but no arable land exists with a particular land parcel, then the land parcel has been symbolised in red to represent non-exempt fields with no arable land.

Section 3.4 in Part 2 of the Greening Review gives the breakdowns in terms of counts of businesses and total arable area of businesses where the crop diversification requirement is either passed or failed by businesses subject to the

The James Hutton Institute 5 | Page

measure. In terms of counts of businesses, while regionally the measure is proportionally highest in Fife (66%), of those businesses subject to the measure the proportion of businesses which pass the measure is also high (82%). For Lothian the pass rate is 78% while for Tayside the pass rate is 83% and for North East Scotland the pass rate is only 55%.

It is important to bear in mind the caveats to the Crop Diversification Assessment when interpreting the mapping (Section 3.4 in Part 2 of the Greening Review). All non-exempt fields in businesses that fail to meet the Crop Diversification criteria are shown in the maps. This is a much larger area than that on which land use would need to be changed to be compliant. The maps are thus intended to highlight clearly the distribution of businesses that would need to adapt not to show the extent of land that would have to change.

#### 5 ECOLOGICAL FOCUS AREA REQUIREMENT

The maps in this section show the spatial distribution of businesses where the Ecological Focus Area requirement applies. All fields against which a claim was made in 2014 are displayed. Maps are presented at the national level followed by each Agricultural Region in turn. Under the Ecological Focus Area requirement, businesses may be either subject to, or exempt from, the measure. Where a business is subject to this measure, 5% of its arable area (or equivalent) must be devoted to one of five qualifying EFA options. These are:

- Fallow land (\*1)
- Buffer strips (\*1.5)
- Field margins (\*1.5)
- Catch crop / green cover (\*0.3)
- Nitrogen-fixing crops (\*0.7)

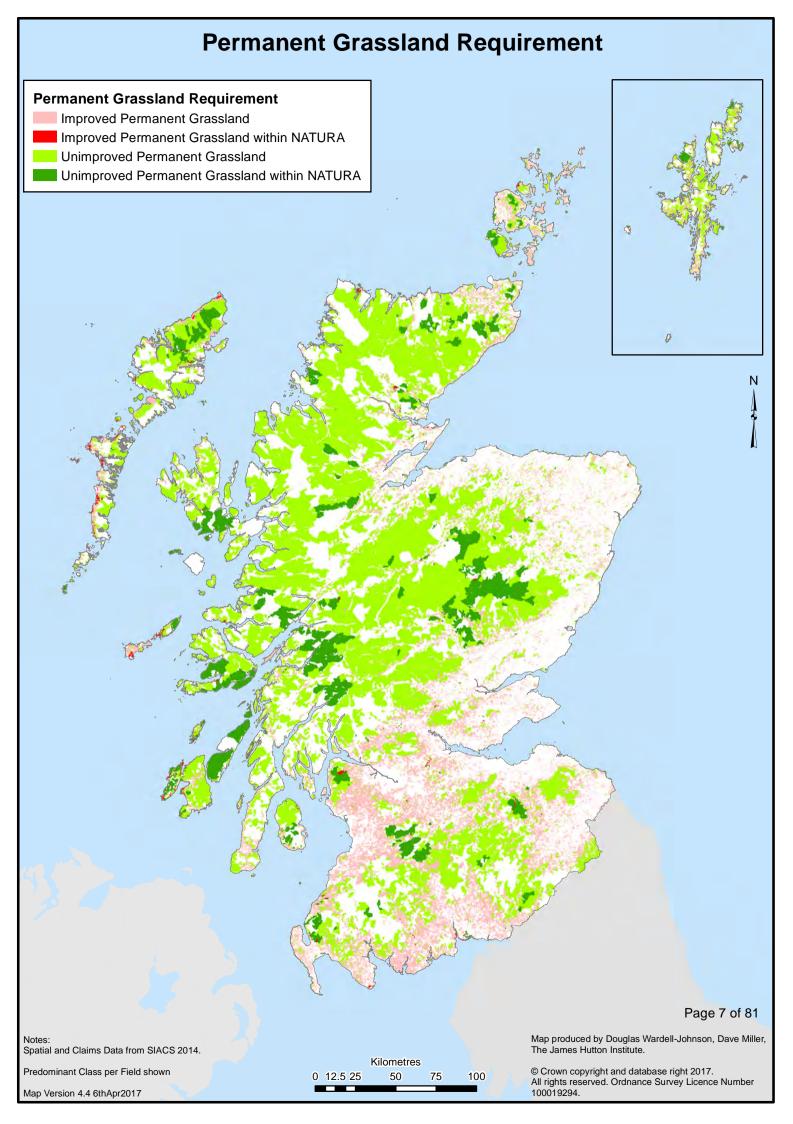
Values in brackets indicate the area multiplier which is applied in each case.

While the SAF14 data supports a calculation of those businesses subject to the measure, the data collected does not support an analysis of those businesses which are already meeting the requirement. As a result, the maps in this section can only show the extent of the businesses to which the EFA requirement applies. For areas in blue in the following maps, 5% of the arable land in the business must be assigned to an EFA using one or more of the above options. The national map is followed by maps for each of the Agricultural Regions. In the event that a field is used by more than one business, the category representing the largest area is shown for the field. Section 3.5 of Part 2 of the Greening Review gives the breakdown in terms of businesses subject to, or exempt from, the Ecological Focus Area requirement.

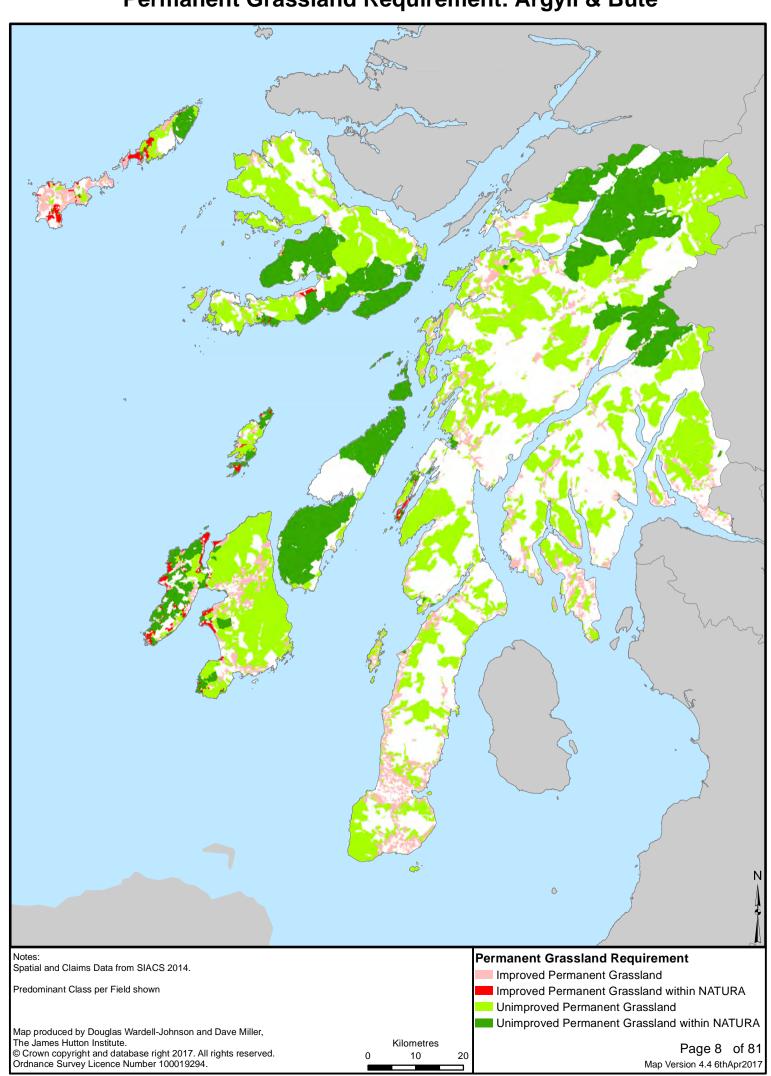
#### 6 IMPROVED GRASSLAND BY LFA STATUS AND GRAZING CATEGORY

The maps in this section show the breakdown by LFASS Grazing Category of all fields against which a claim for Grass Over 5 Years (PGRS) was made in 2014. Only those fields assigned to Region 1 of the Basic Payment Scheme were considered and only those fields which were outside a Natura or SSSI site were considered. Maps are presented at the national level followed by each Agricultural Region in turn. Section 3.6.7 of Part 2 of the Greening Review gives the basic payment region and grazing category breakdown of these fields.

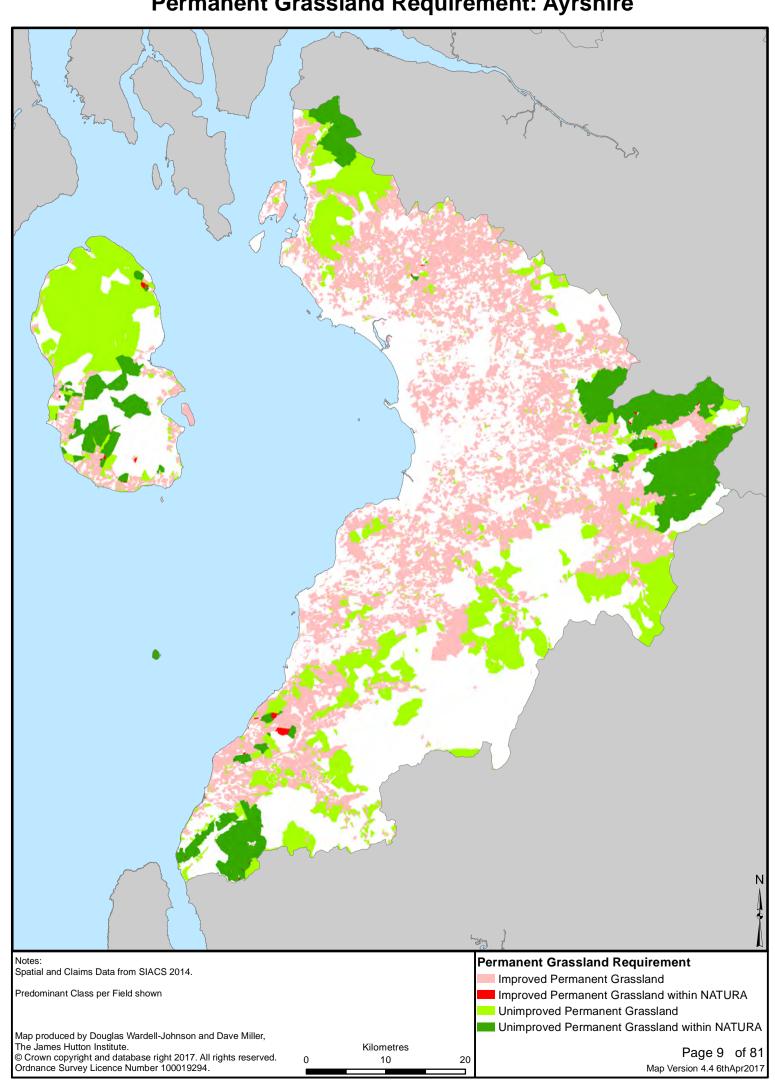
The James Hutton Institute 6 | Page



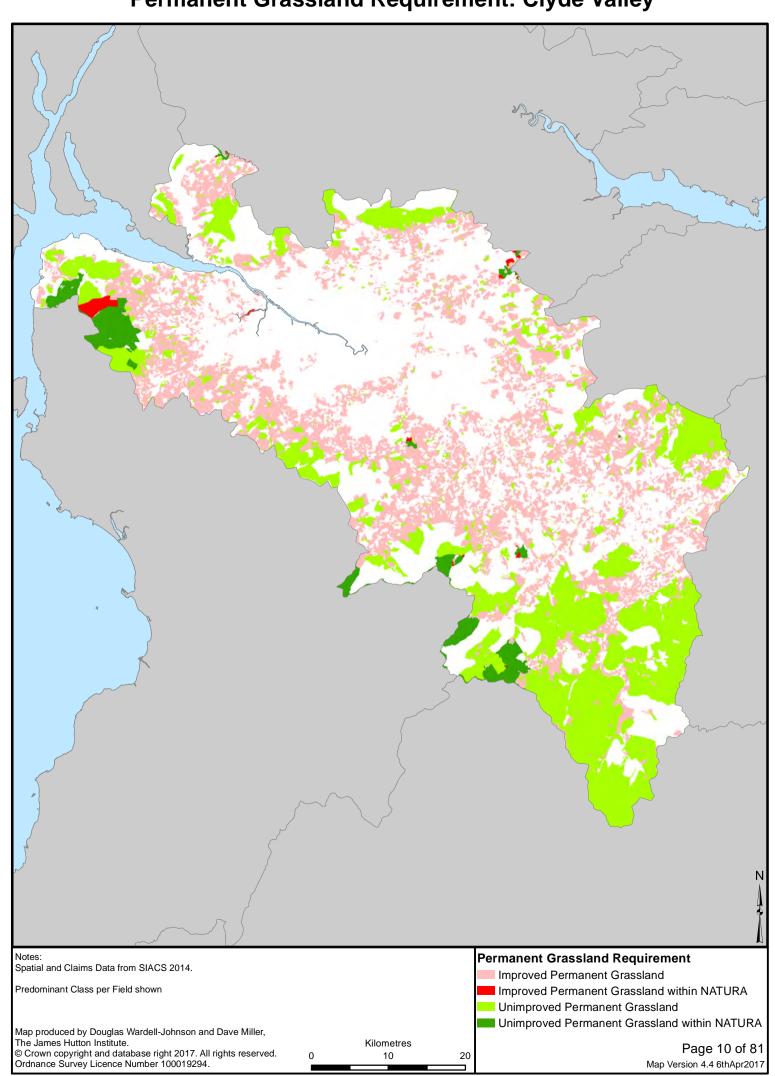
# Permanent Grassland Requirement: Argyll & Bute



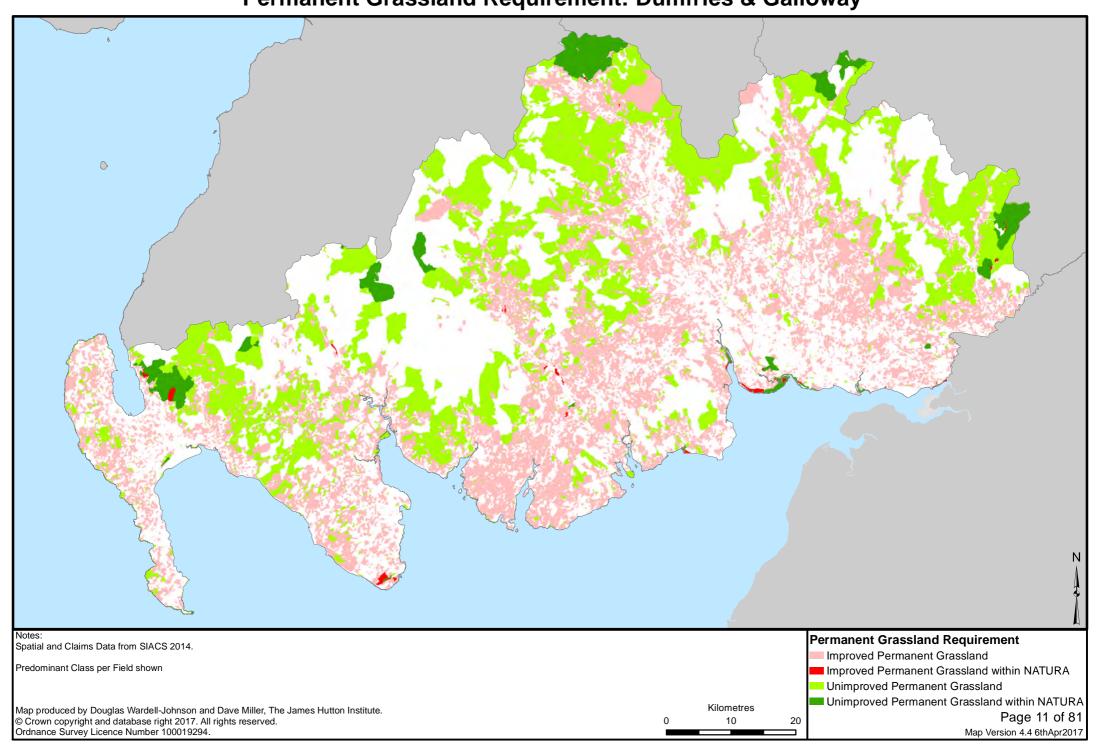
# **Permanent Grassland Requirement: Ayrshire**



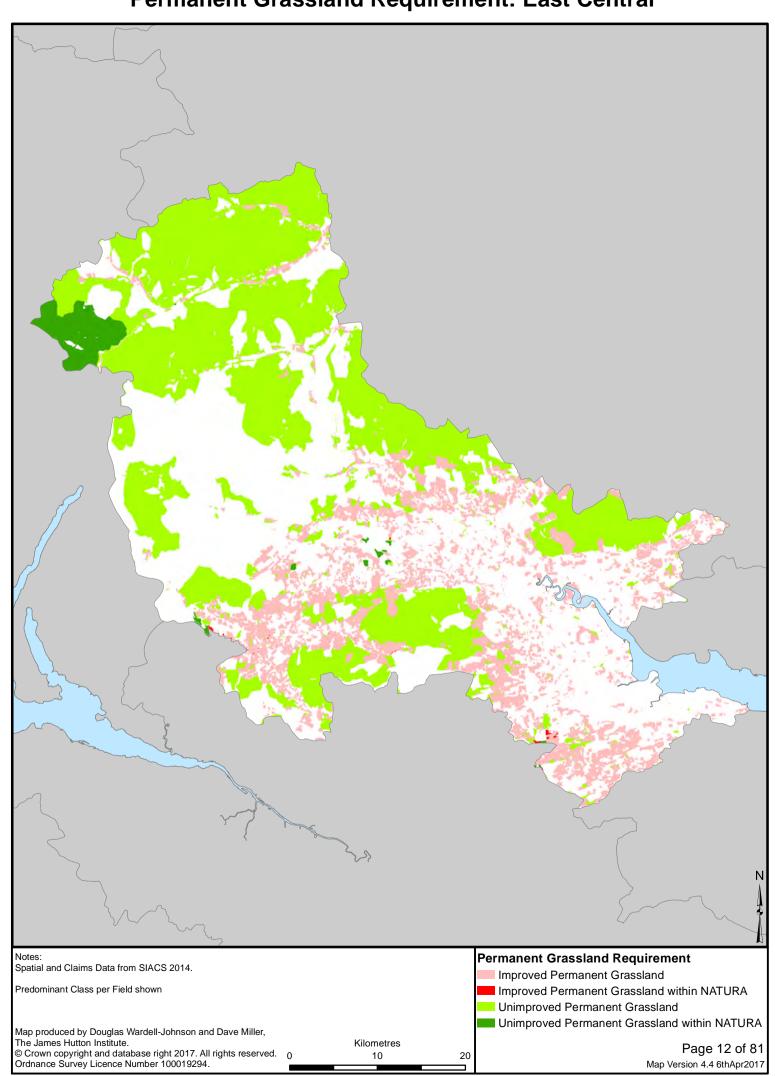
# Permanent Grassland Requirement: Clyde Valley



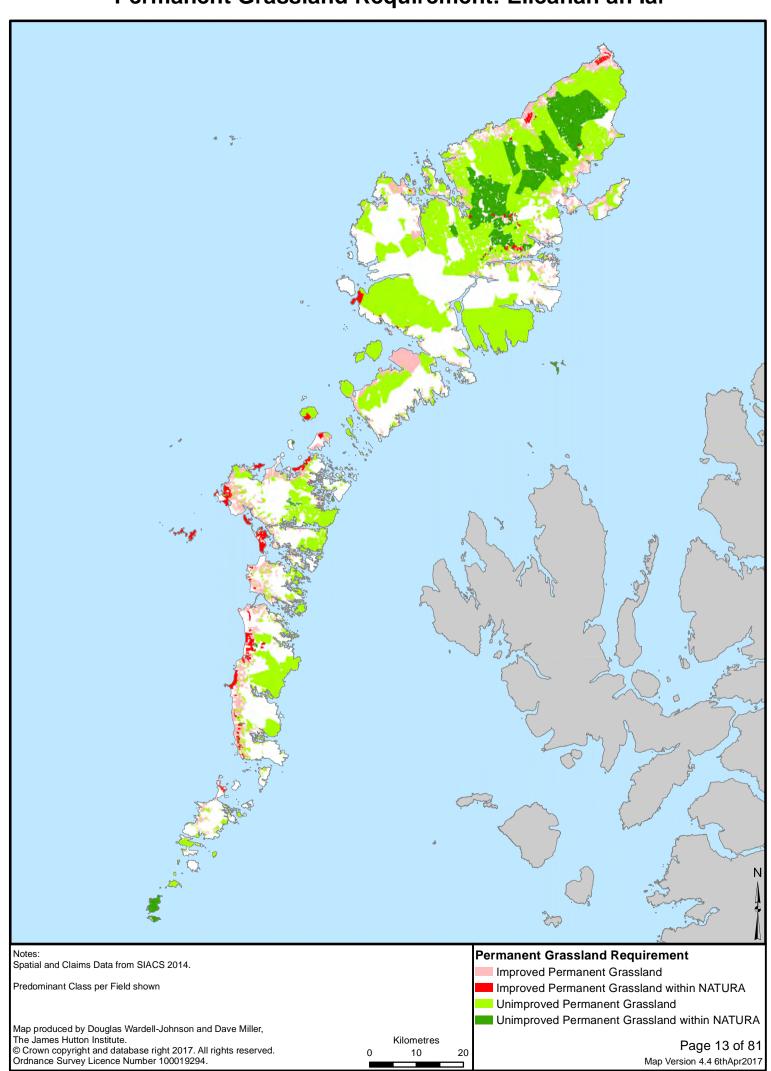
## **Permanent Grassland Requirement: Dumfries & Galloway**



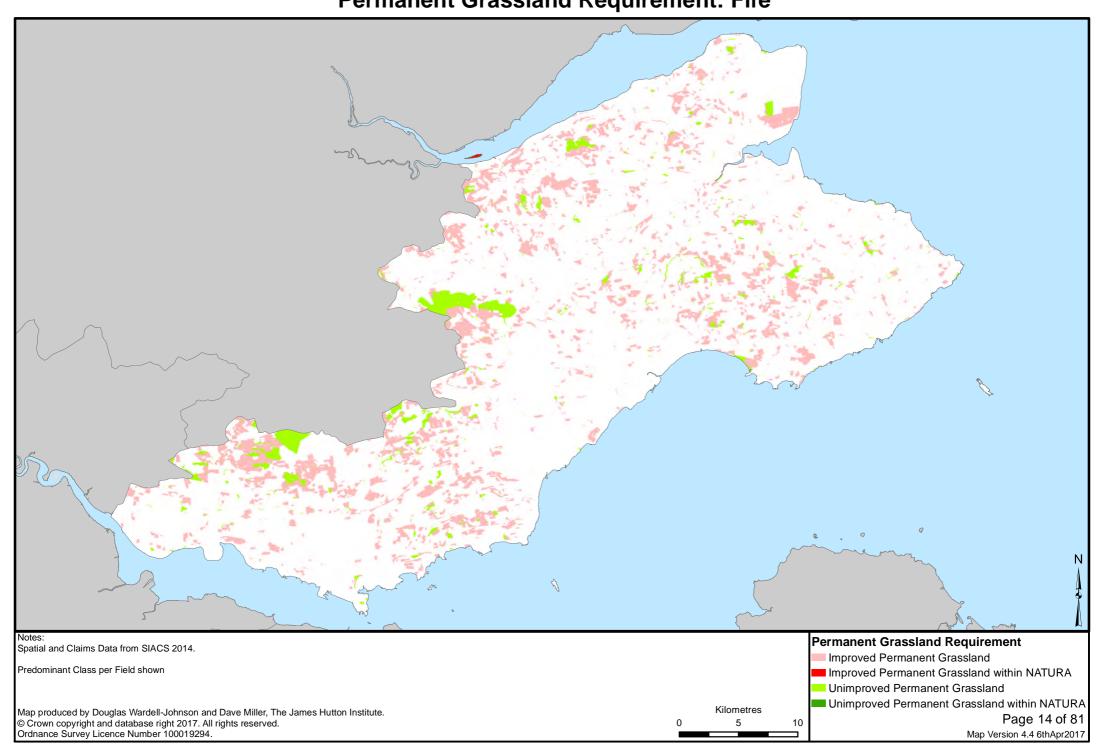
## **Permanent Grassland Requirement: East Central**



