

*Your farm's future: Trees an option and opportunity?
Why and how they can benefit your business
Integrating Trees Network, Blair Atholl, 10th September 2024*



Integrating trees and woodlands onto a hill farm

Davy McCracken

*Head of Department of Integrated Land Management
Head of Hill & Mountain Research Centre*



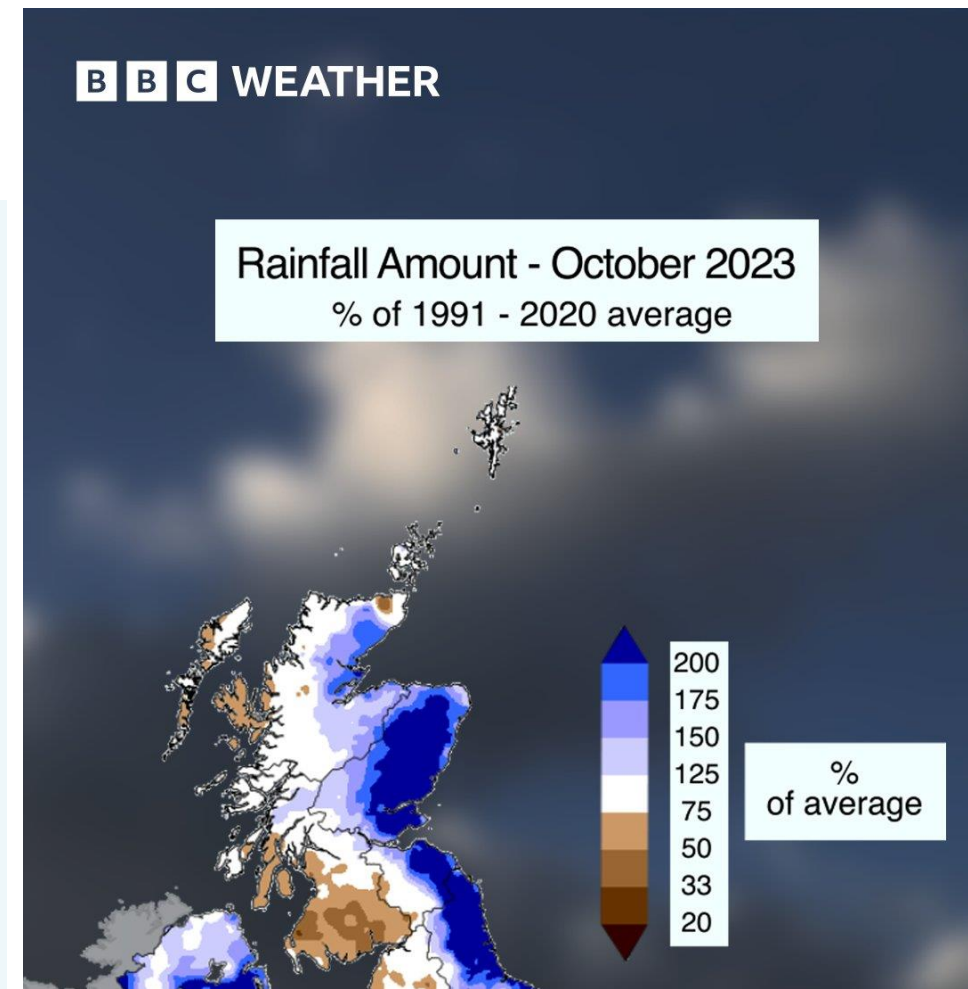
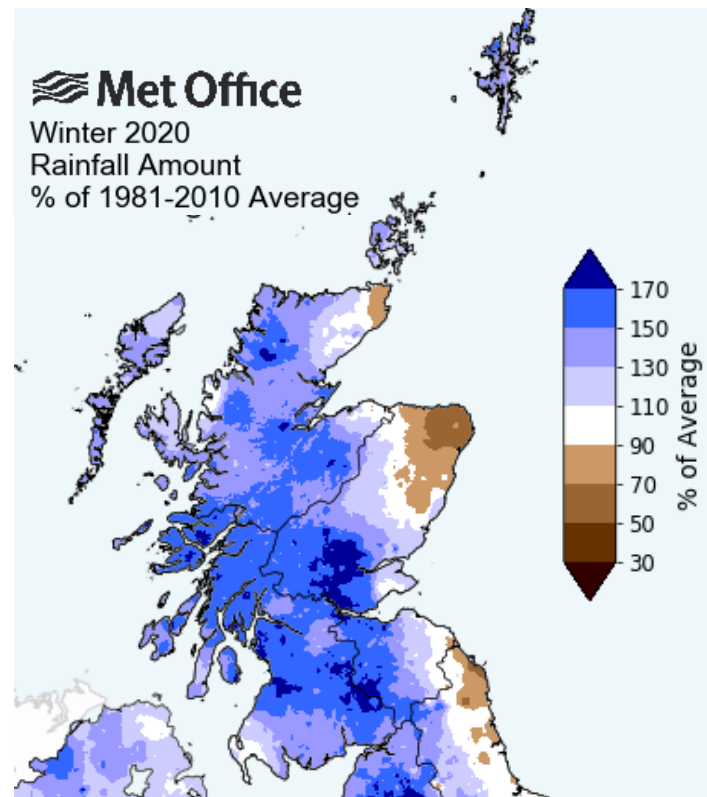
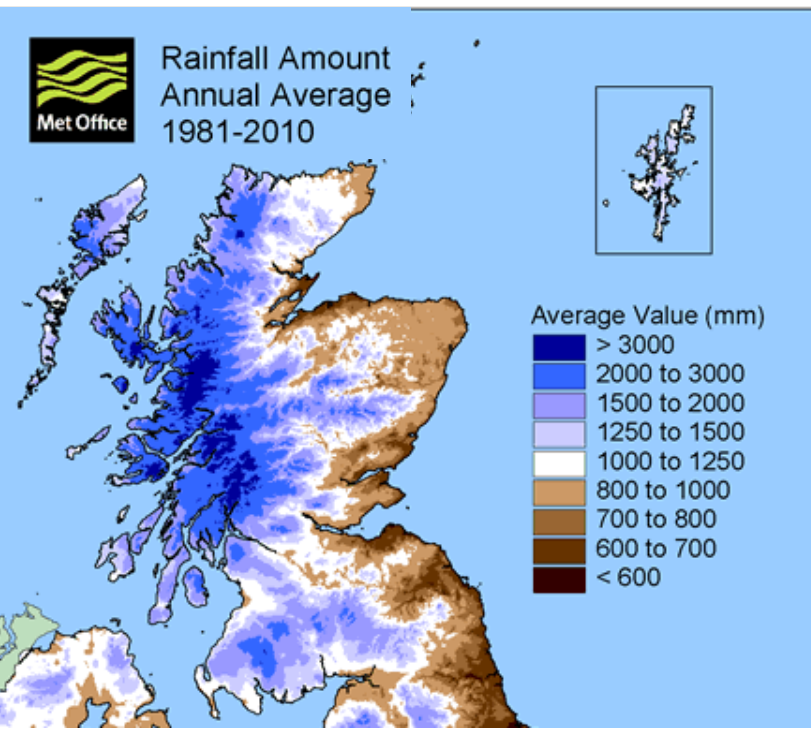
Leading the way in Agriculture and Rural Research, Education and Consulting