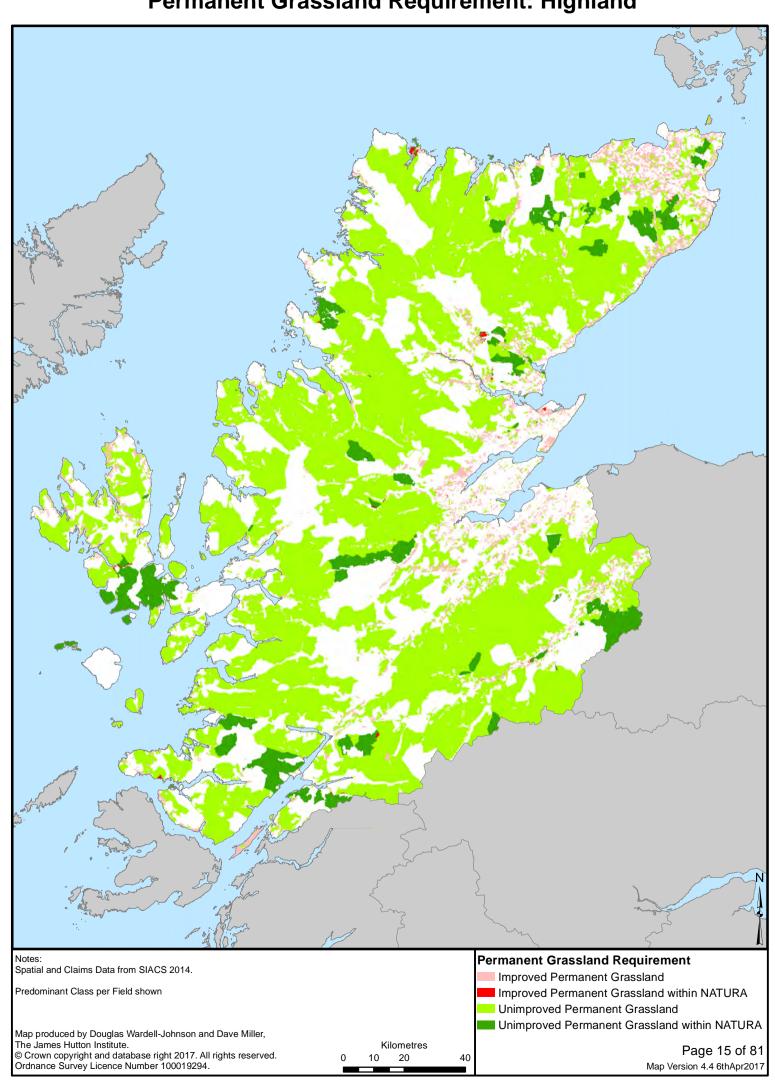
# Permanent Grassland Requirement: Eileanan an Iar



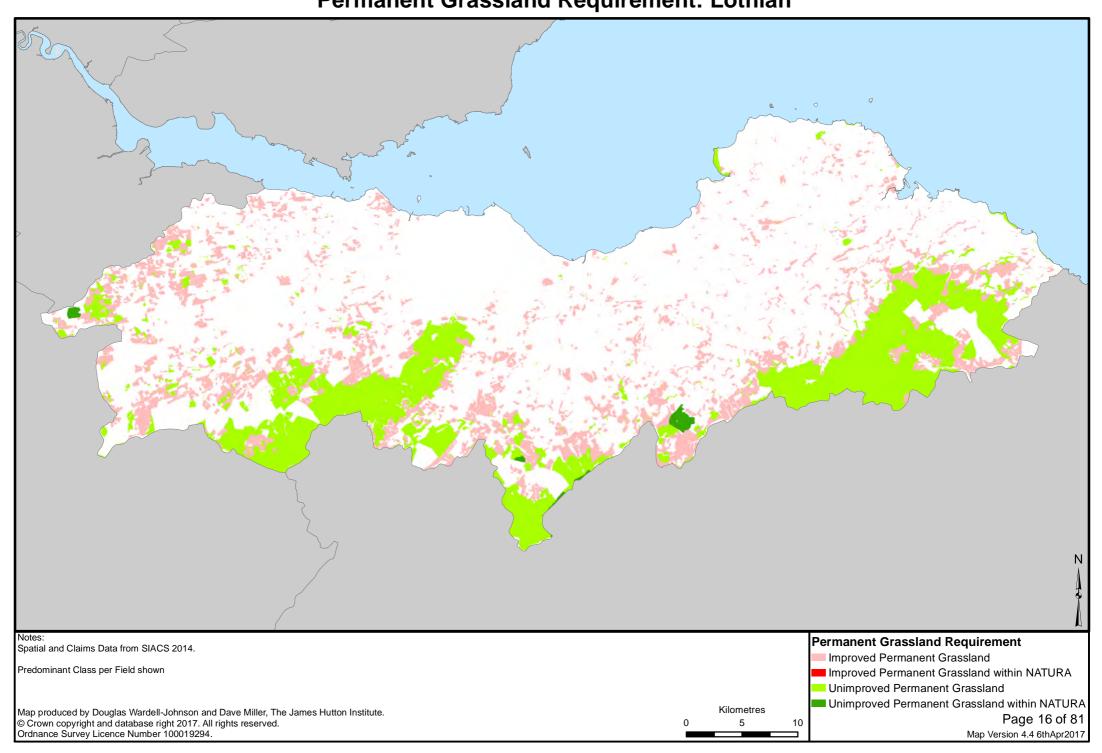
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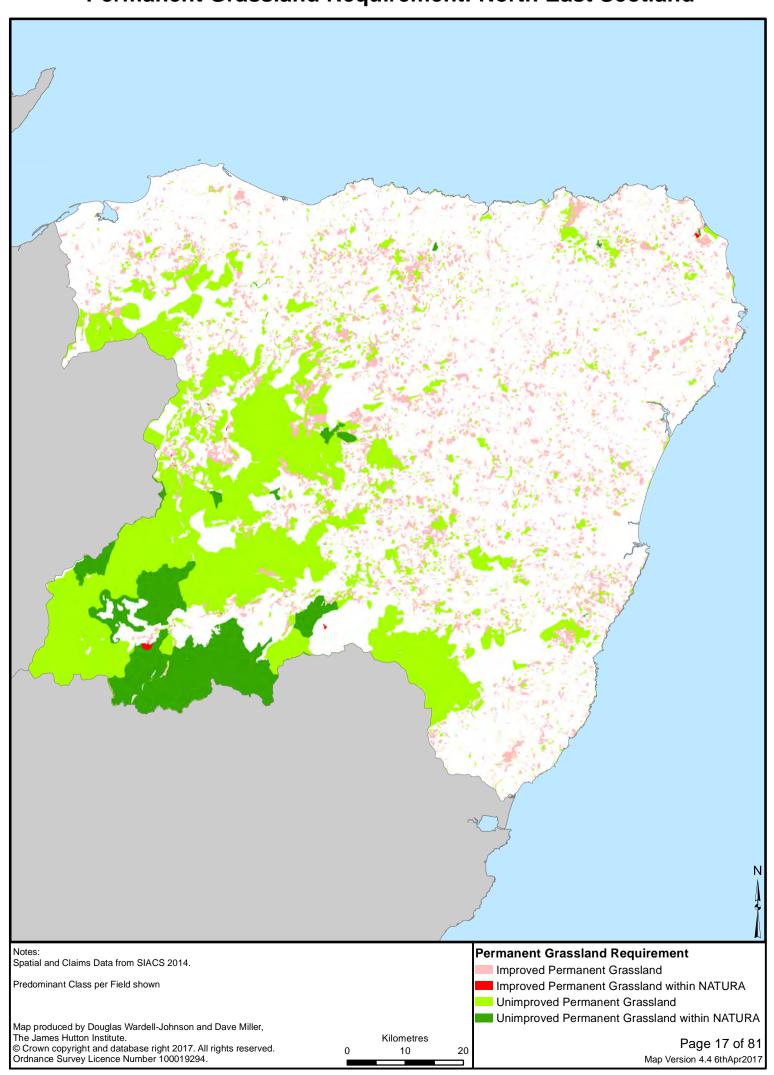
# **Permanent Grassland Requirement: Highland**



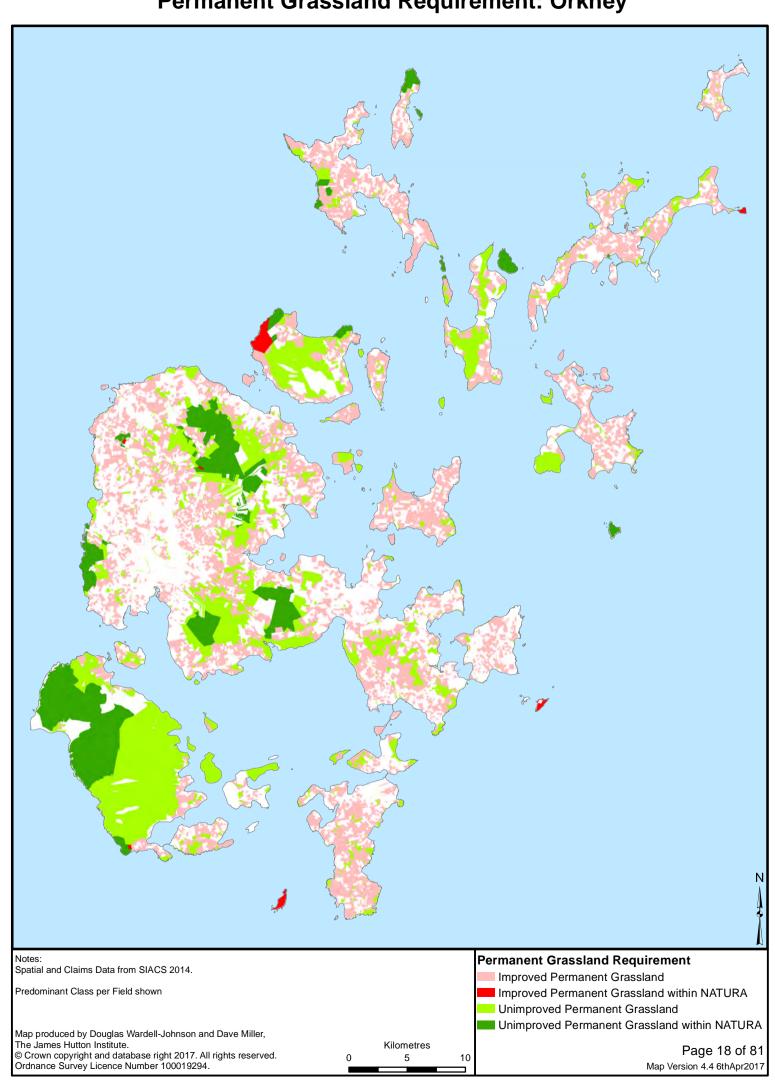
# **Permanent Grassland Requirement: Lothian**



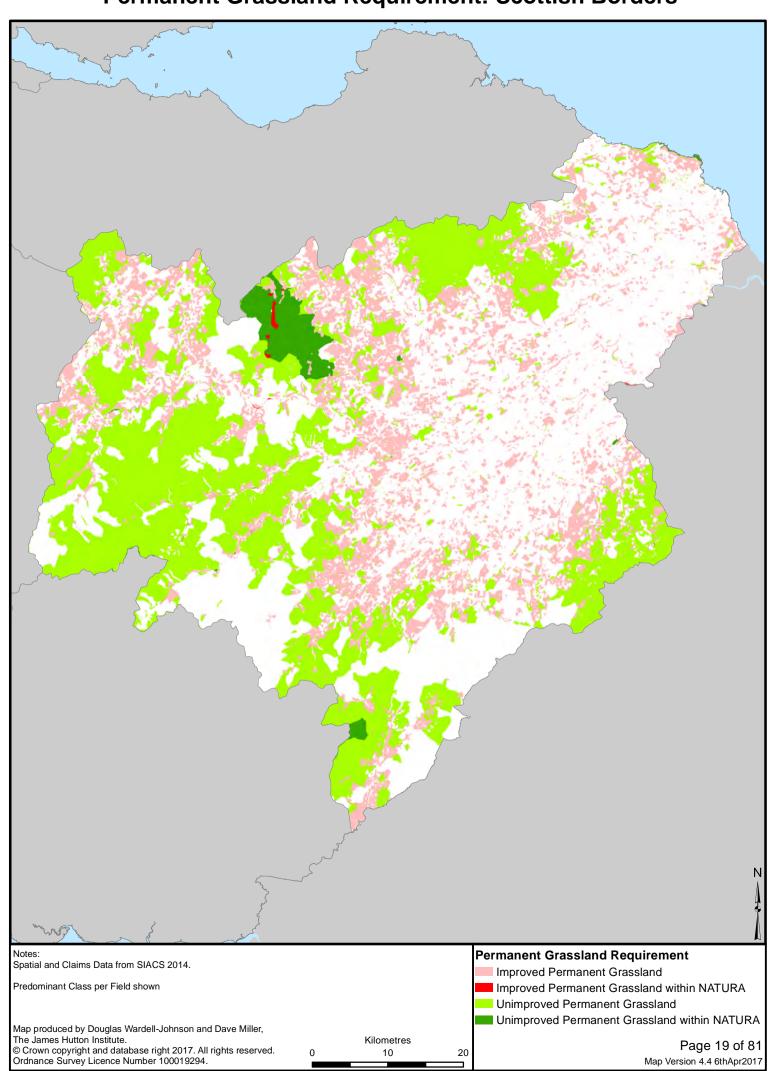
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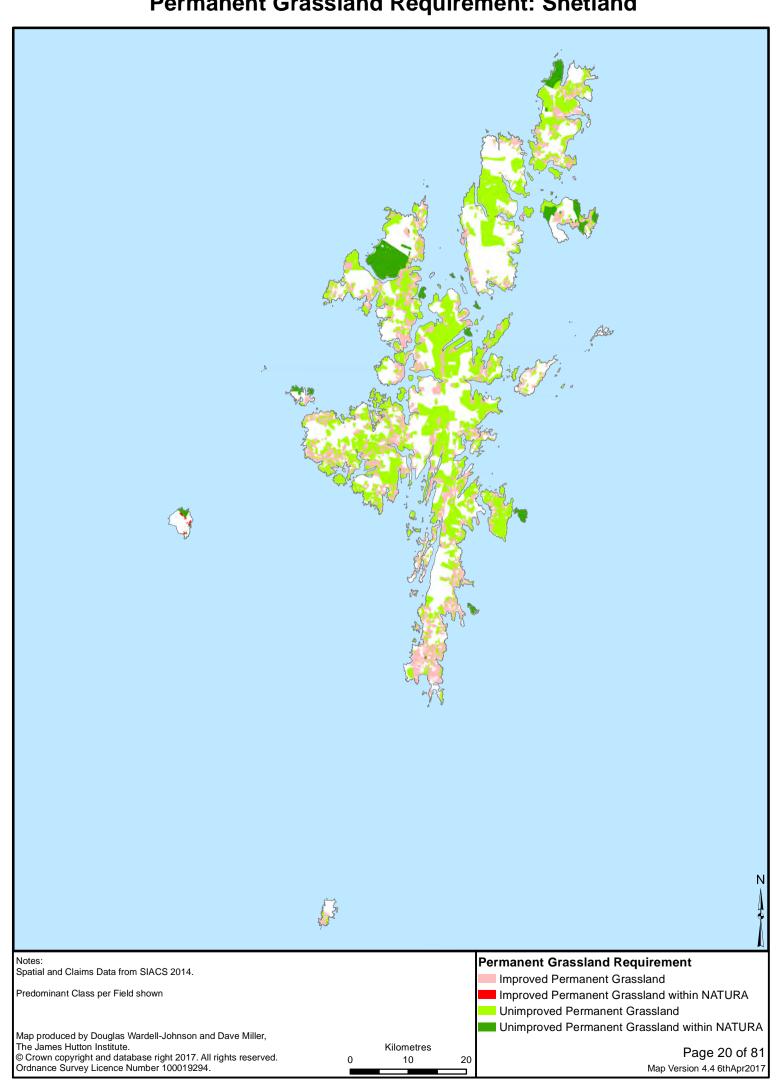
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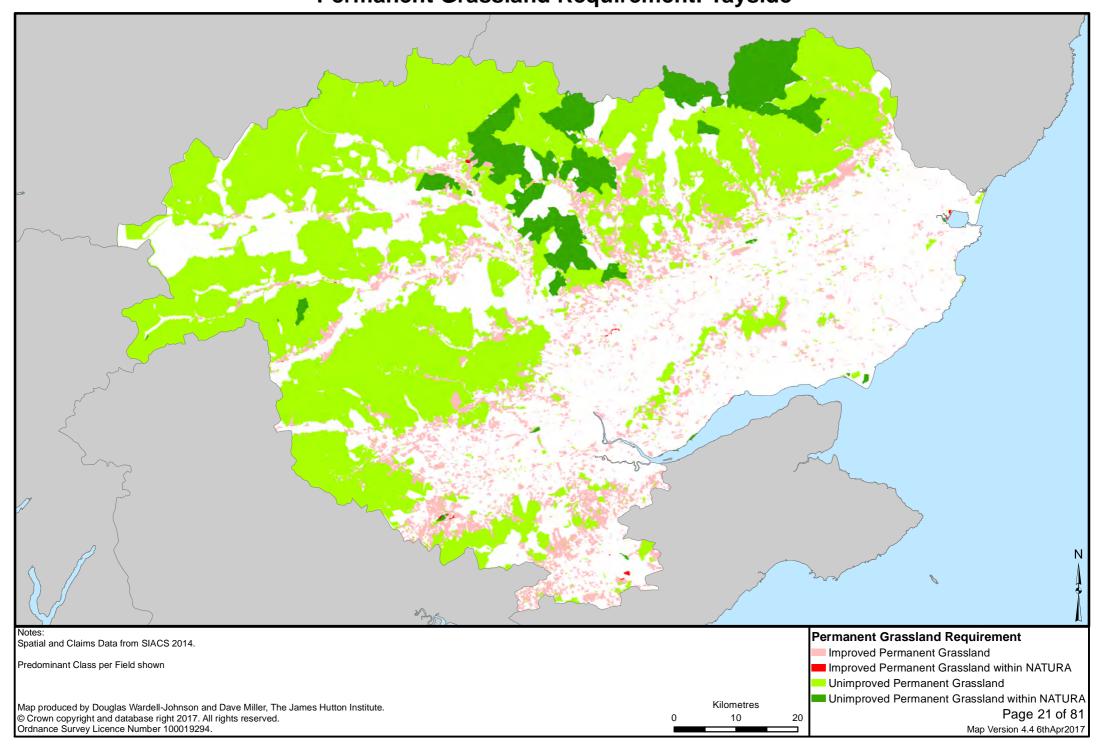
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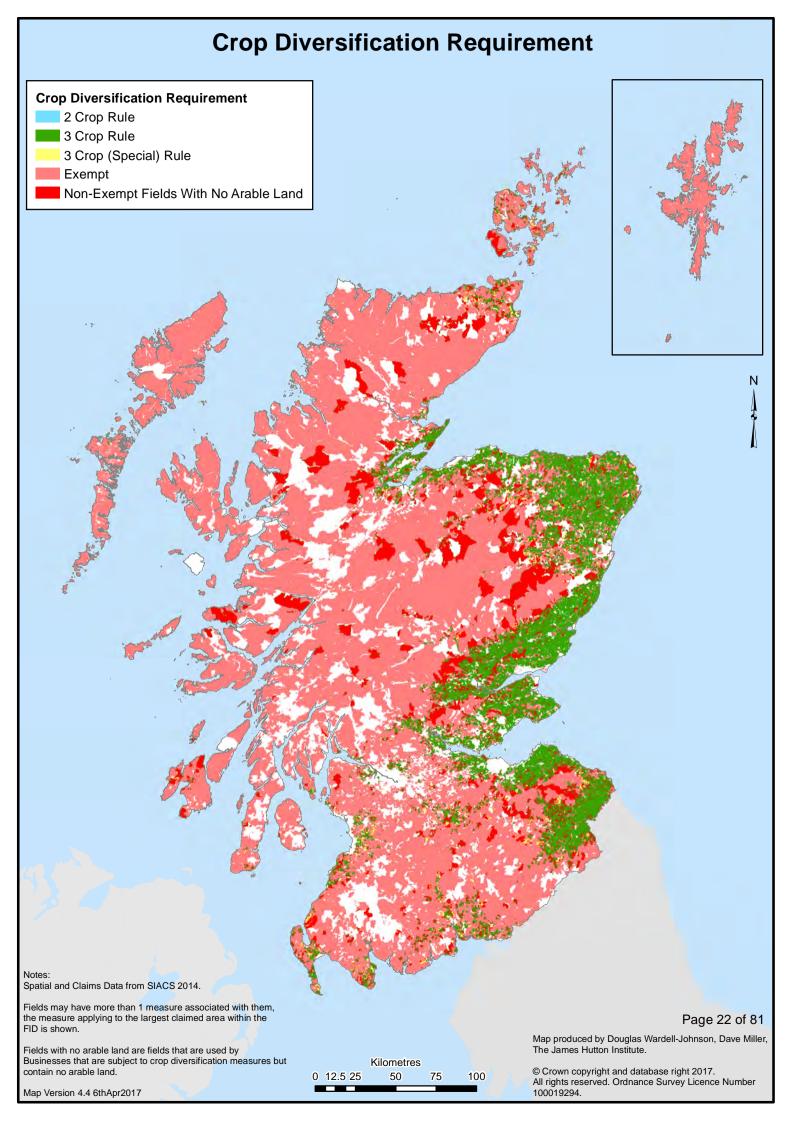


# **Permanent Grassland Requirement: Shetland**

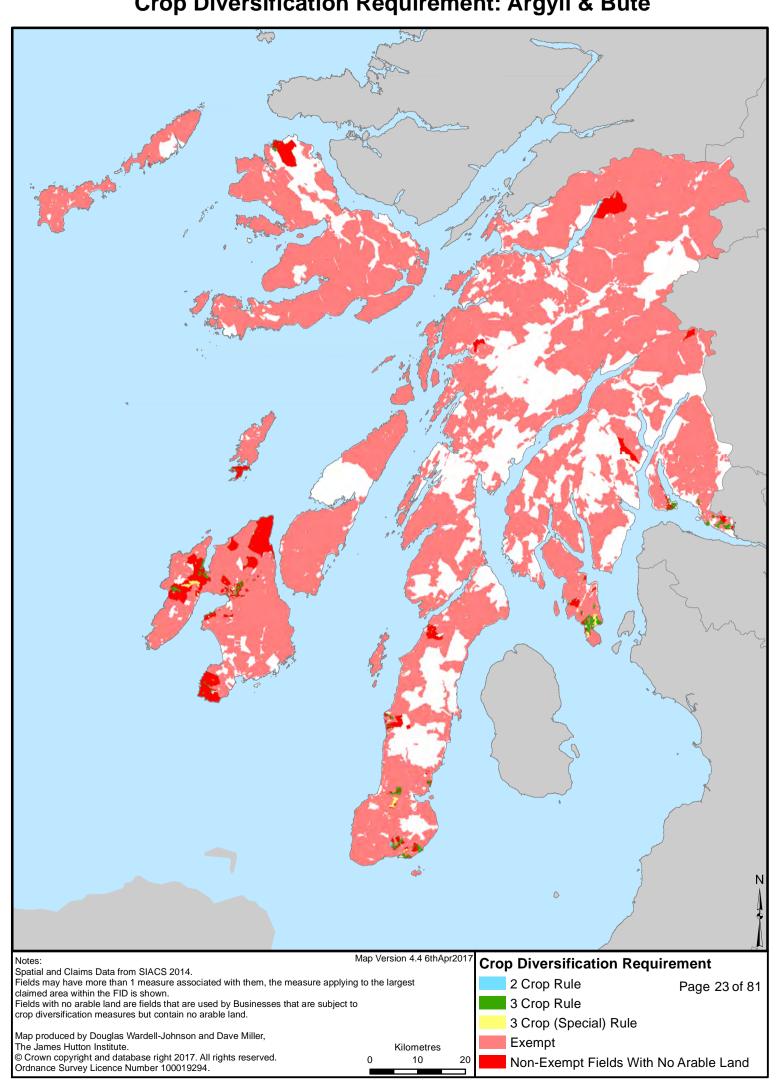


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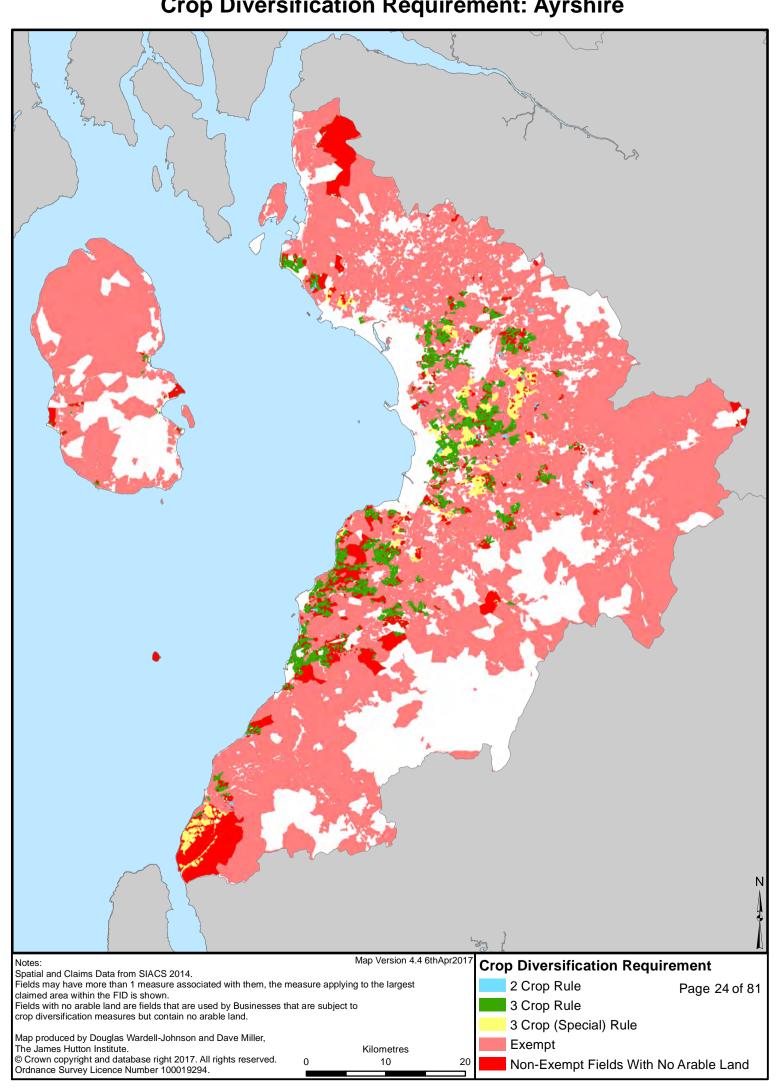




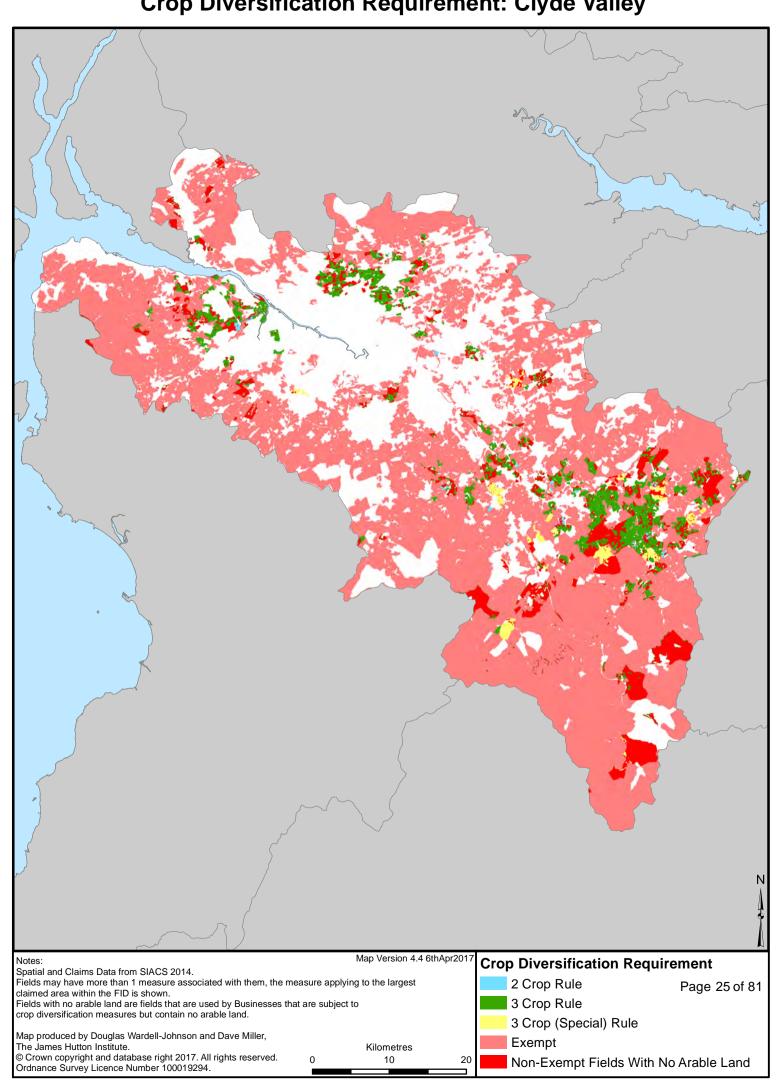
# **Crop Diversification Requirement: Argyll & Bute**



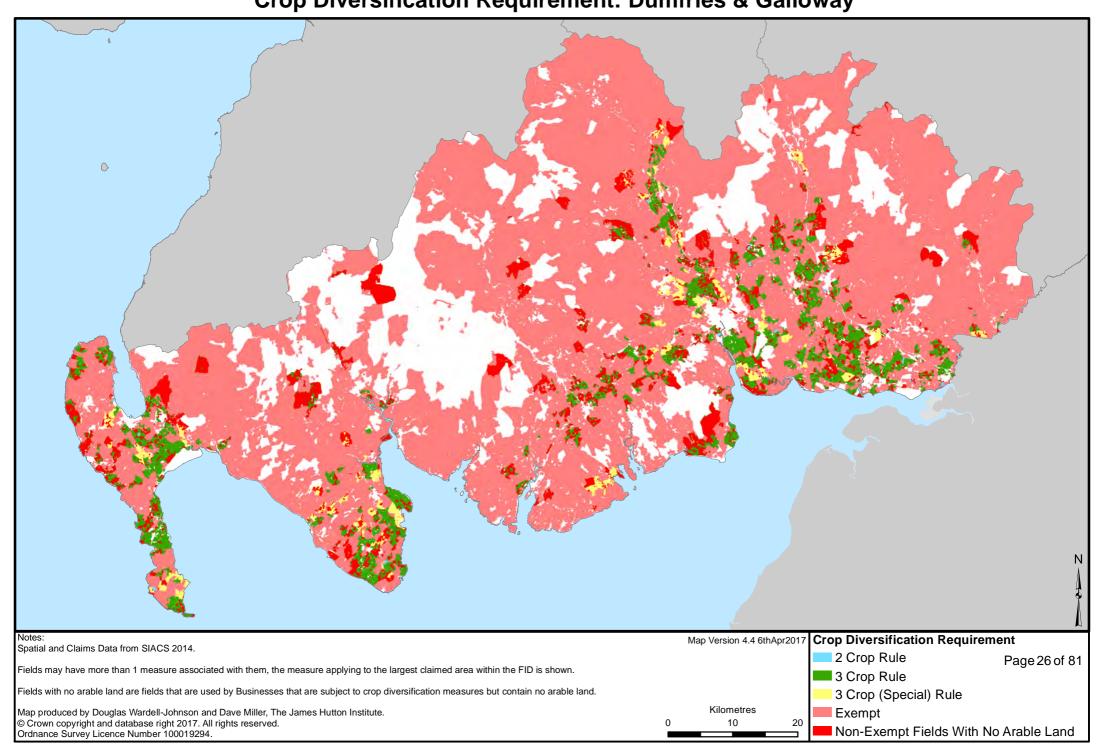
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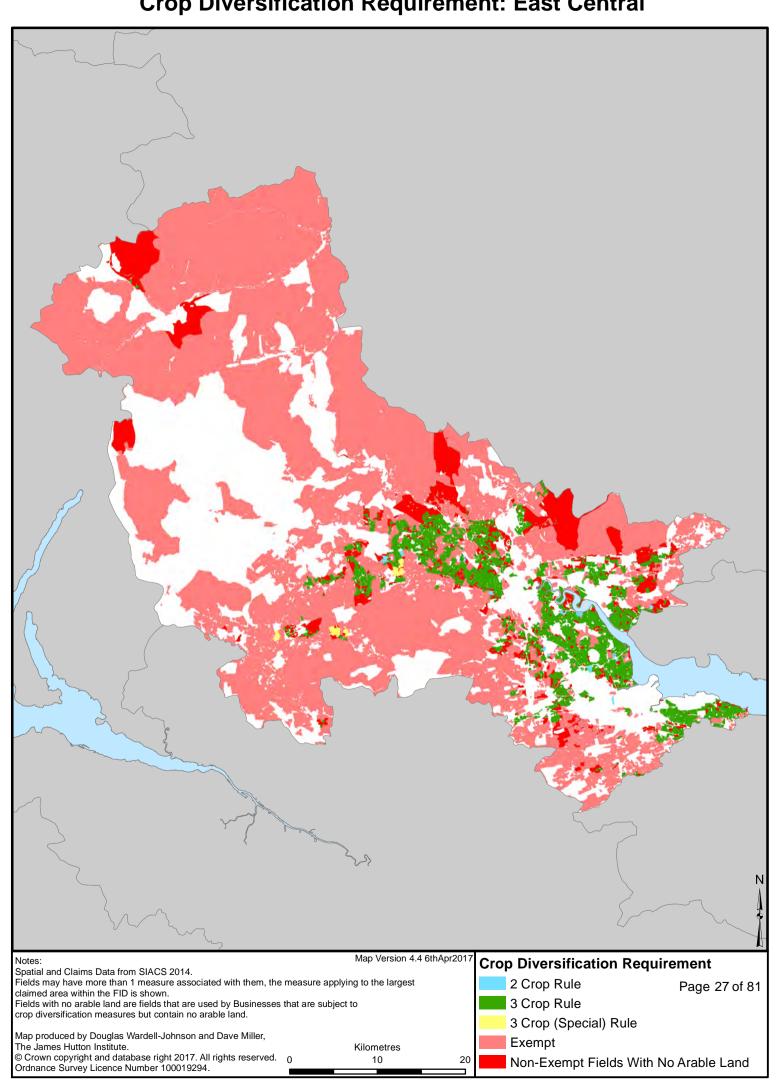
## **Crop Diversification Requirement: Clyde Valley**



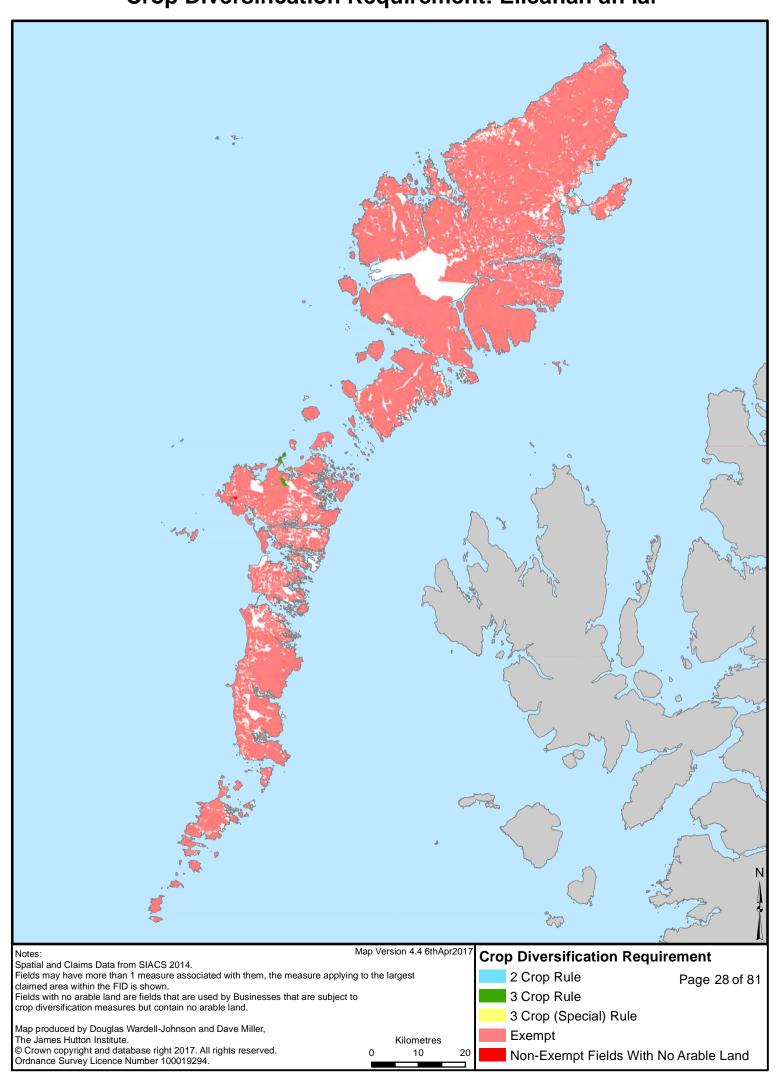
# **Crop Diversification Requirement: Dumfries & Galloway**



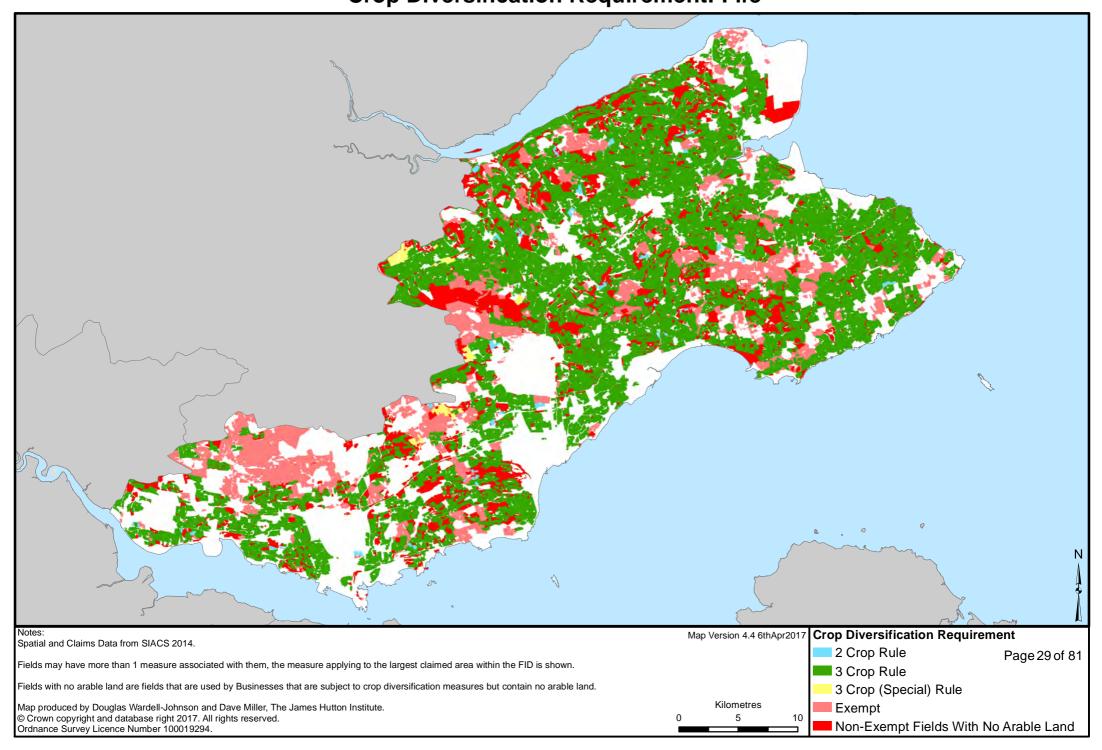
## **Crop Diversification Requirement: East Central**



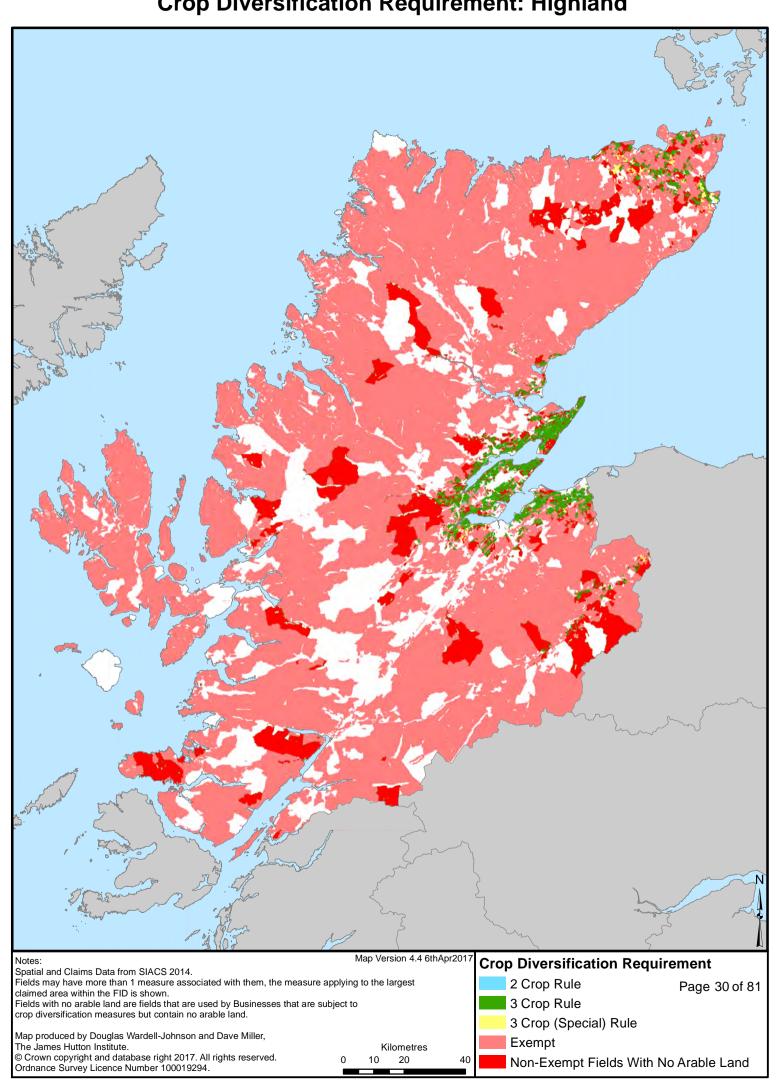
## **Crop Diversification Requirement: Eileanan an Iar**



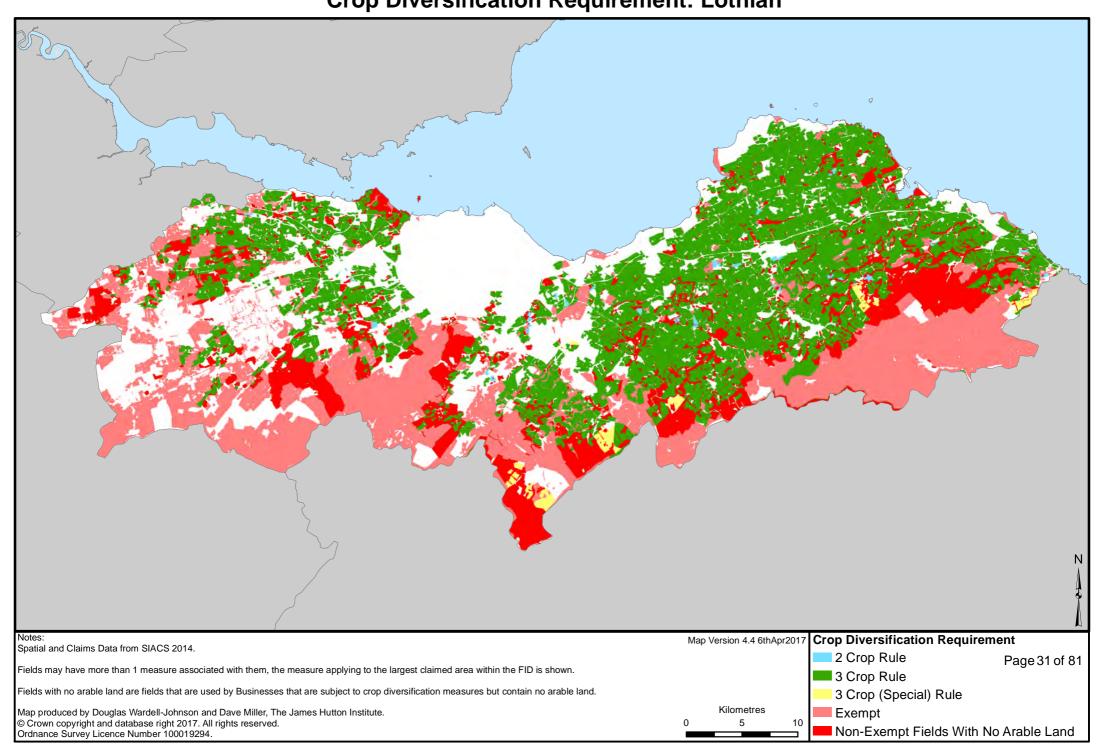
## **Crop Diversification Requirement: Fife**



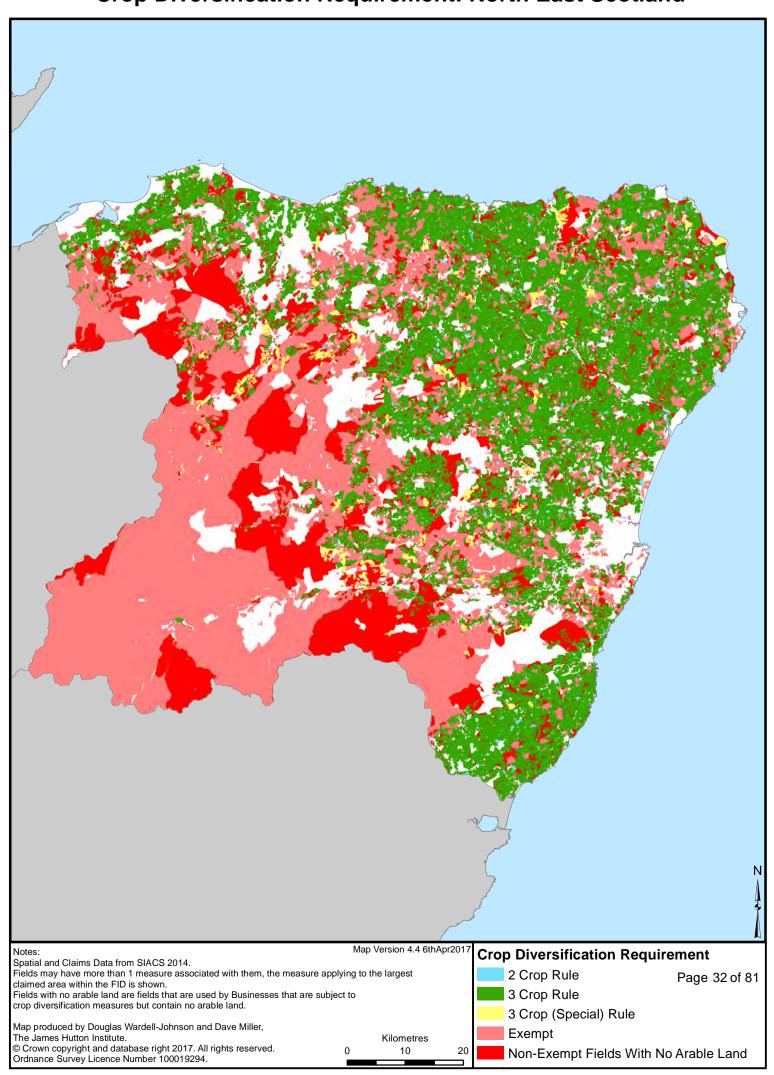
# **Crop Diversification Requirement: Highland**



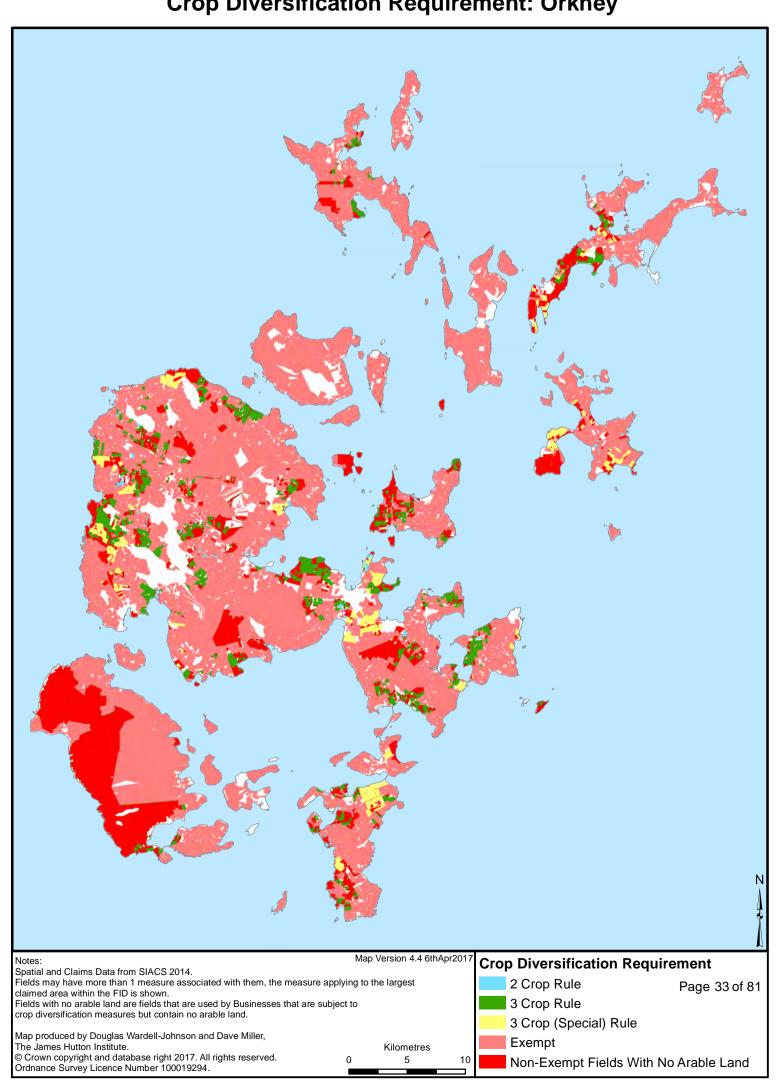
## **Crop Diversification Requirement: Lothian**



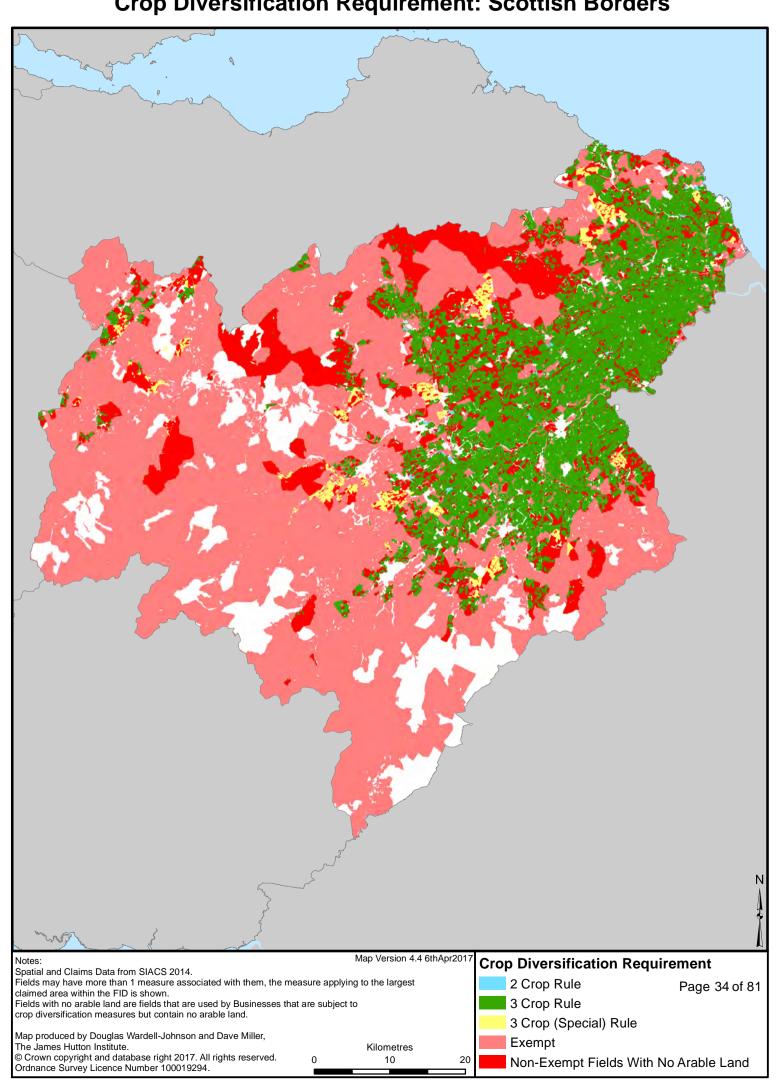
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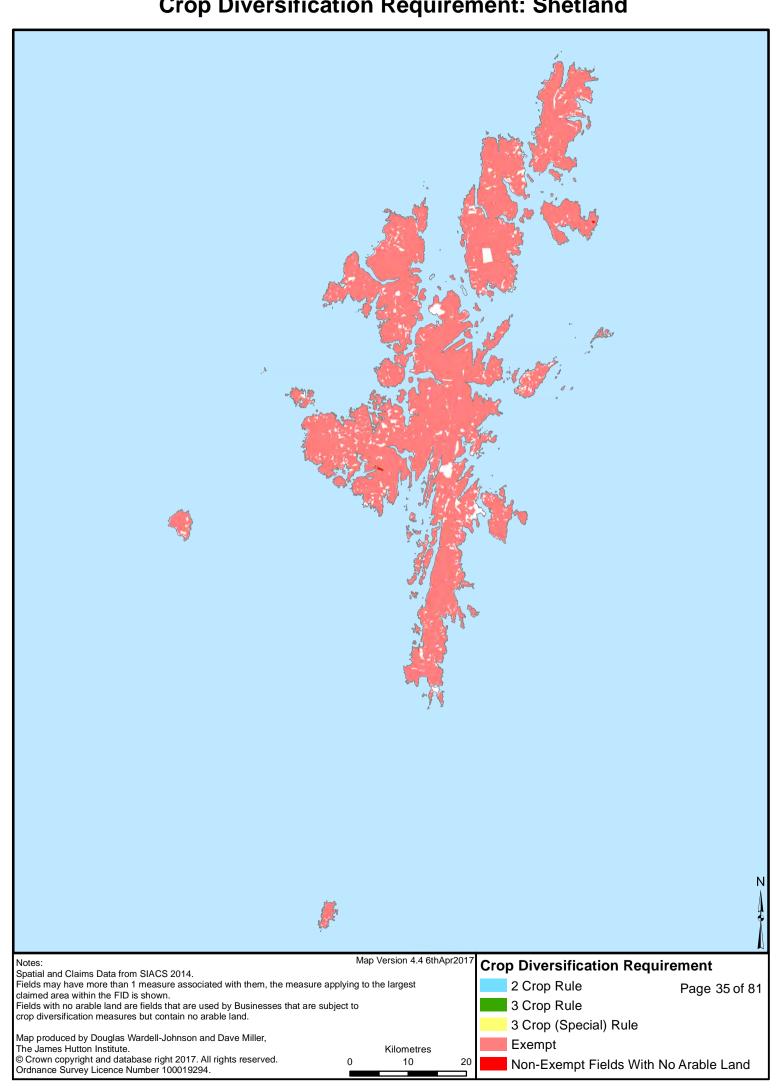
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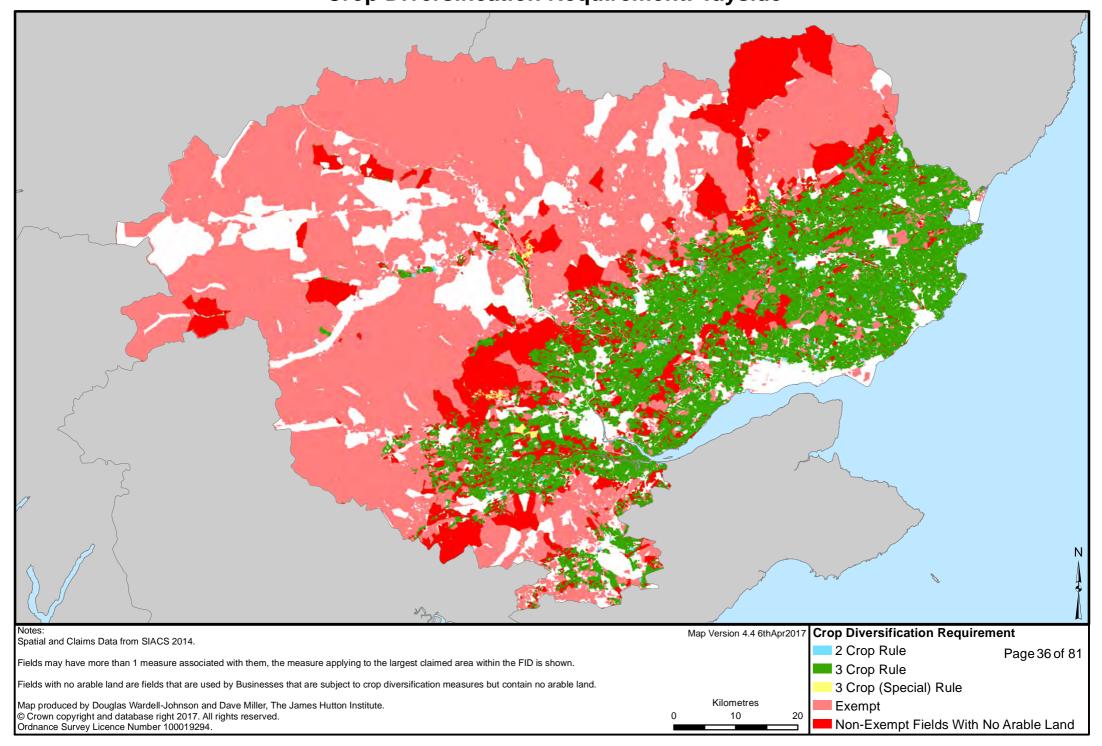
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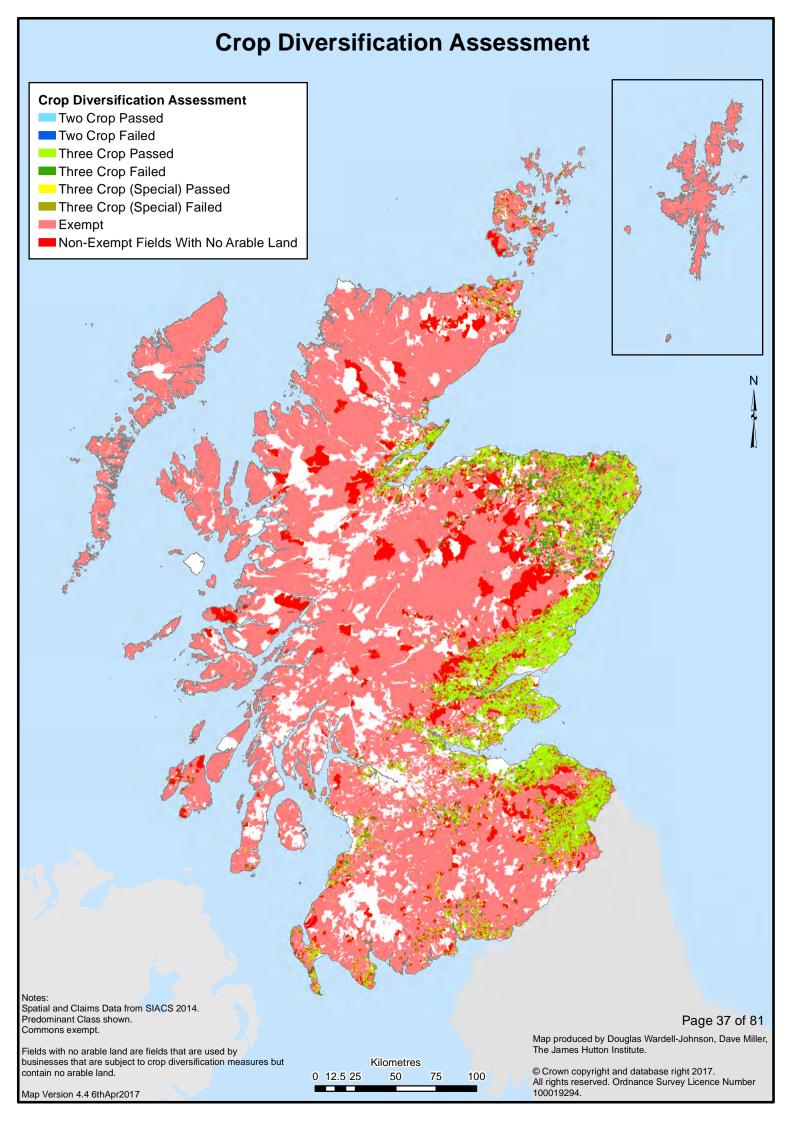


## **Crop Diversification Requirement: Shetland**

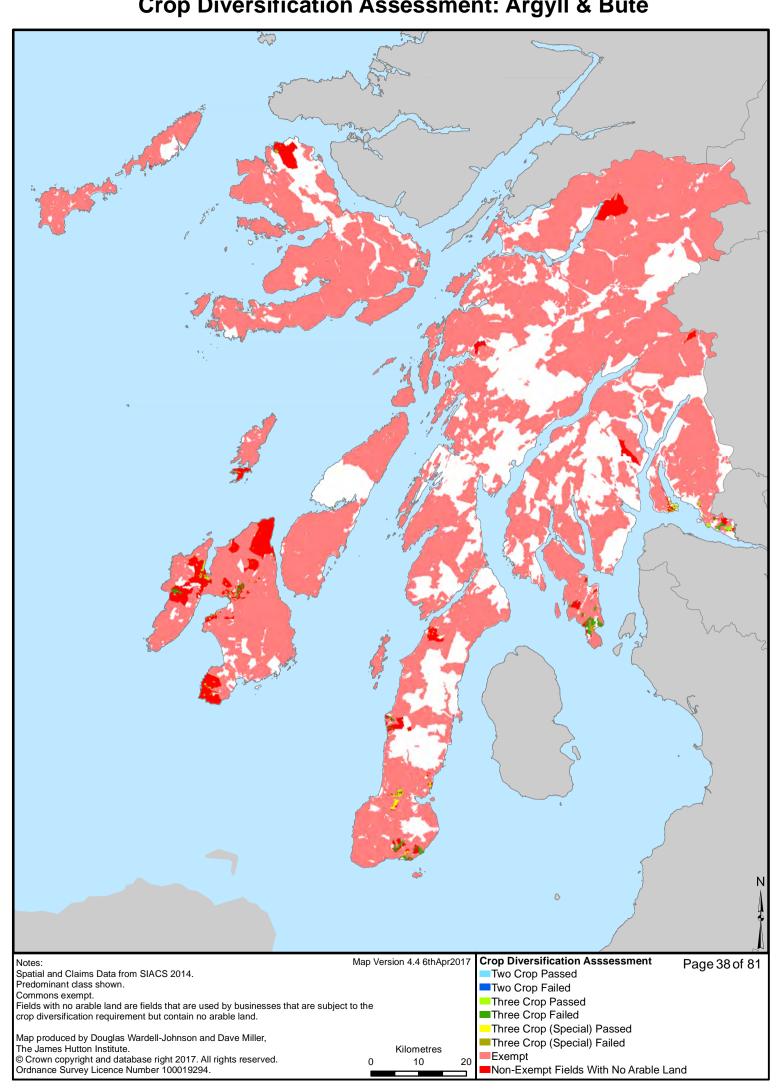


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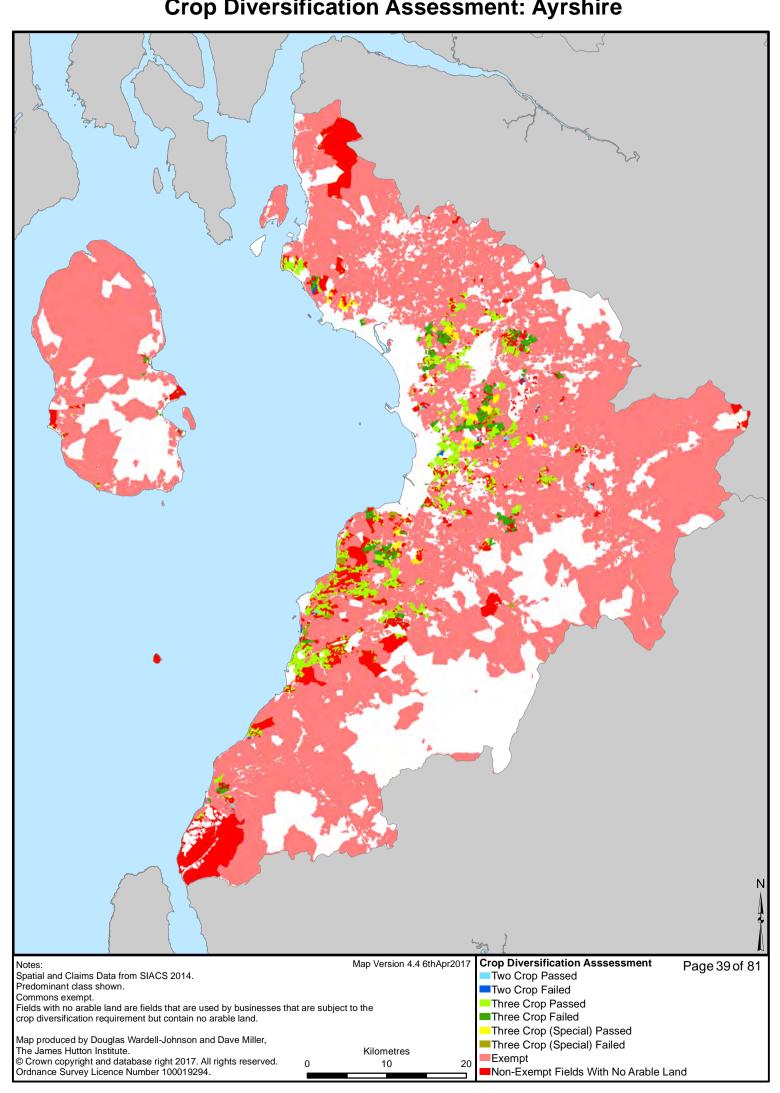




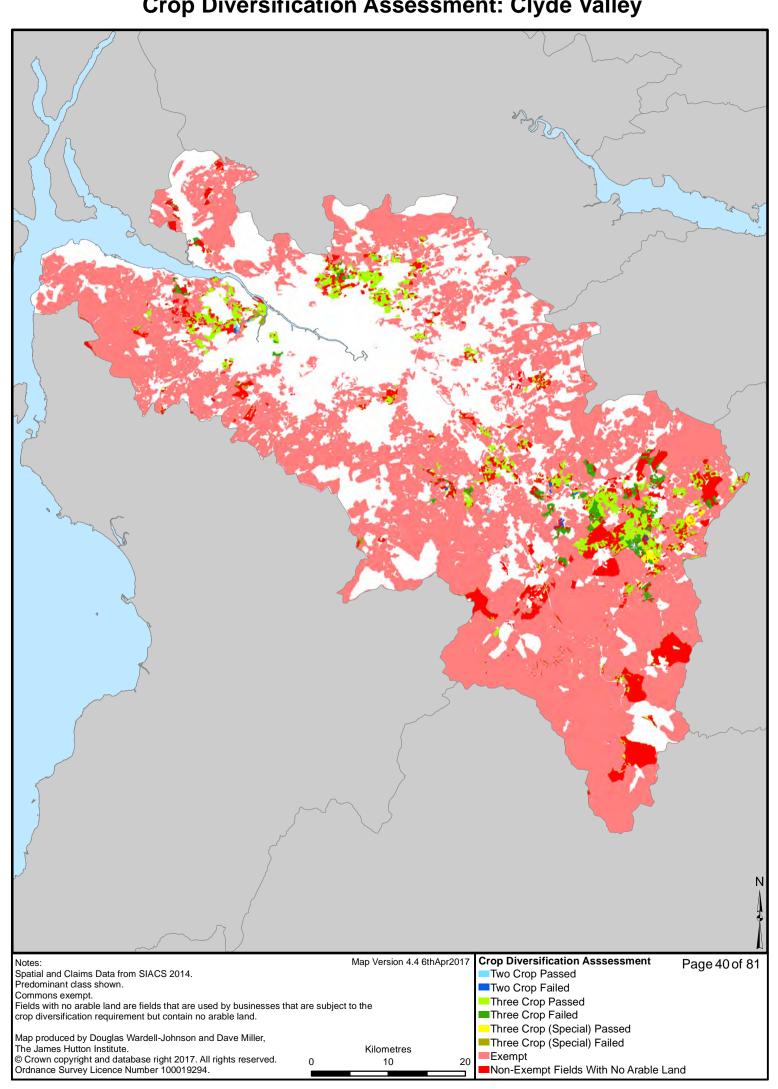
# **Crop Diversification Assessment: Argyll & Bute**



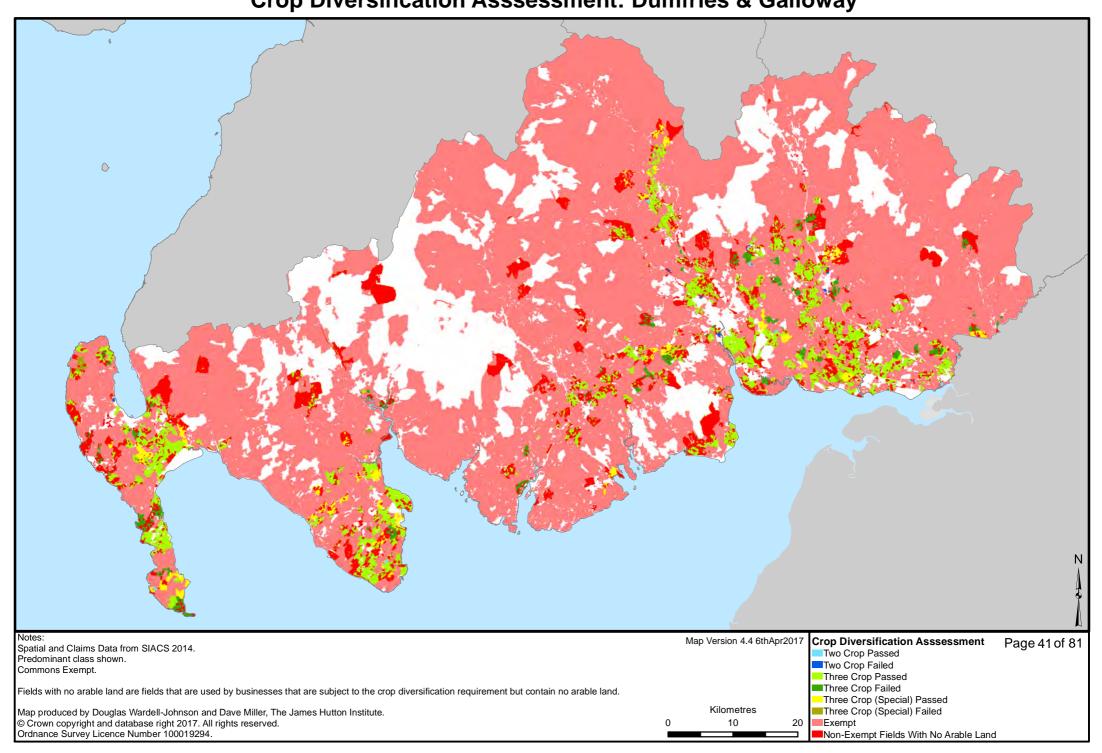
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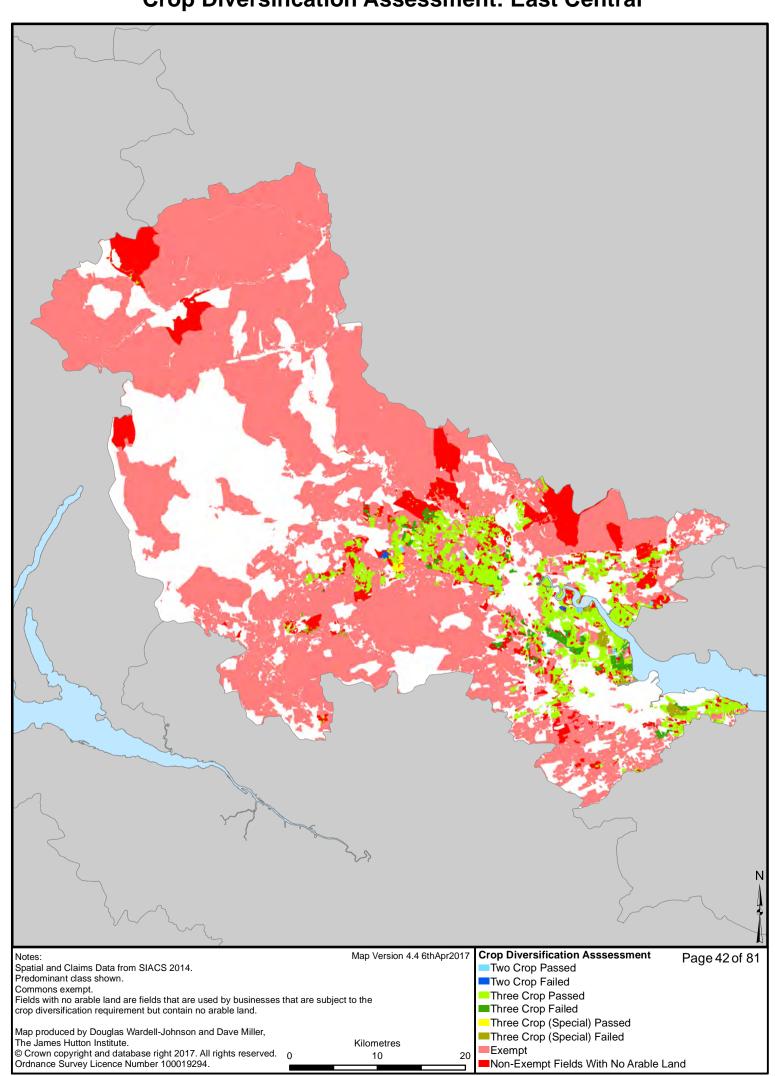
# **Crop Diversification Assessment: Clyde Valley**



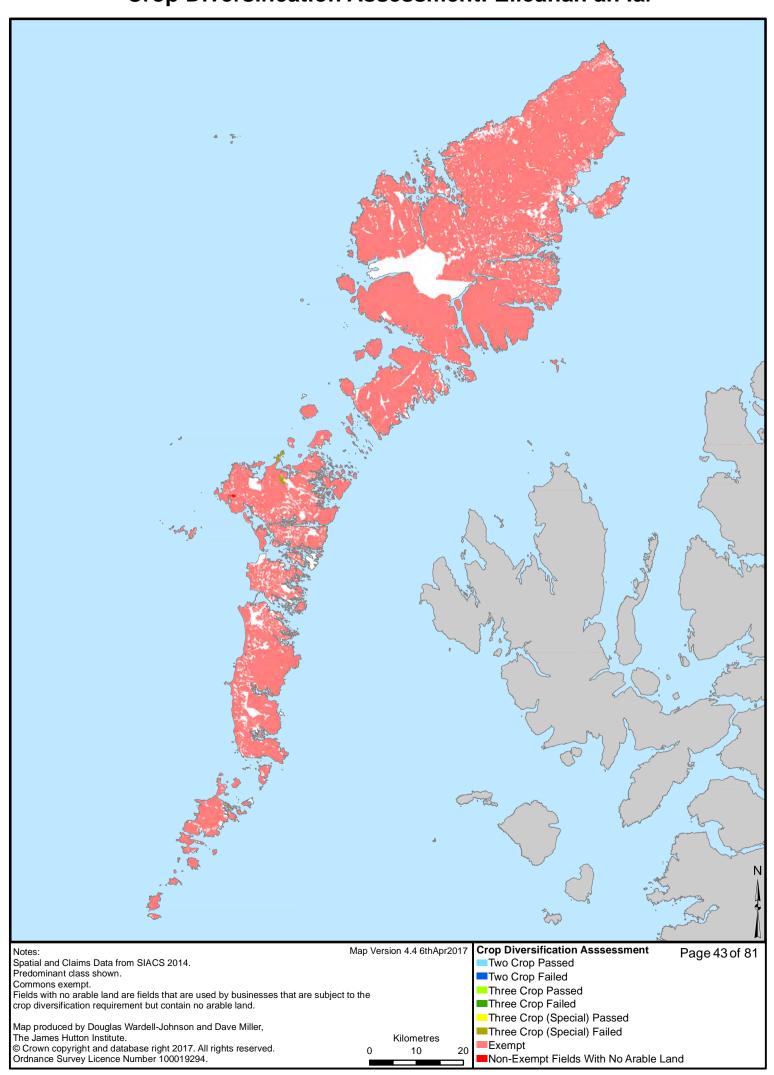
# **Crop Diversification Asssessment: Dumfries & Galloway**



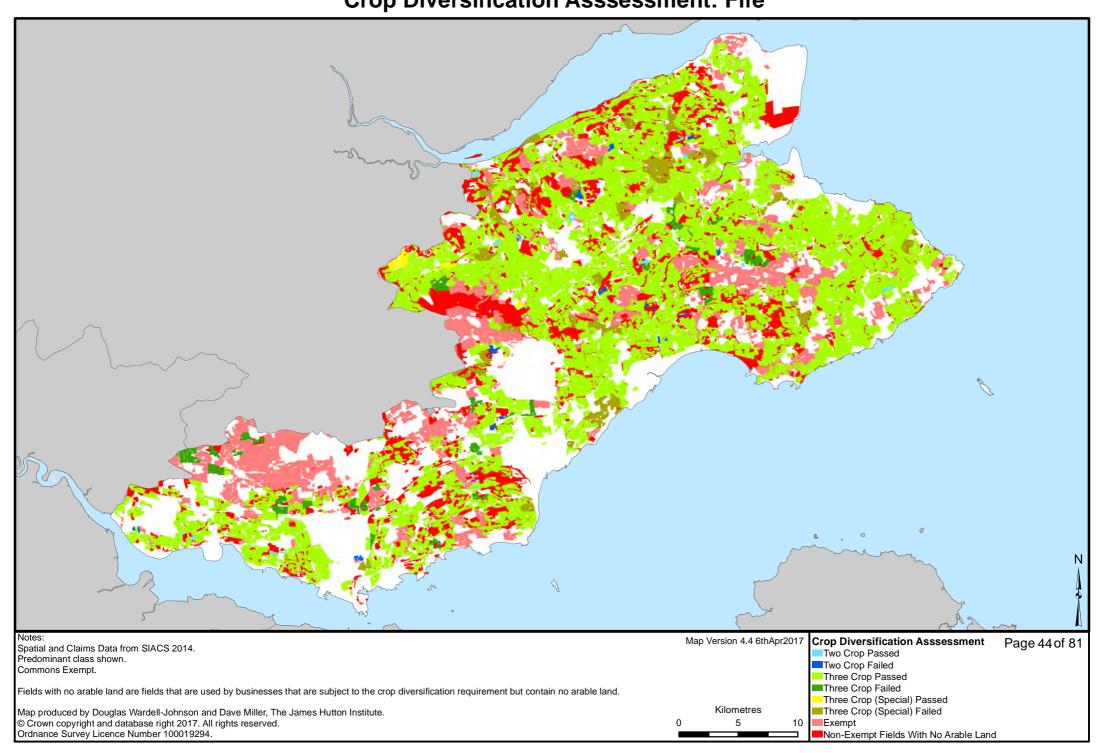
# **Crop Diversification Assessment: East Central**



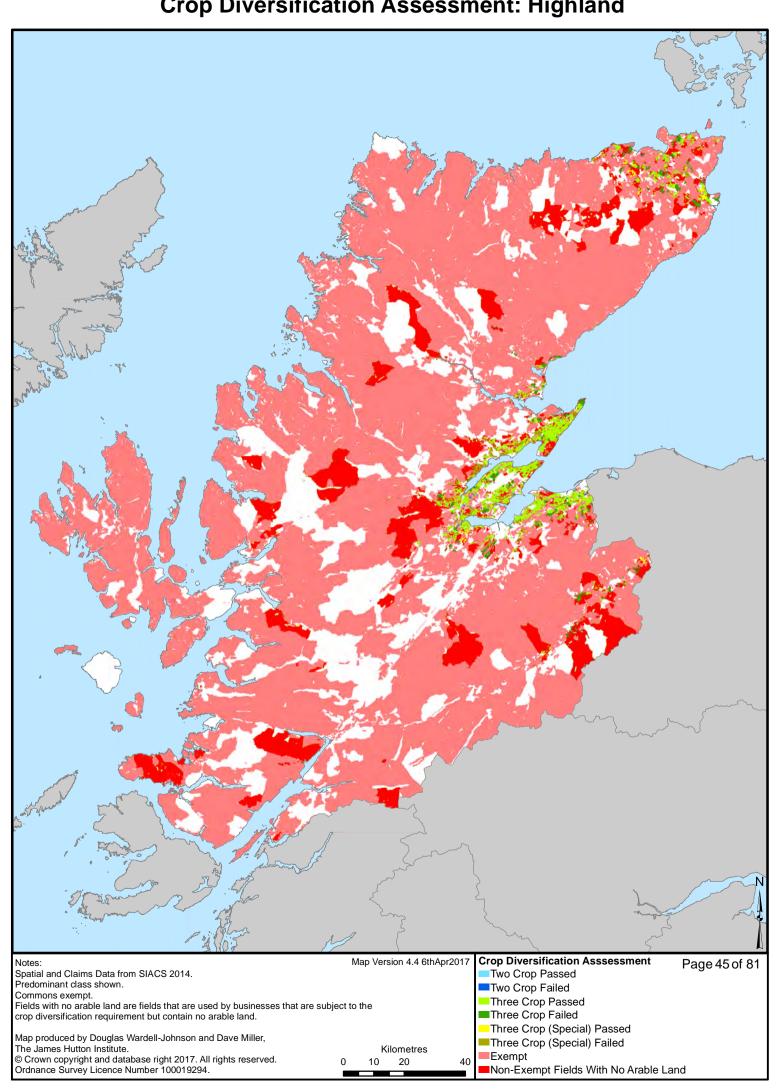
# **Crop Diversification Assessment: Eileanan an Iar**



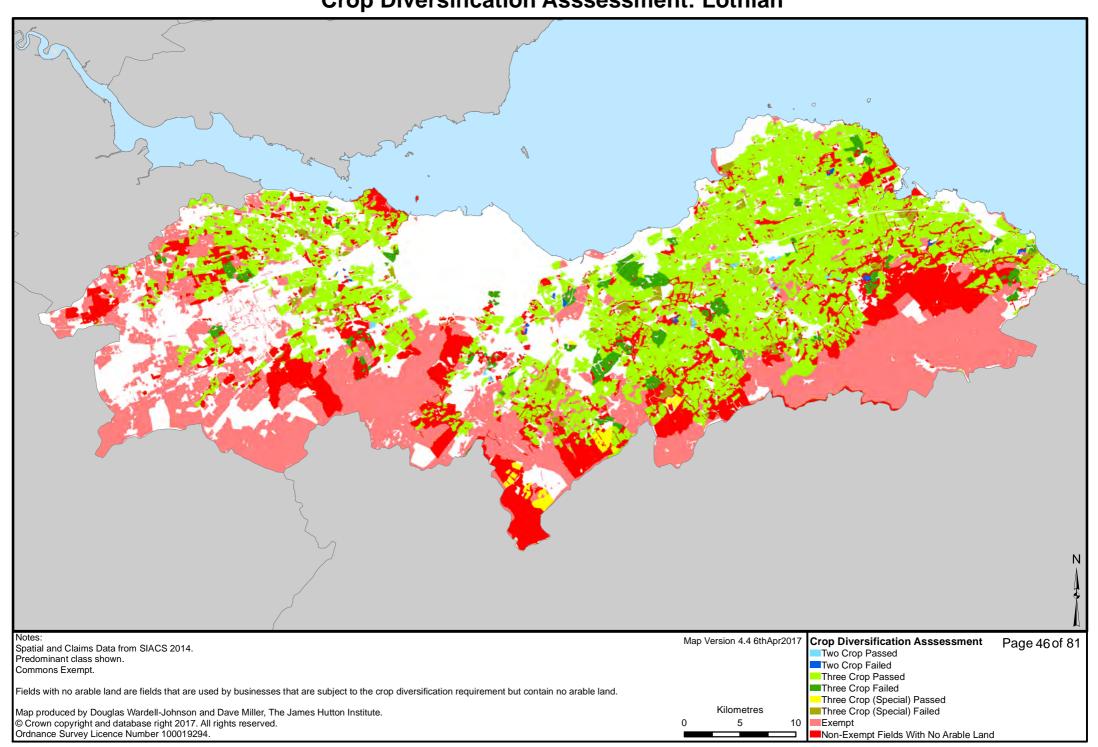
# **Crop Diversification Asssessment: Fife**



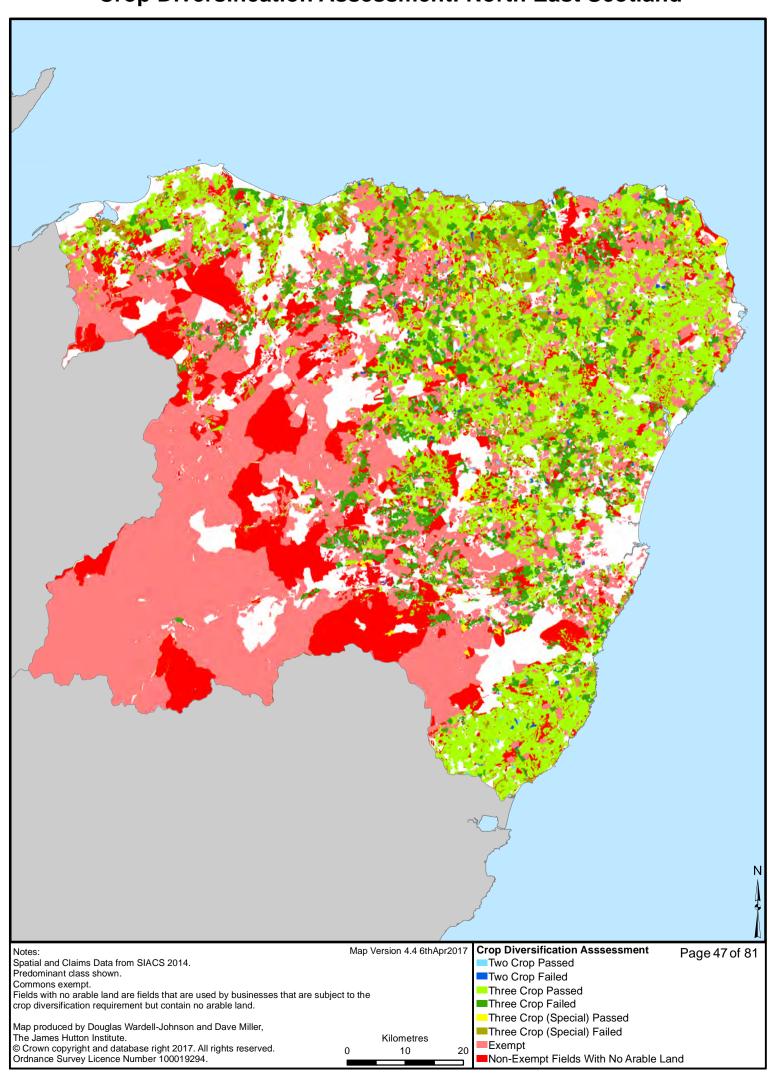
# **Crop Diversification Assessment: Highland**



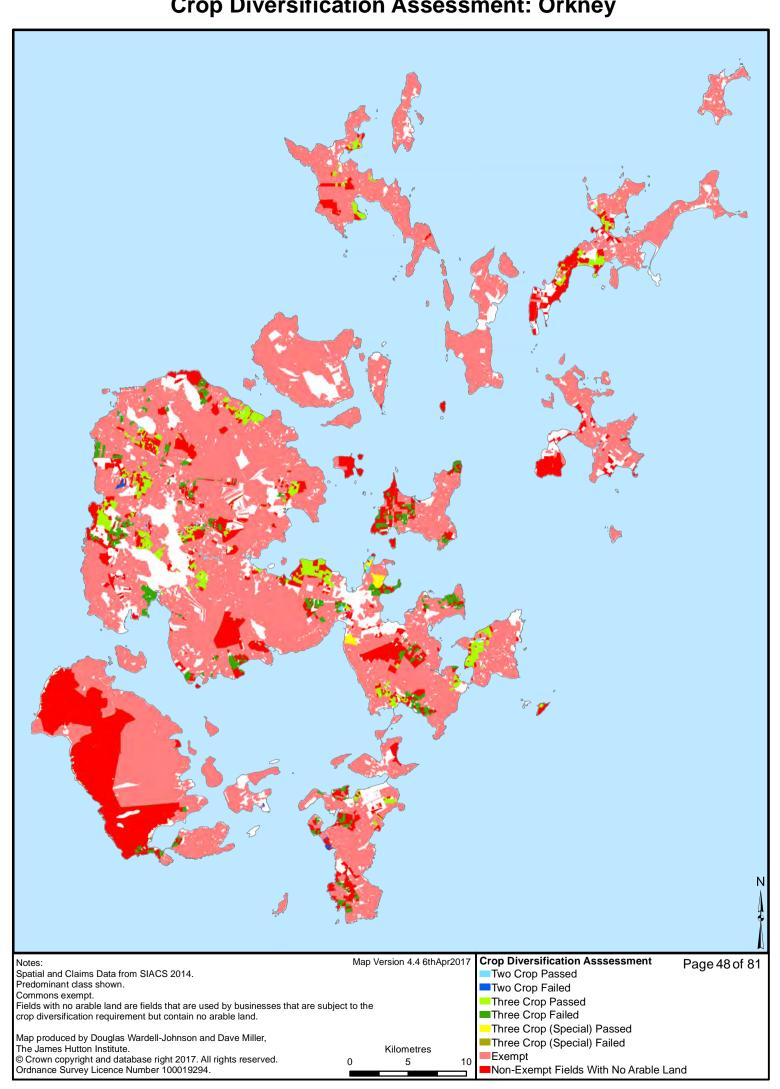
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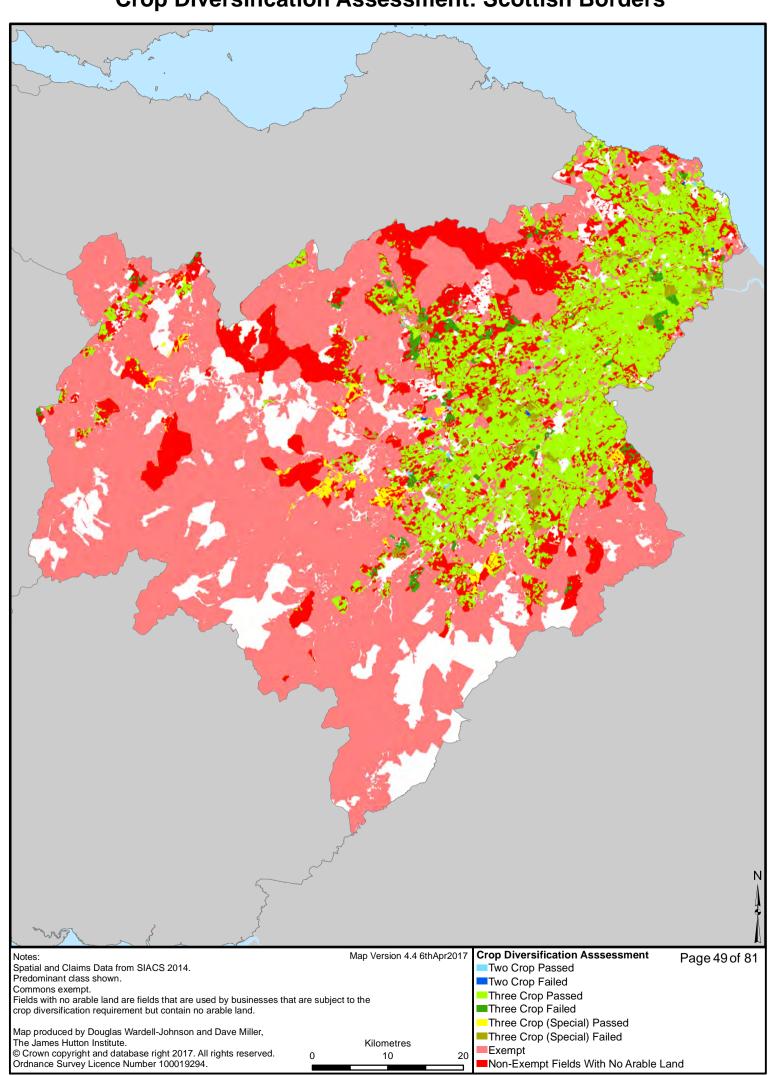
# **Crop Diversification Assessment: North East Scotland**



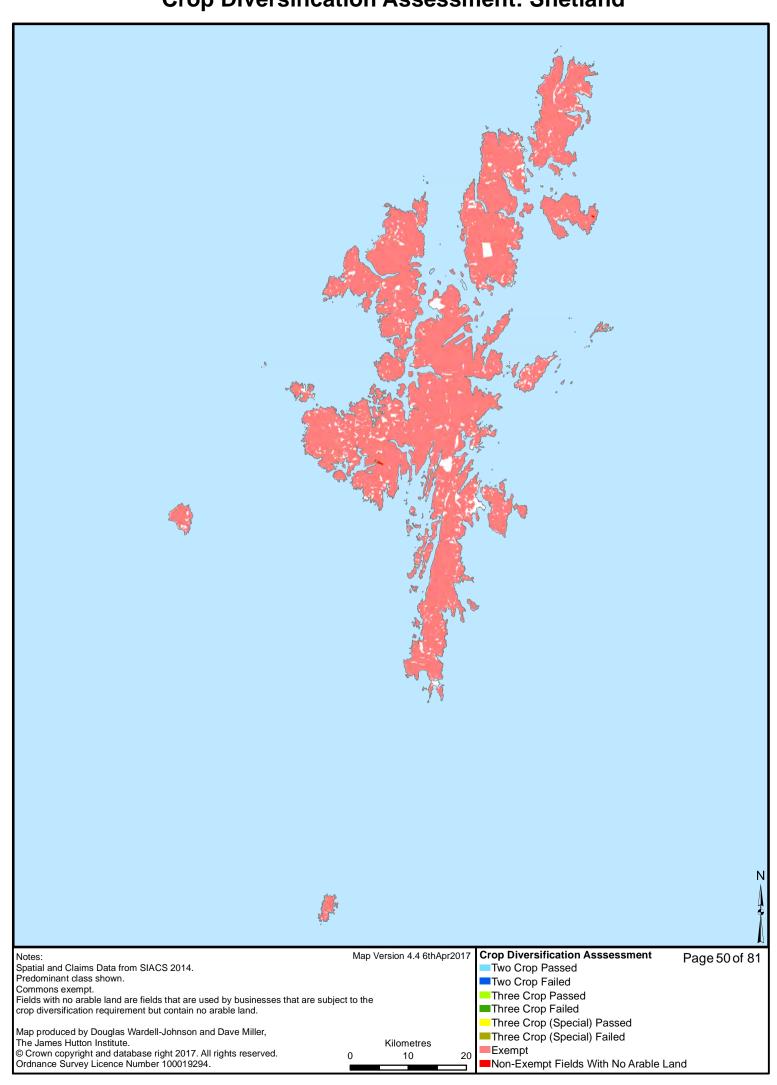
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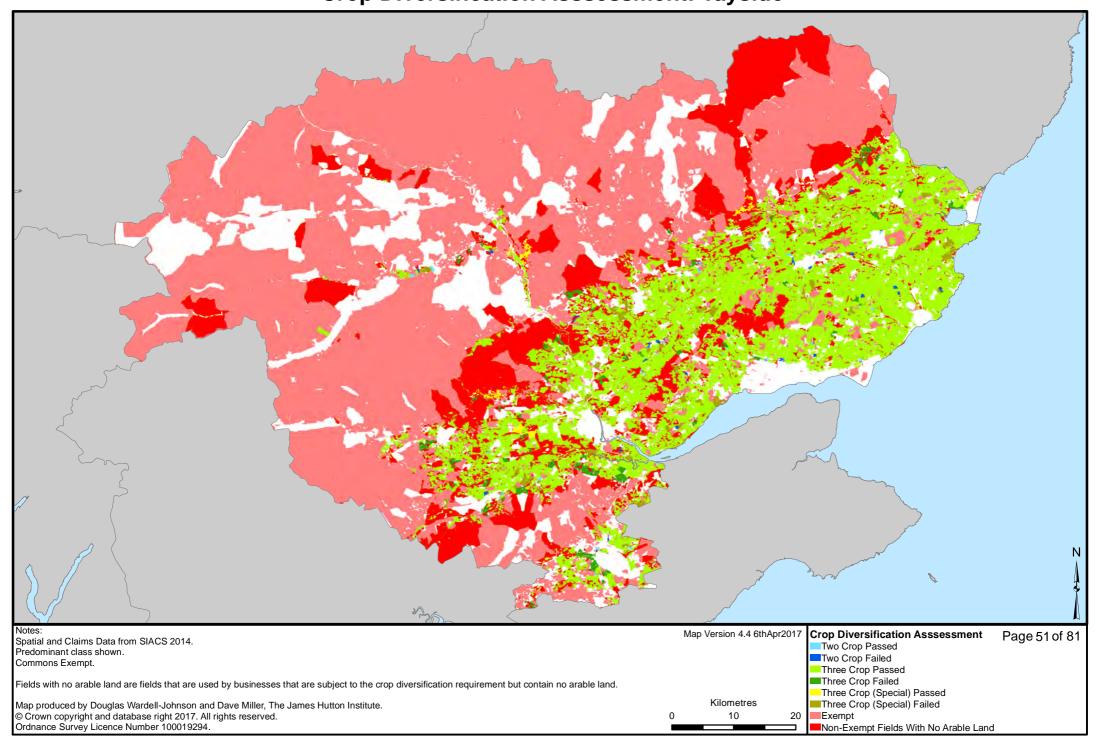
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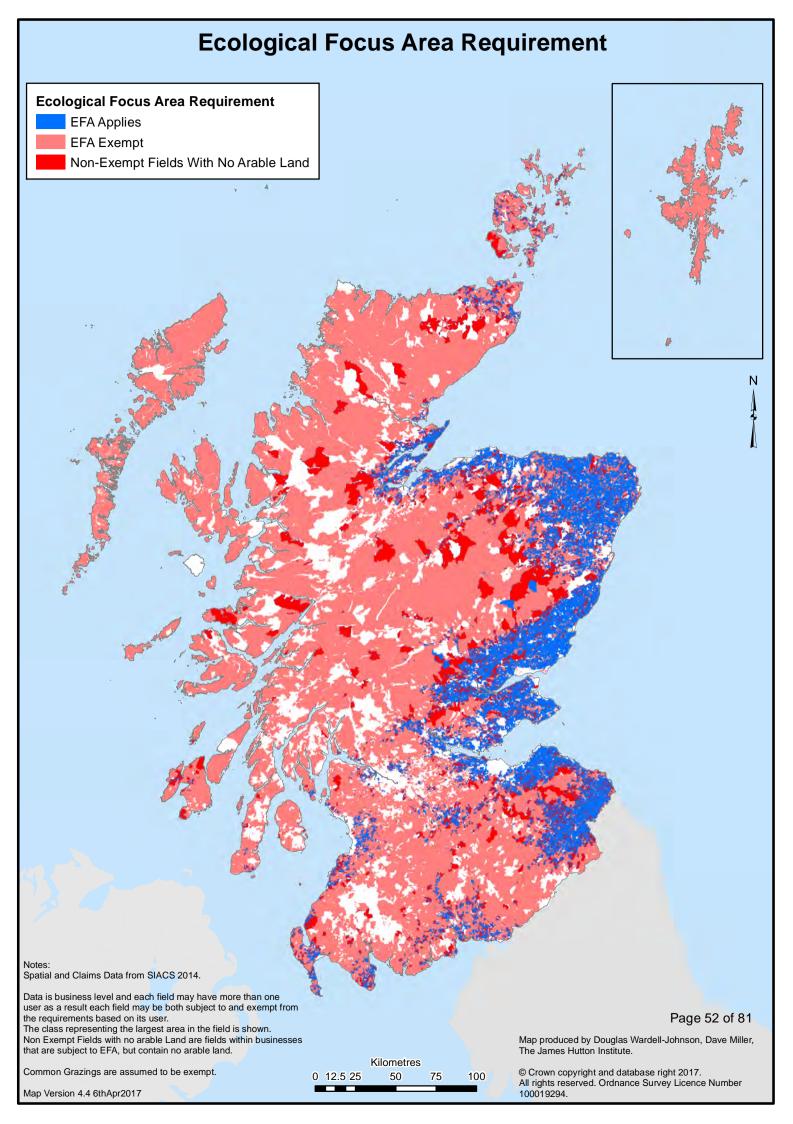


# **Crop Diversification Assessment: Shetland**

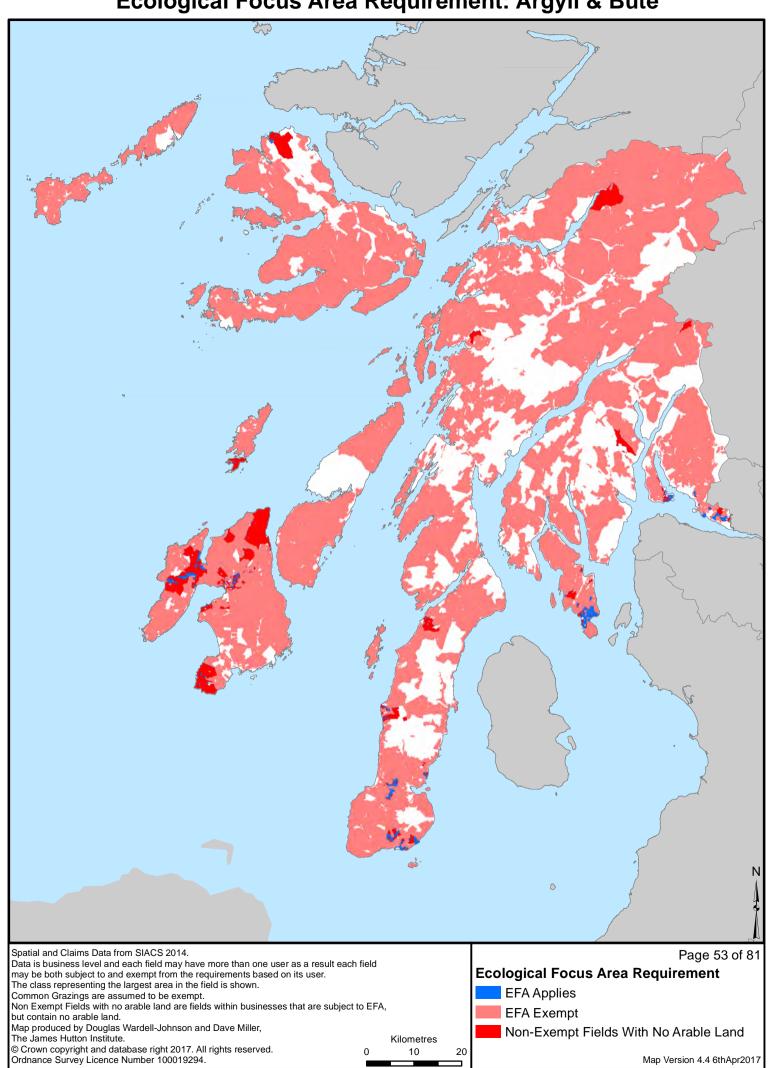


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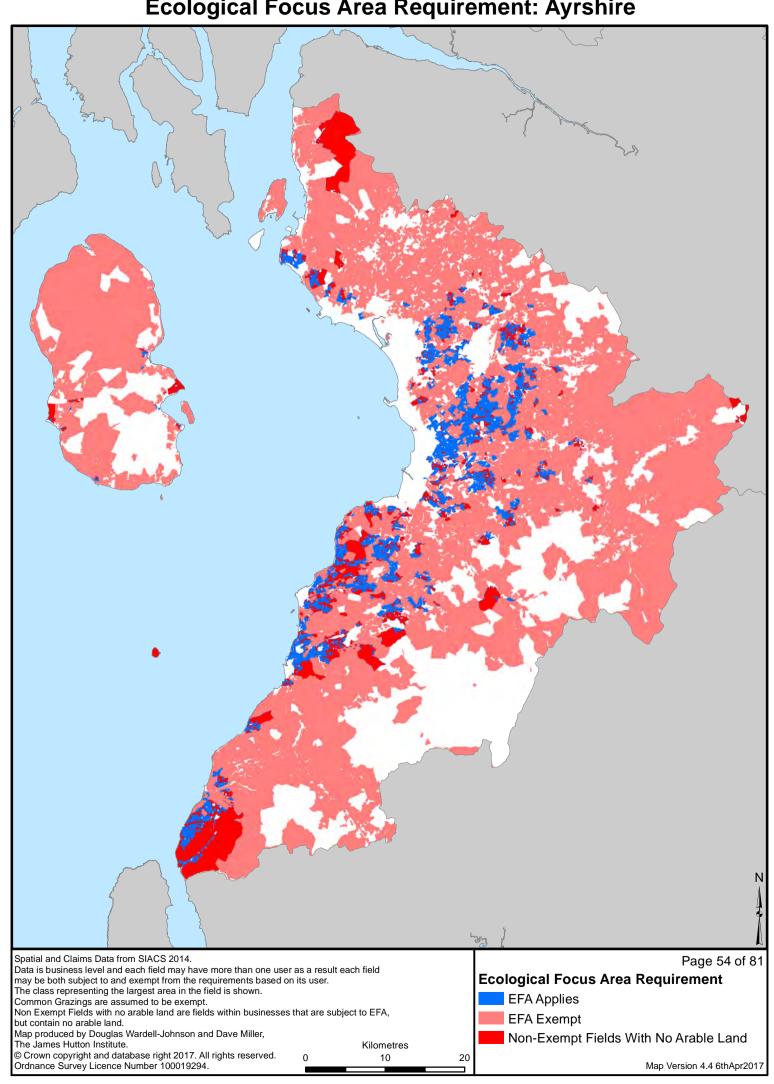




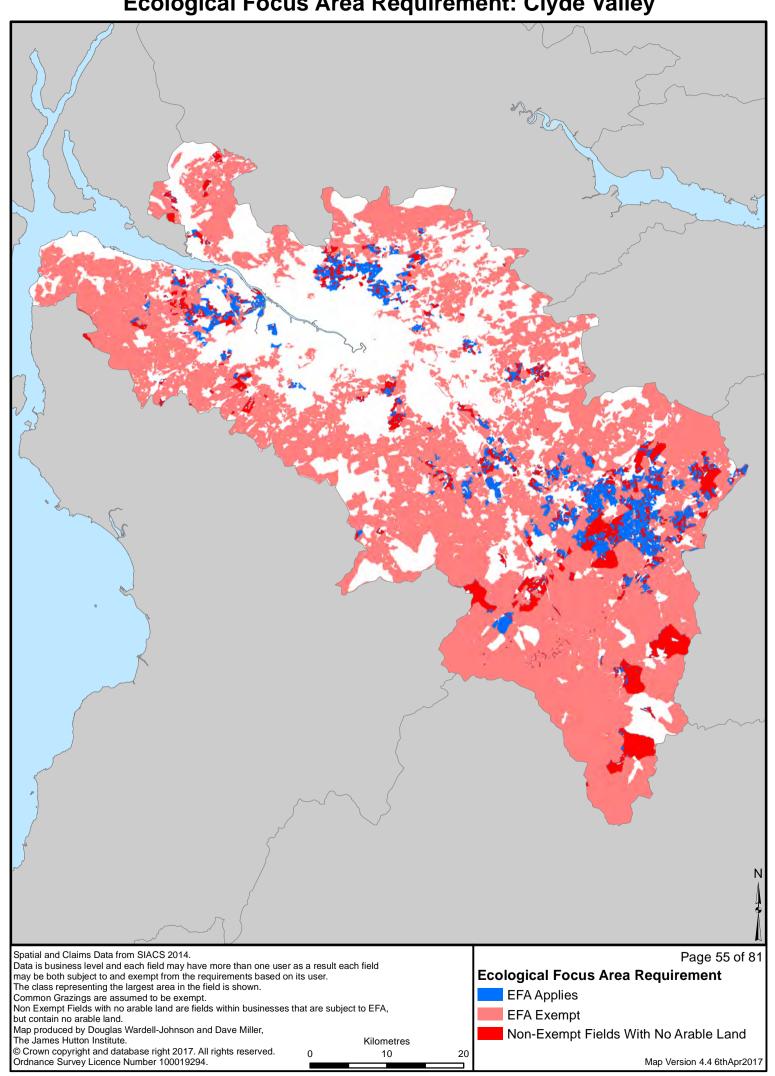
#### **Ecological Focus Area Requirement: Argyll & Bute**



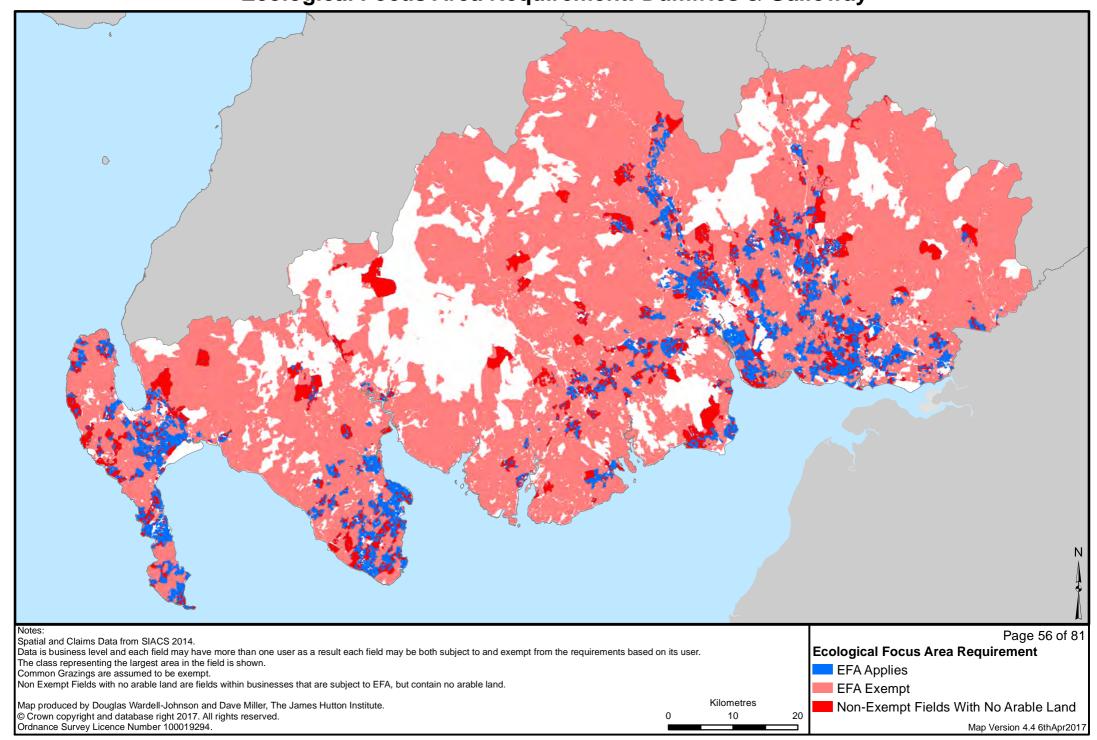
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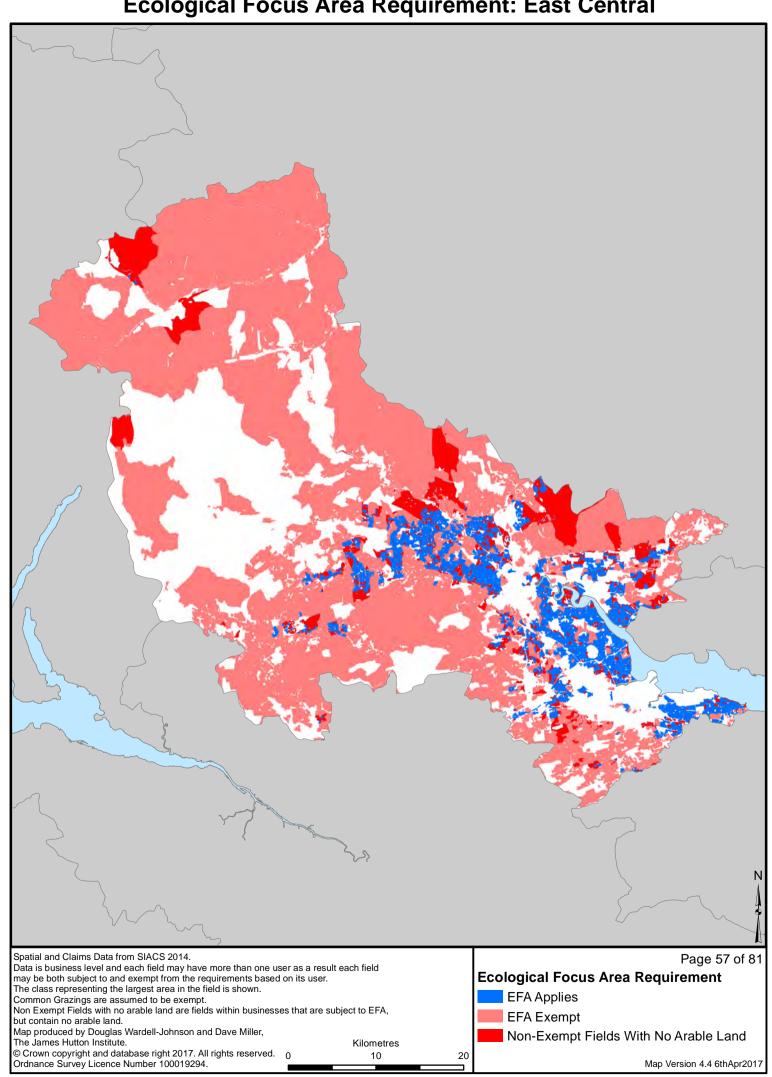
# **Ecological Focus Area Requirement: Clyde Valley**



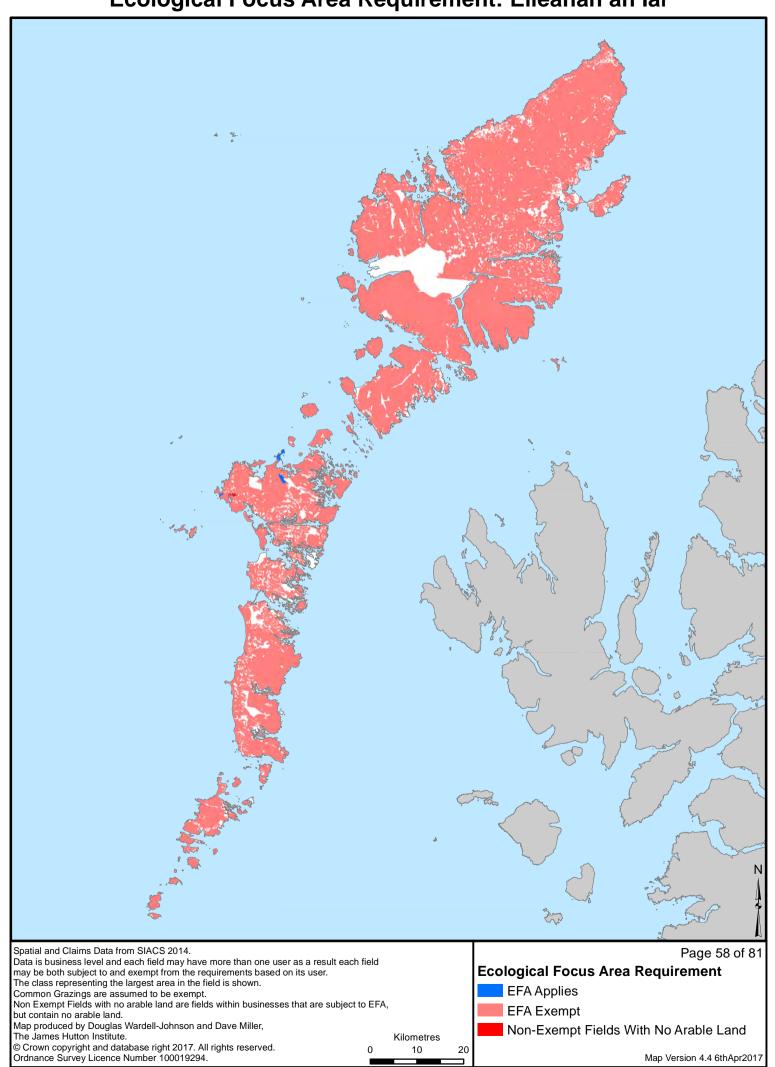
# **Ecological Focus Area Requirement: Dumfries & Galloway**



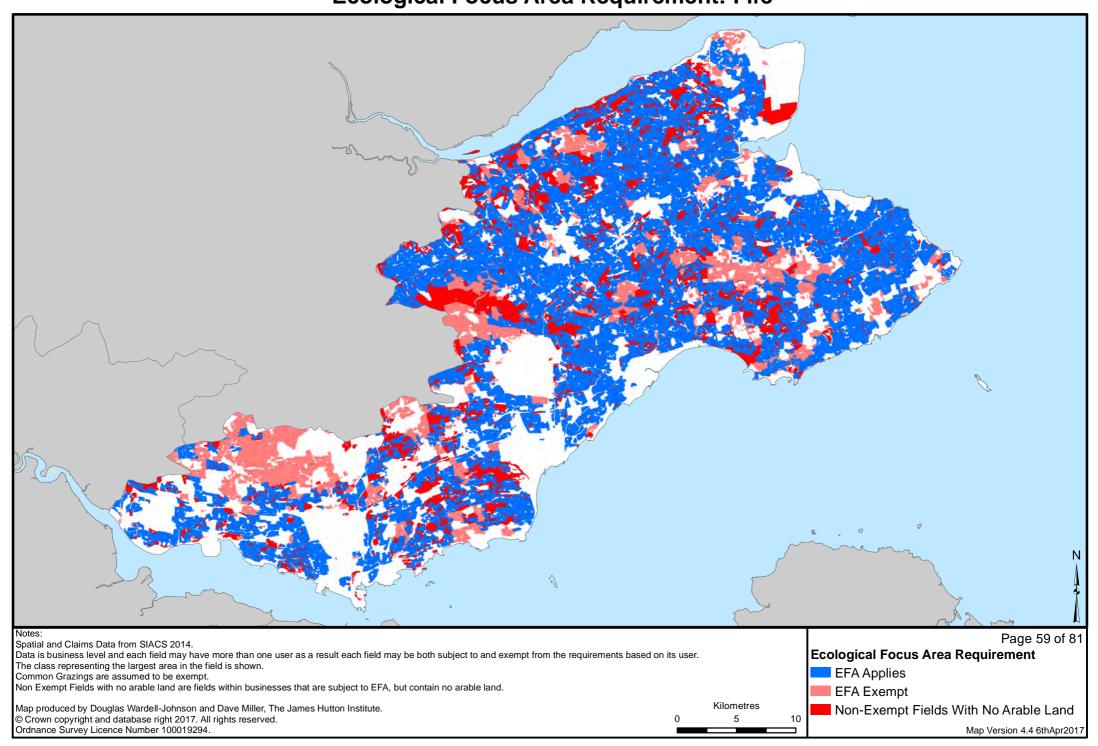
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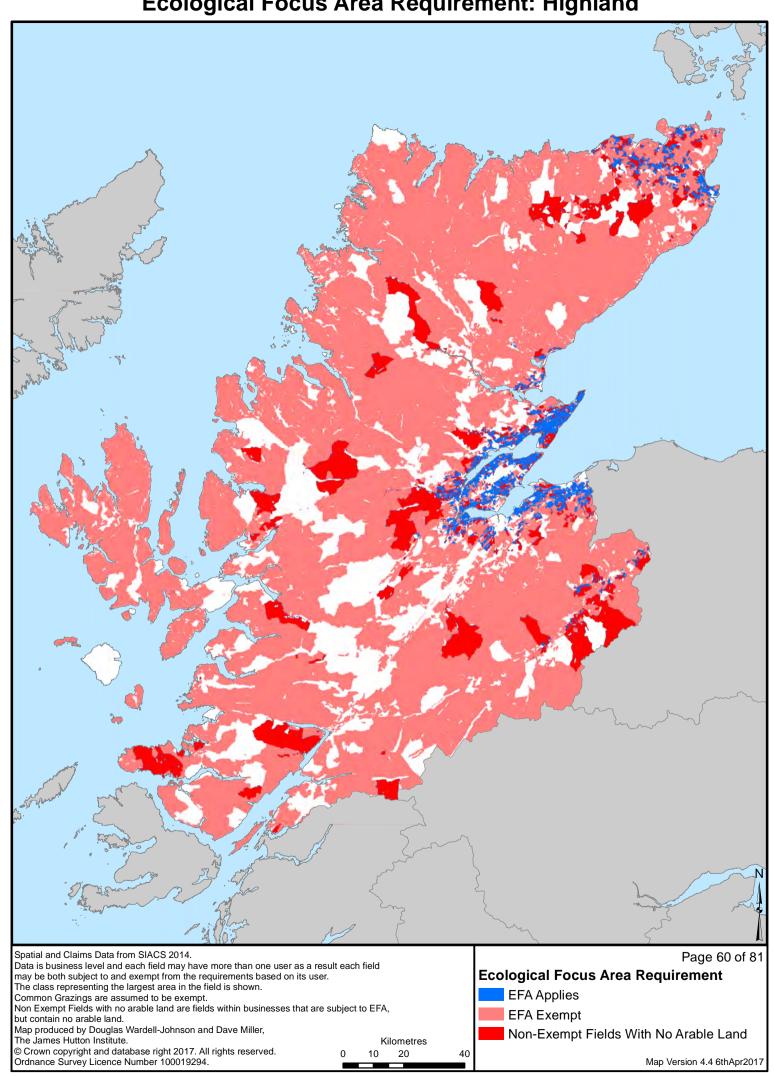
# **Ecological Focus Area Requirement: Eileanan an Iar**



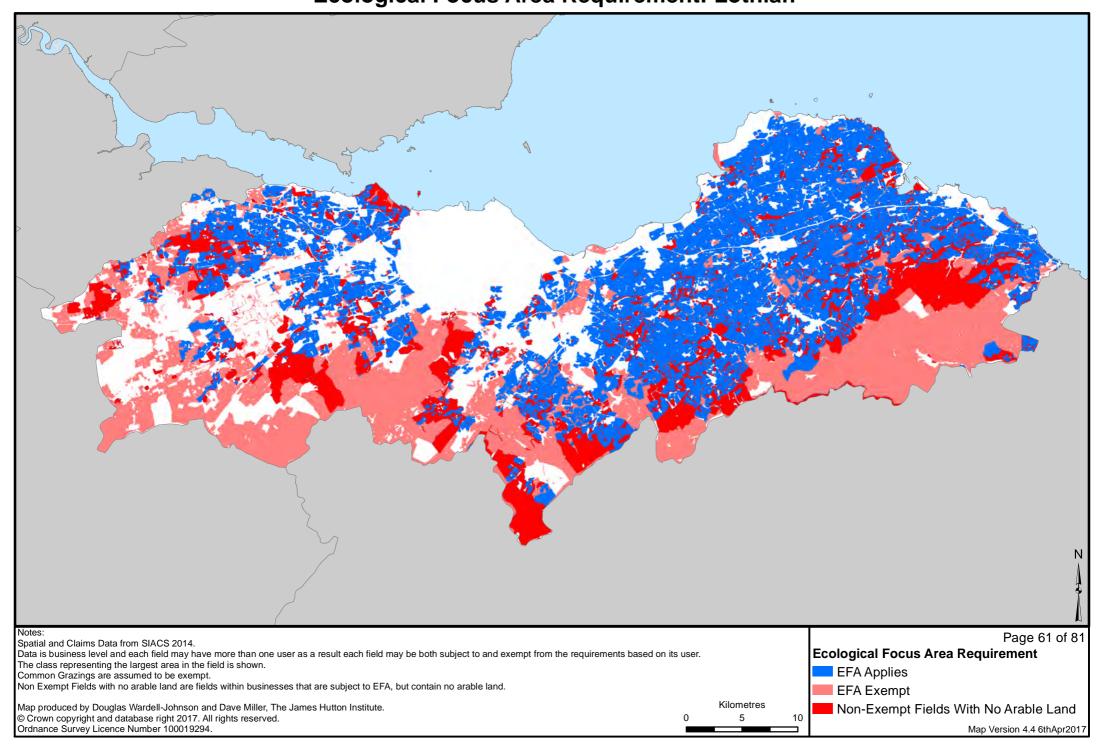
# **Ecological Focus Area Requirement: Fife**



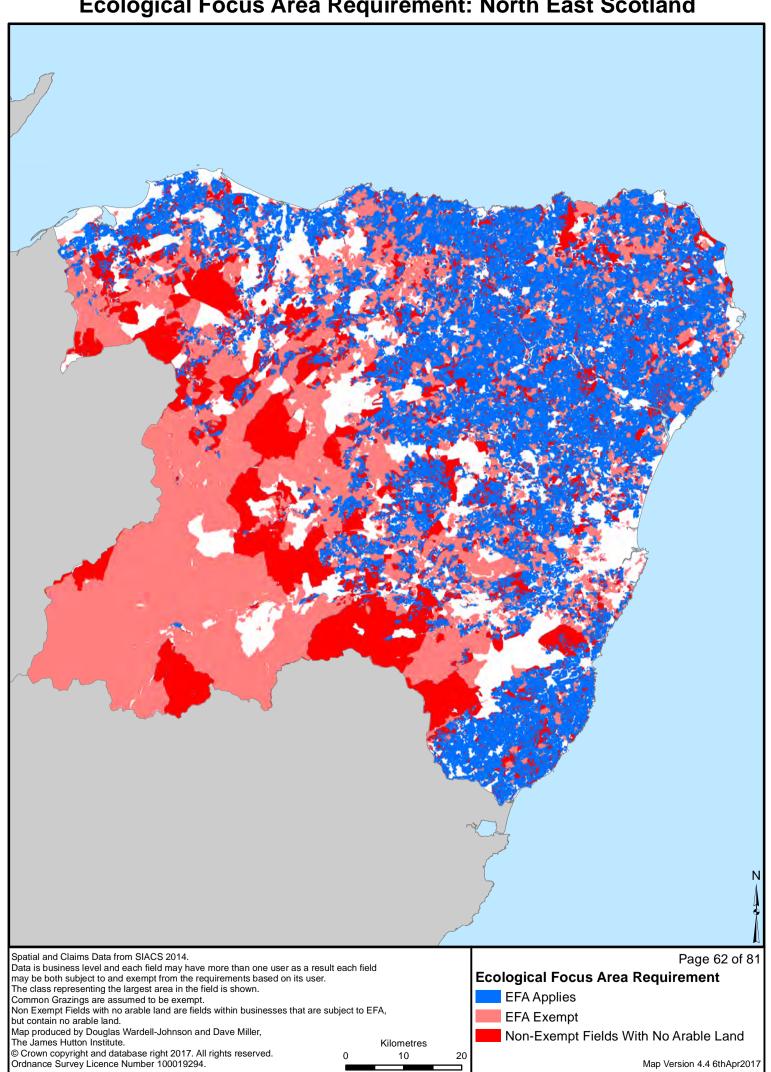
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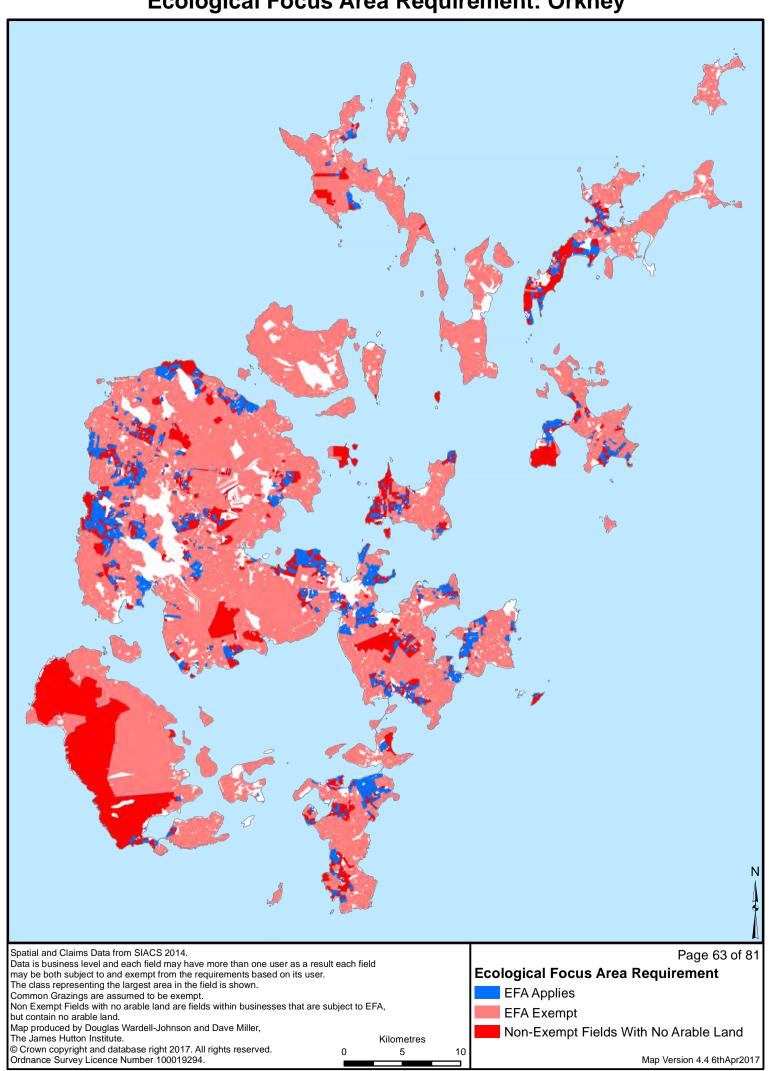
# **Ecological Focus Area Requirement: Lothian**



# **Ecological Focus Area Requirement: North East Scotland**

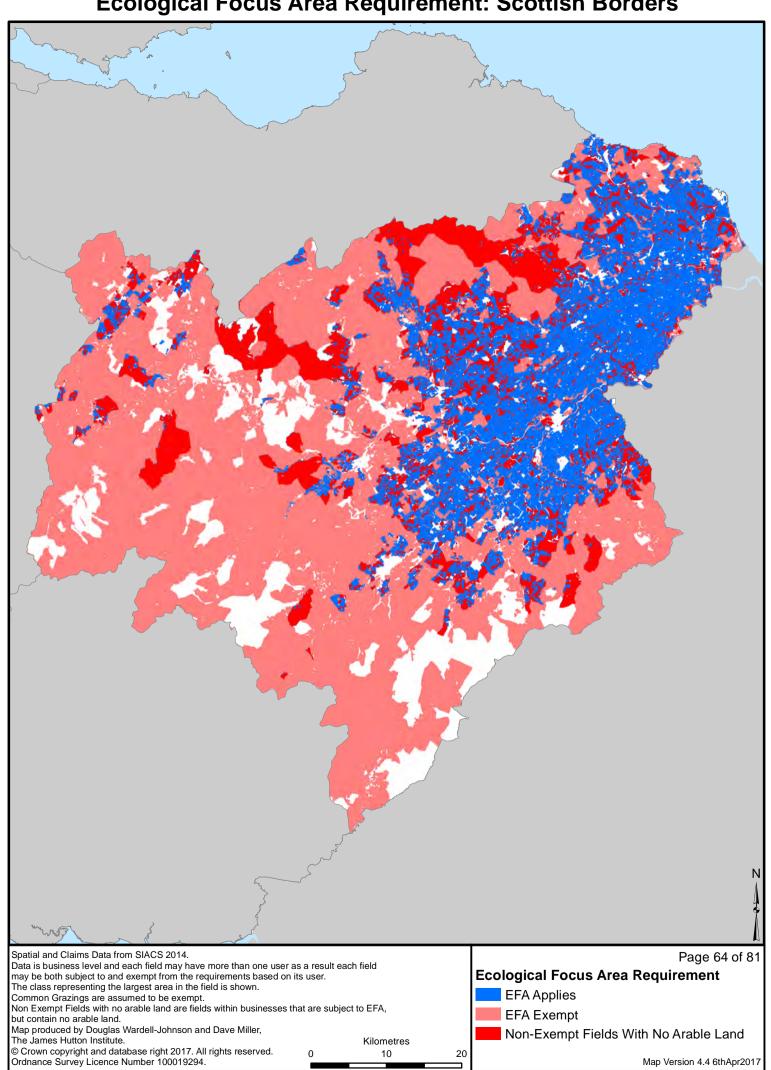


# **Ecological Focus Area Requirement: Orkney**

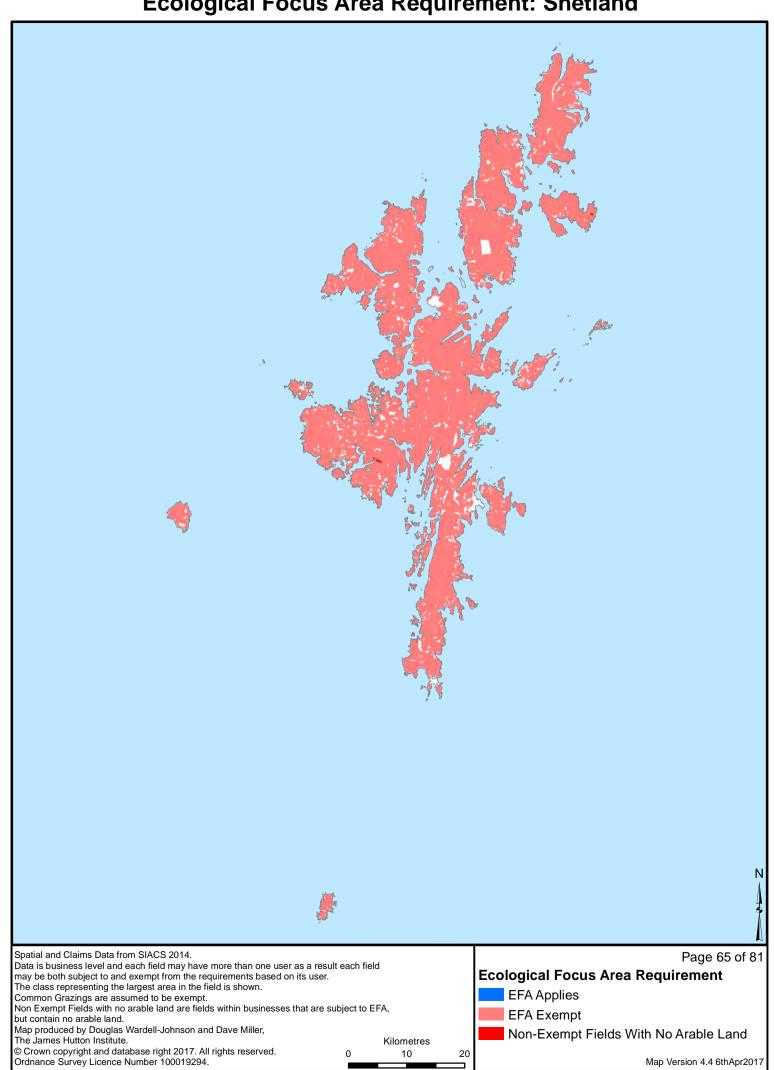


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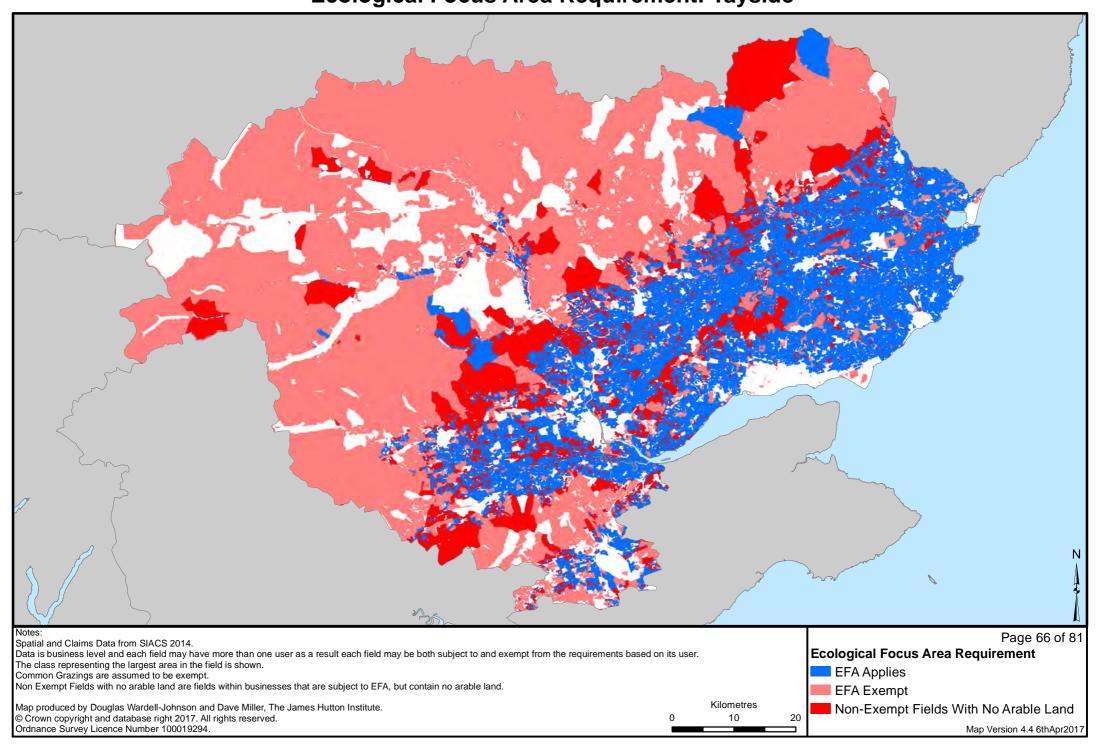
# **Ecological Focus Area Requirement: Scottish Borders**

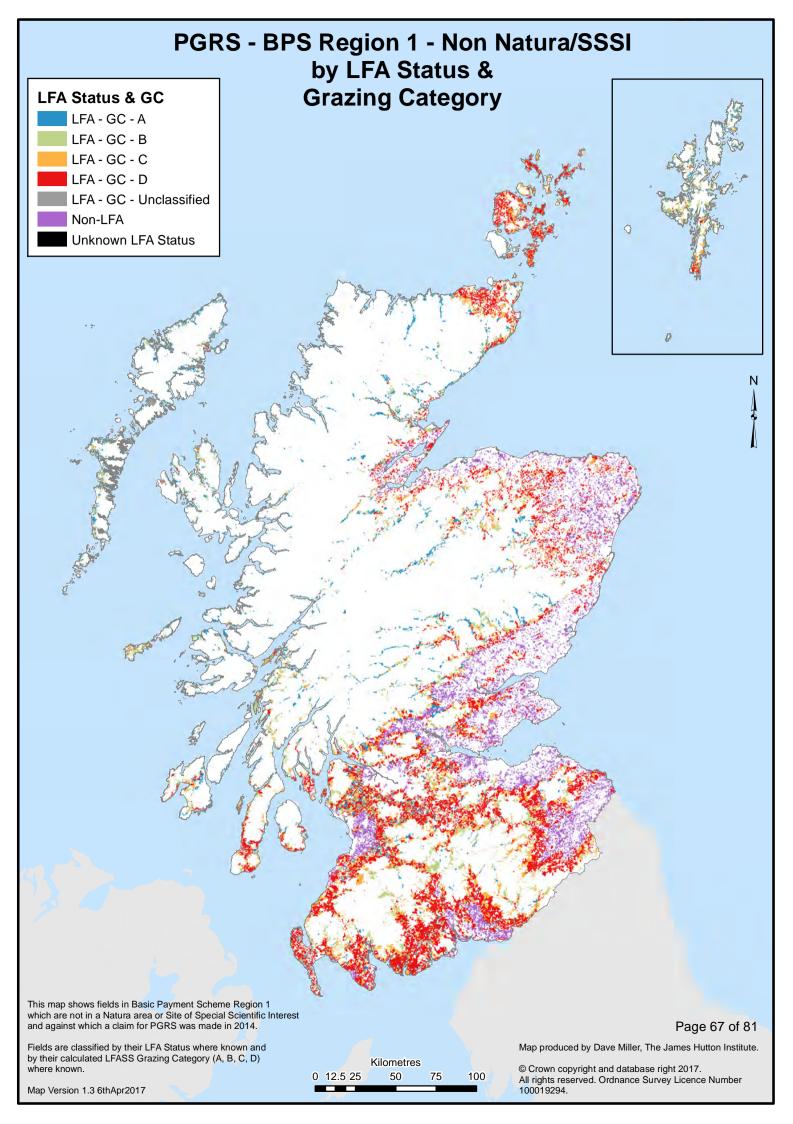


# **Ecological Focus Area Requirement: Shetland**

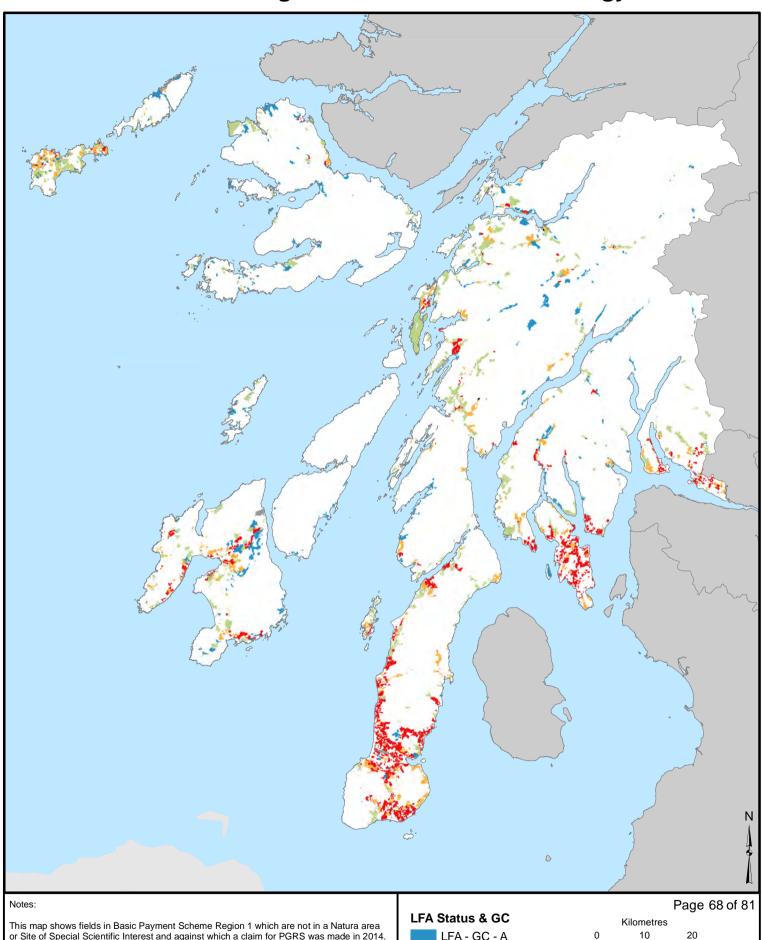


# **Ecological Focus Area Requirement: Tayside**





# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Argyll & Bute



or Site of Special Scientific Interest and against which a claim for PGRS was made in 2014.

Fields are classified by their LFA Status where known and by their calculated LFASS Grazing Category (A, B, C, D) where known.

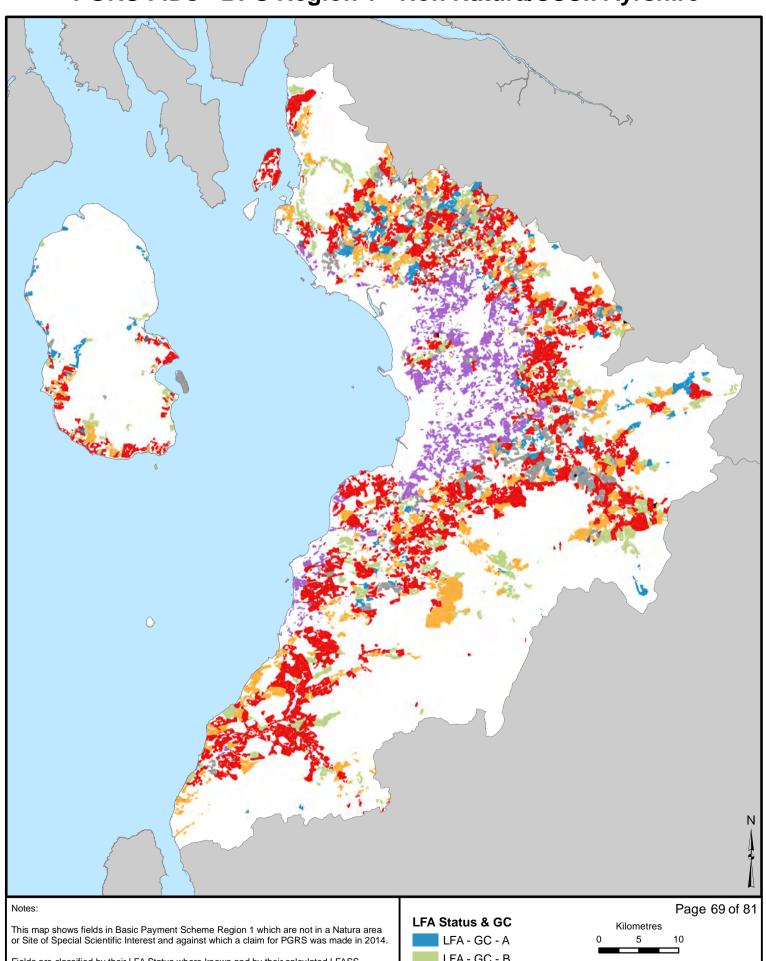
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#### LFA - GC - A LFA - GC - B LFA - GC - C The James LFA - GC - D LFA - GC - Unclassified Non-LFA

Map Version 1.3 6thApr2017

Unknown LFA Status

# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Ayrshire



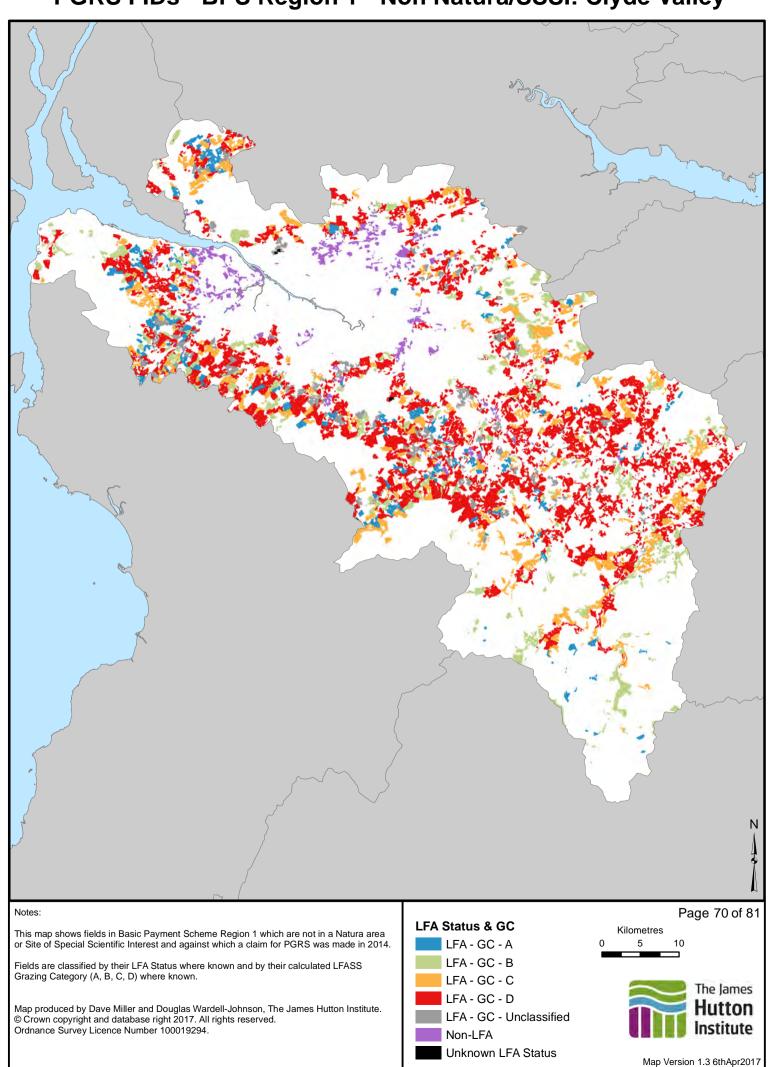
Fields are classified by their LFA Status where known and by their calculated LFASS Grazing Category (A, B, C, D) where known.

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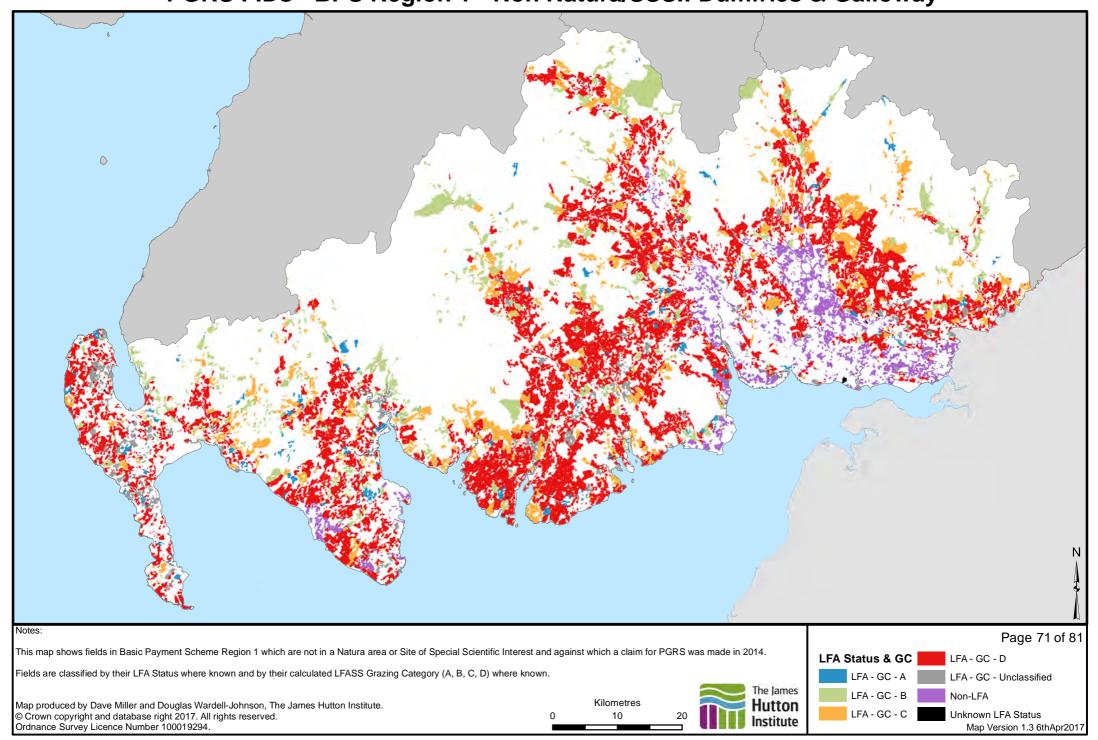
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# Page 69 of 81 LFA - GC - A LFA - GC - B LFA - GC - C LFA - GC - D LFA - GC - Unclassified Non-LFA Unknown LFA Status Page 69 of 81 Kilometres 0 5 10 The James Hutton Institute

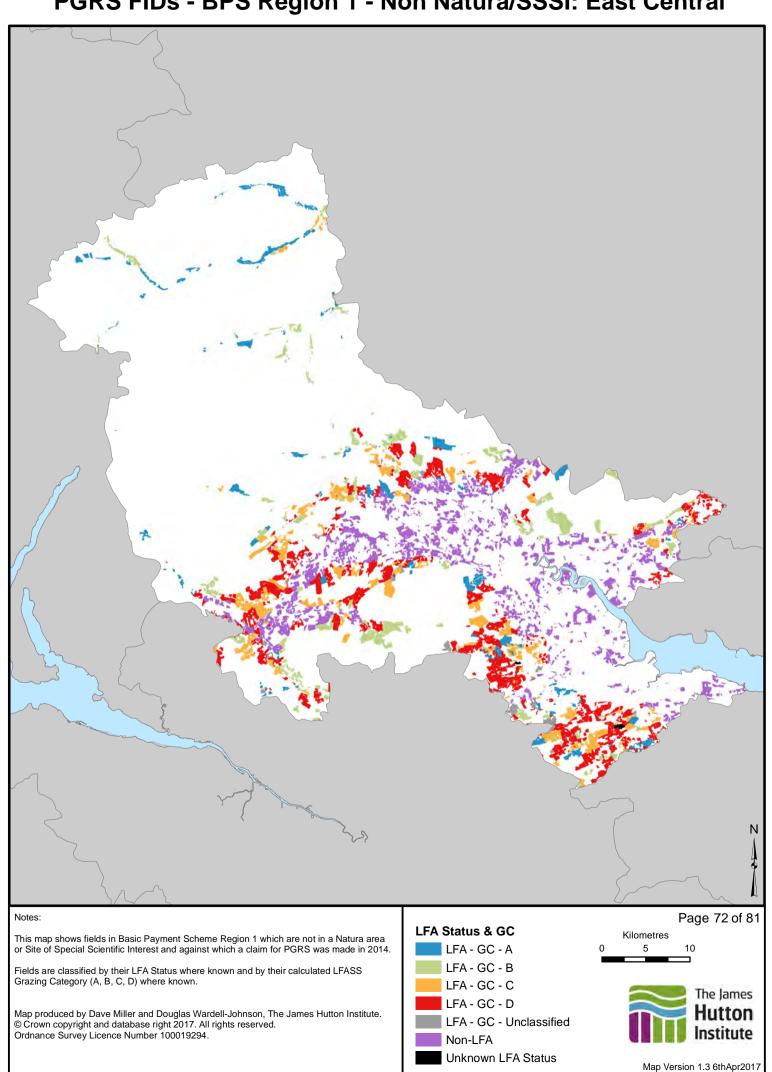
# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Clyde Valley



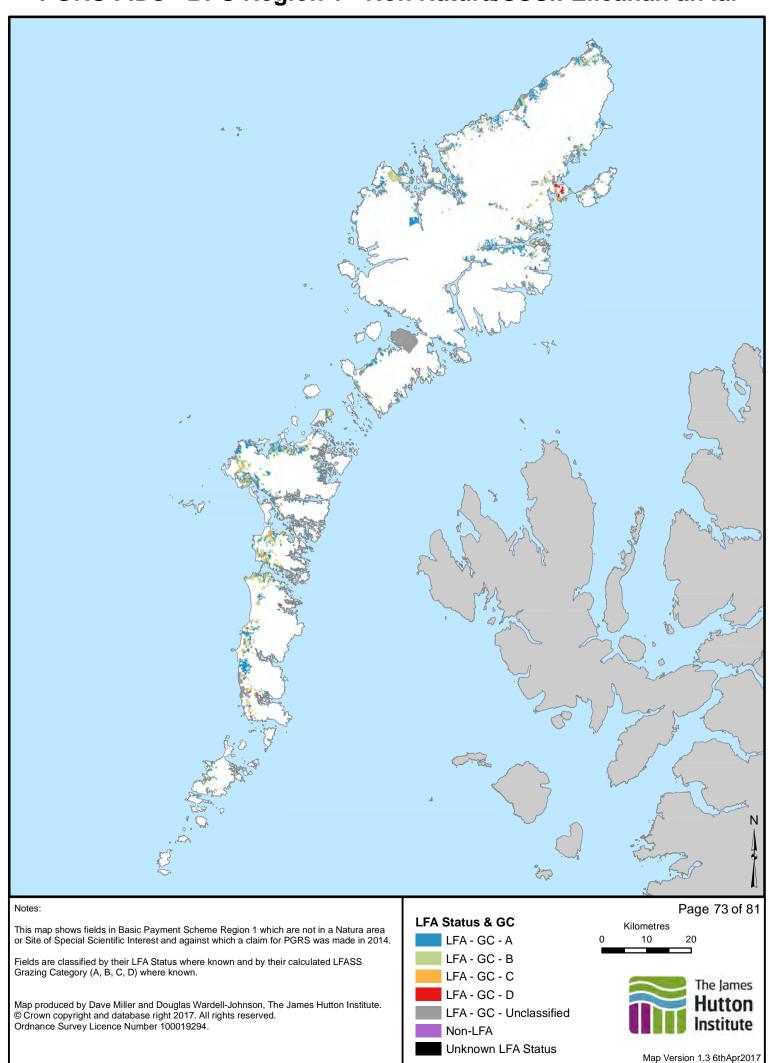
# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Dumfries & Galloway



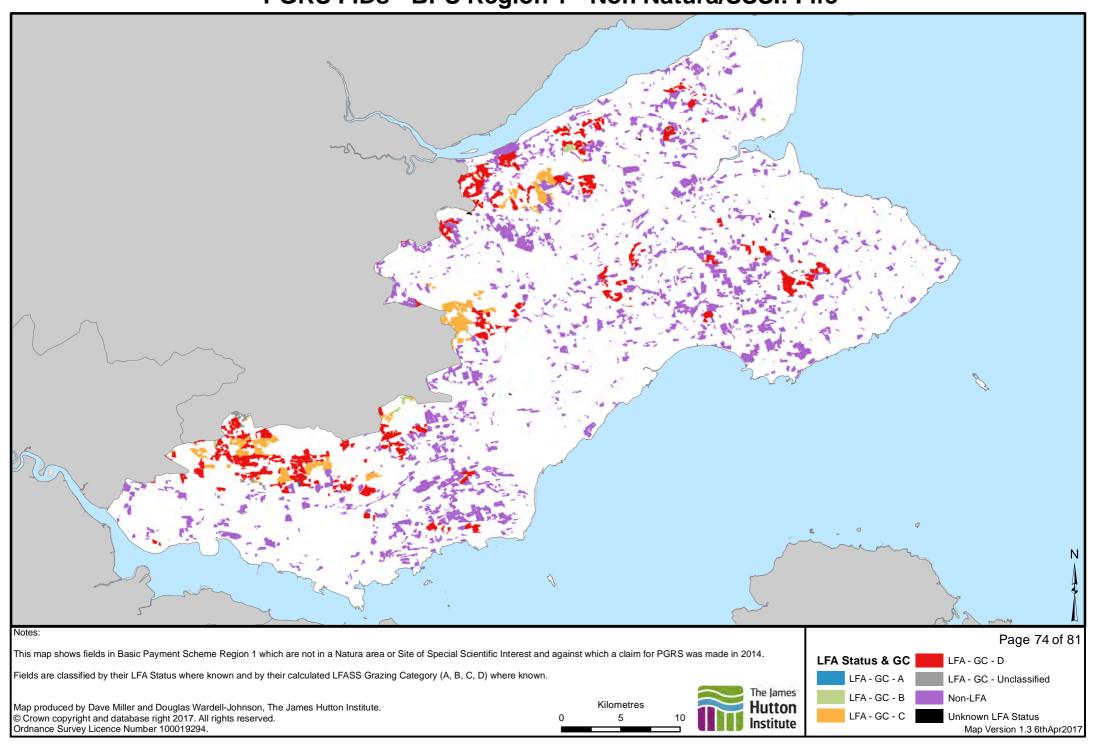
# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: East Central



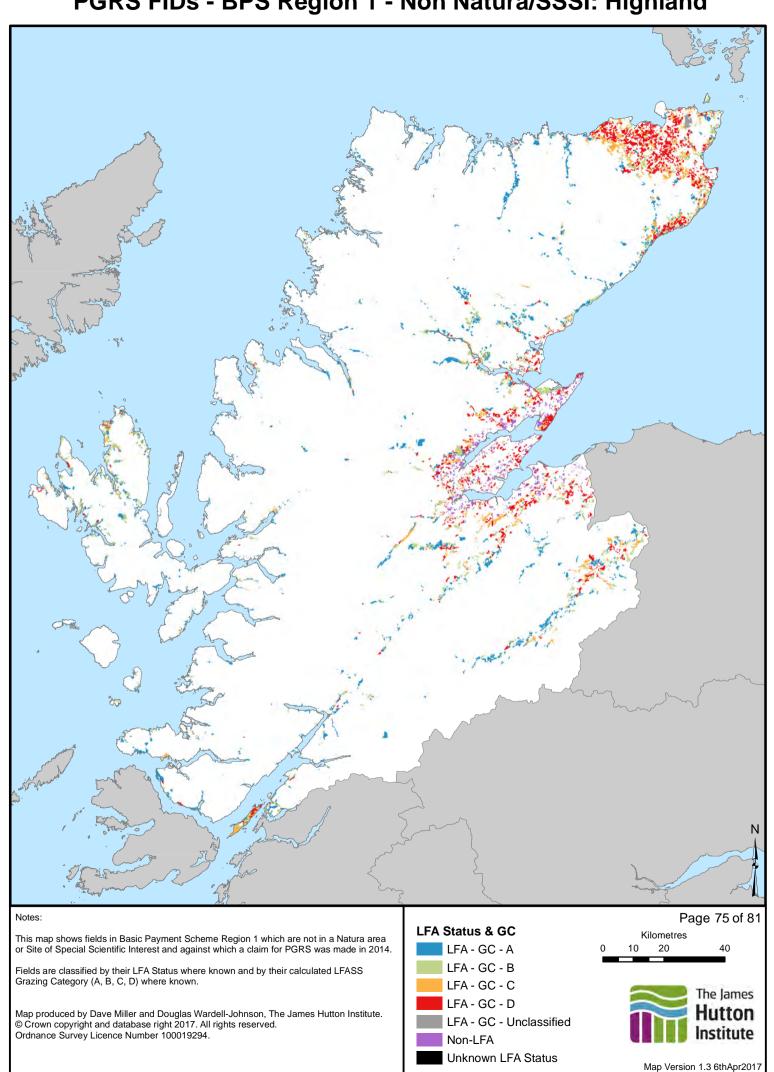
# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Eileanan an Iar



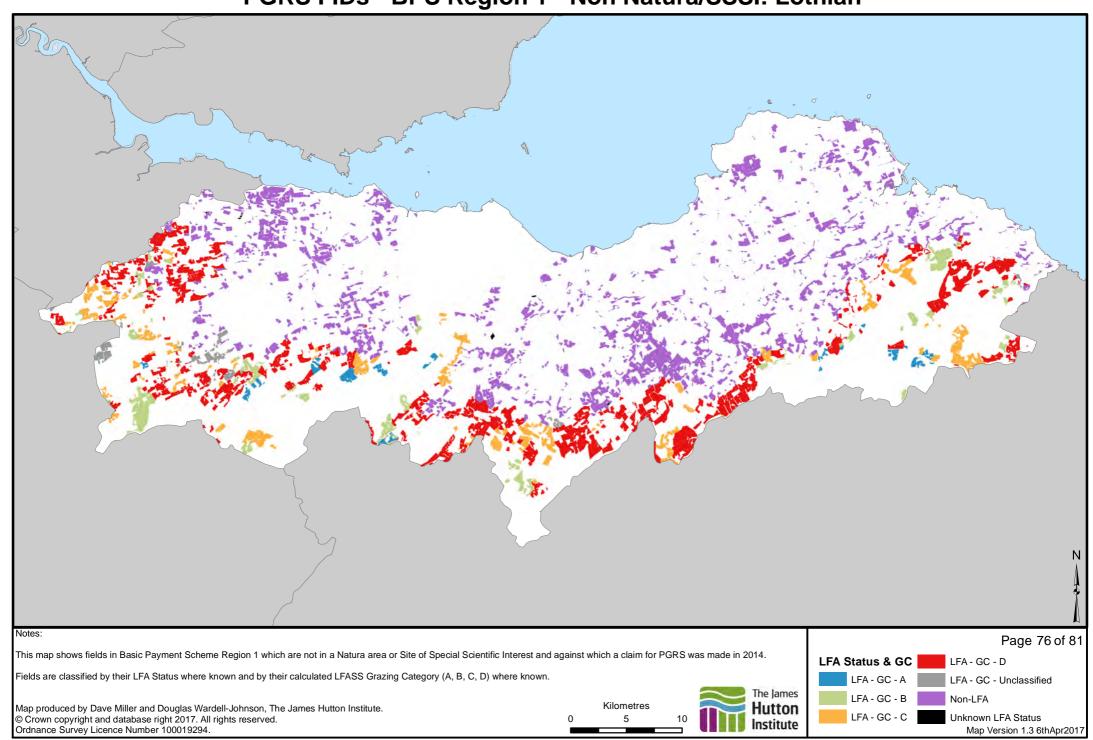
# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Fife



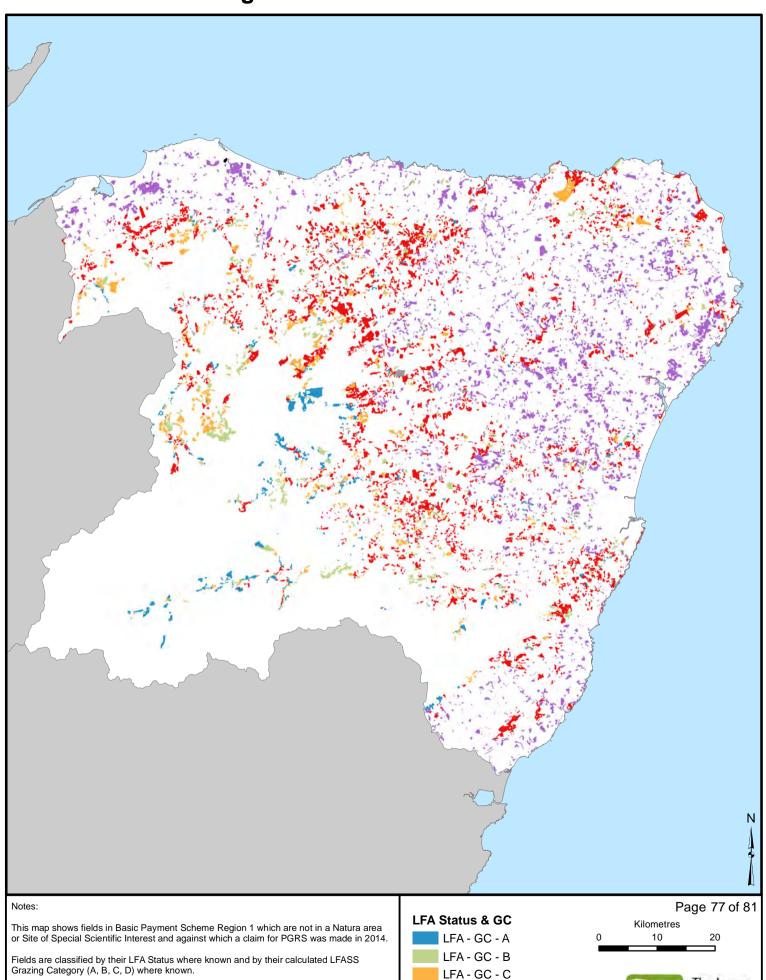
# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Highland



# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Lothian



# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: North East Scotland



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#### LFA - GC - B LFA - GC - C LFA - GC - D LFA - GC - Unclassified Non-LFA

Unknown LFA Status

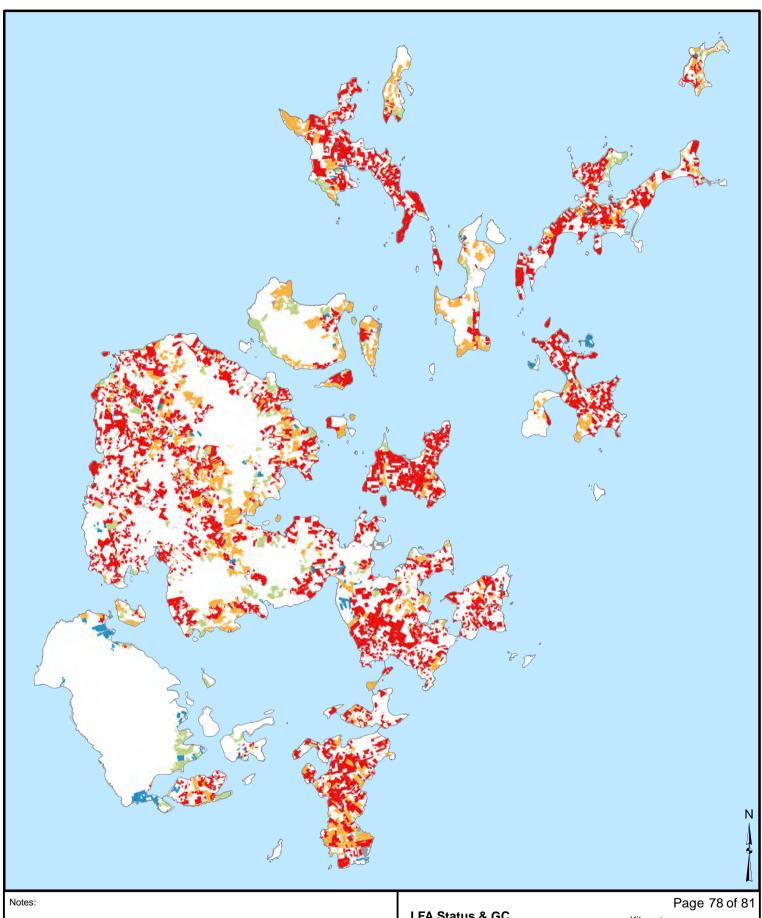
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# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Orkney



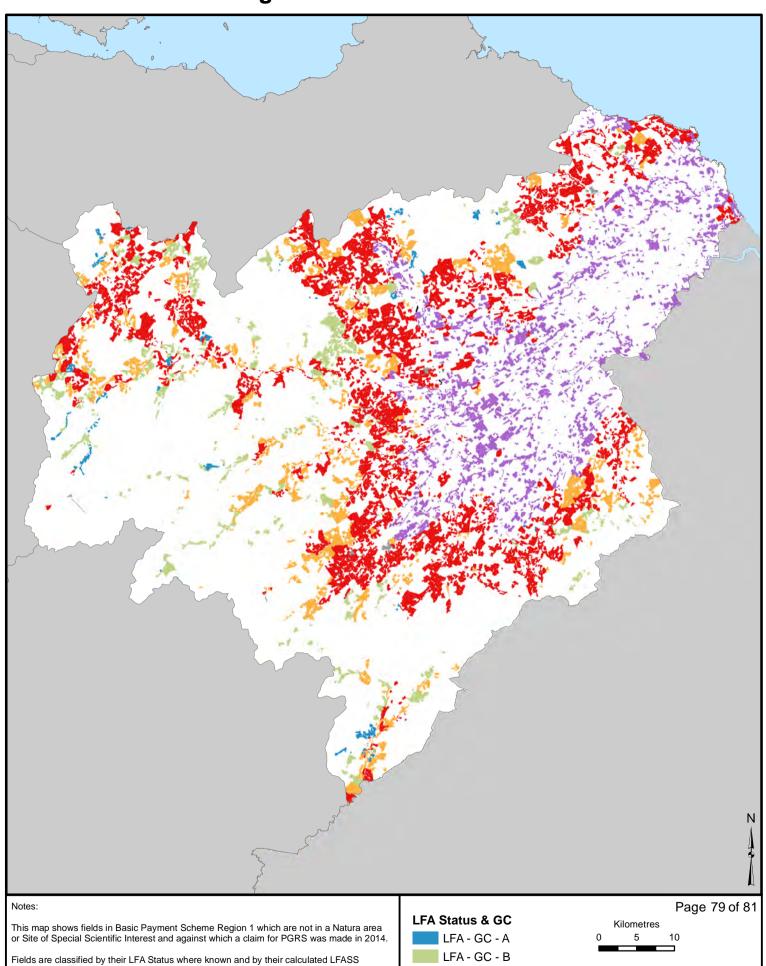
This map shows fields in Basic Payment Scheme Region 1 which are not in a Natura area or Site of Special Scientific Interest and against which a claim for PGRS was made in 2014.

Fields are classified by their LFA Status where known and by their calculated LFASS Grazing Category (A, B, C, D) where known.

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# Page 78 of 81 LFA Status & GC LFA - GC - A LFA - GC - B LFA - GC - C LFA - GC - D LFA - GC - Unclassified Non-LFA Unknown LFA Status Page 78 of 81 Kilometres 0 5 10 The James Hutton Institute

# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Scottish Borders



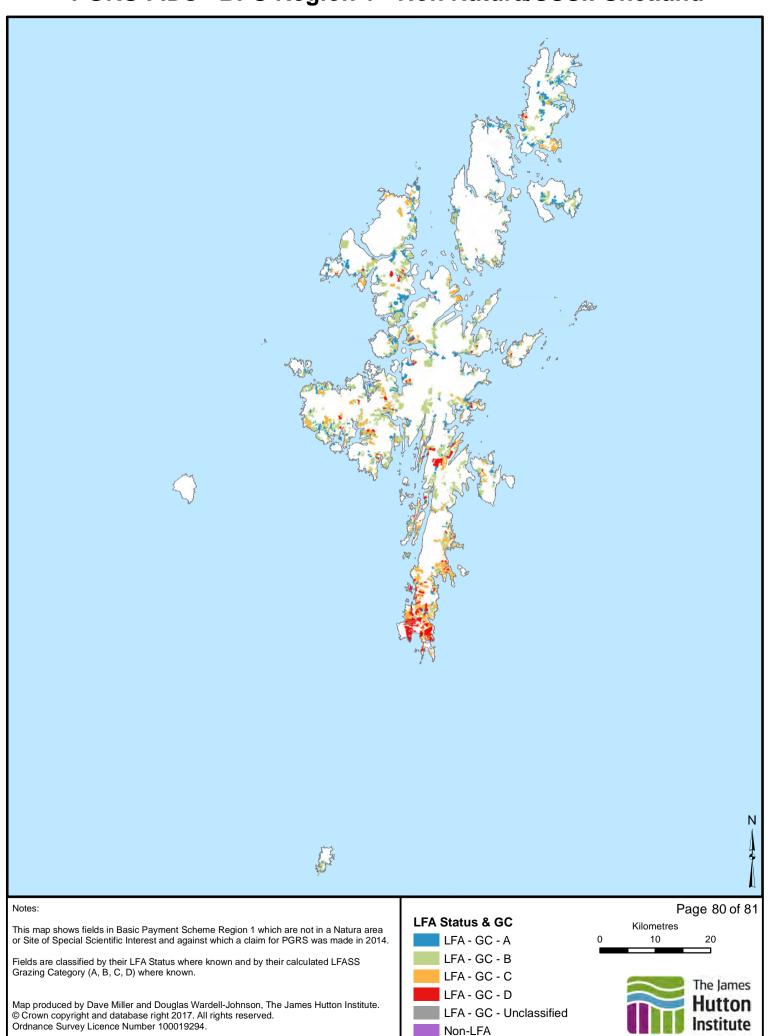
Fields are classified by their LFA Status where known and by their calculated LFASS Grazing Category (A, B, C, D) where known.

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#### LFA - GC - C The James LFA - GC - D Hutton LFA - GC - Unclassified Institute Non-LFA Unknown LFA Status

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# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Shetland



Unknown LFA Status

Map Version 1.3 6thApr2017

# PGRS FIDs - BPS Region 1 - Non Natura/SSSI: Tayside