Scottish weather is changing

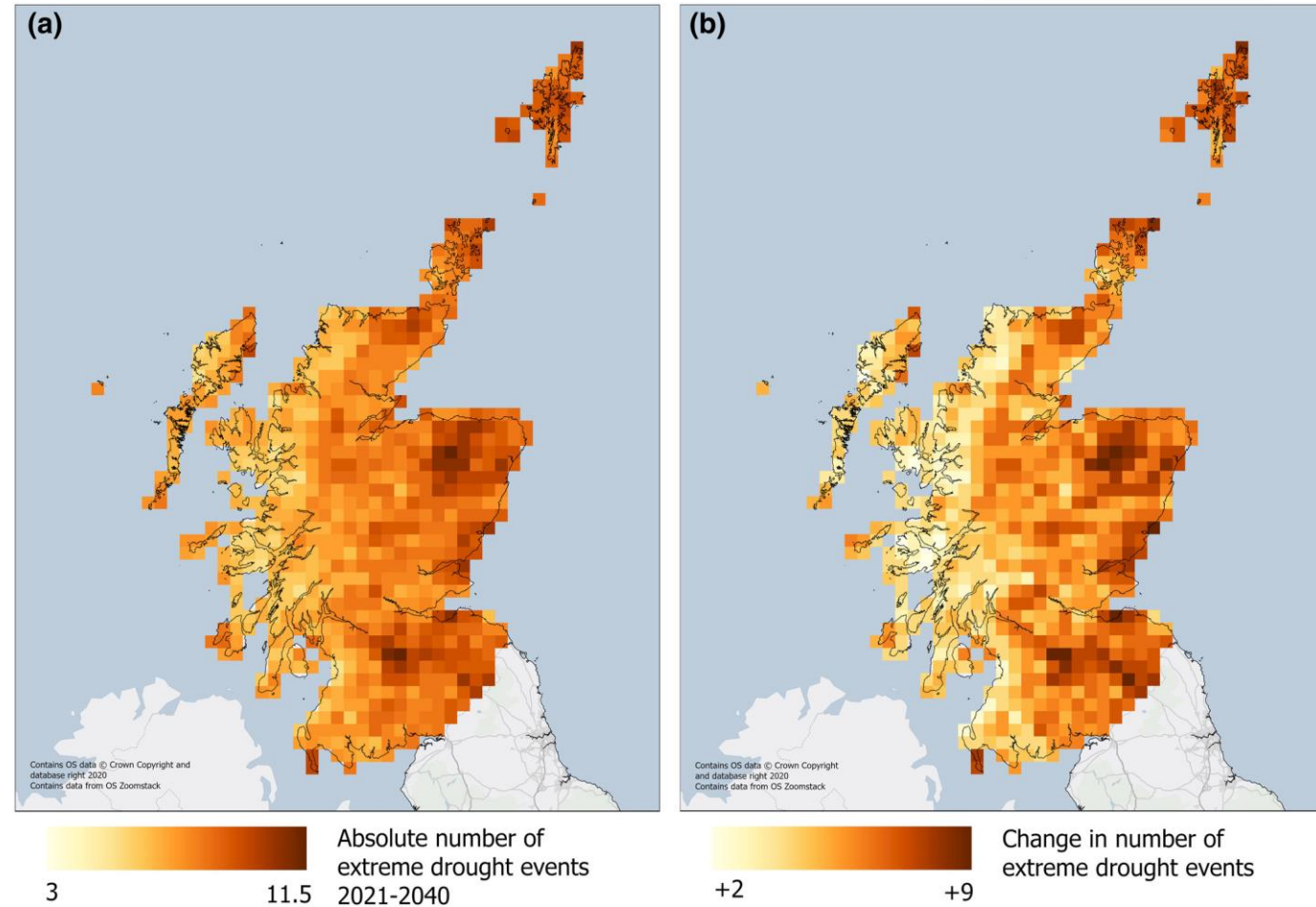
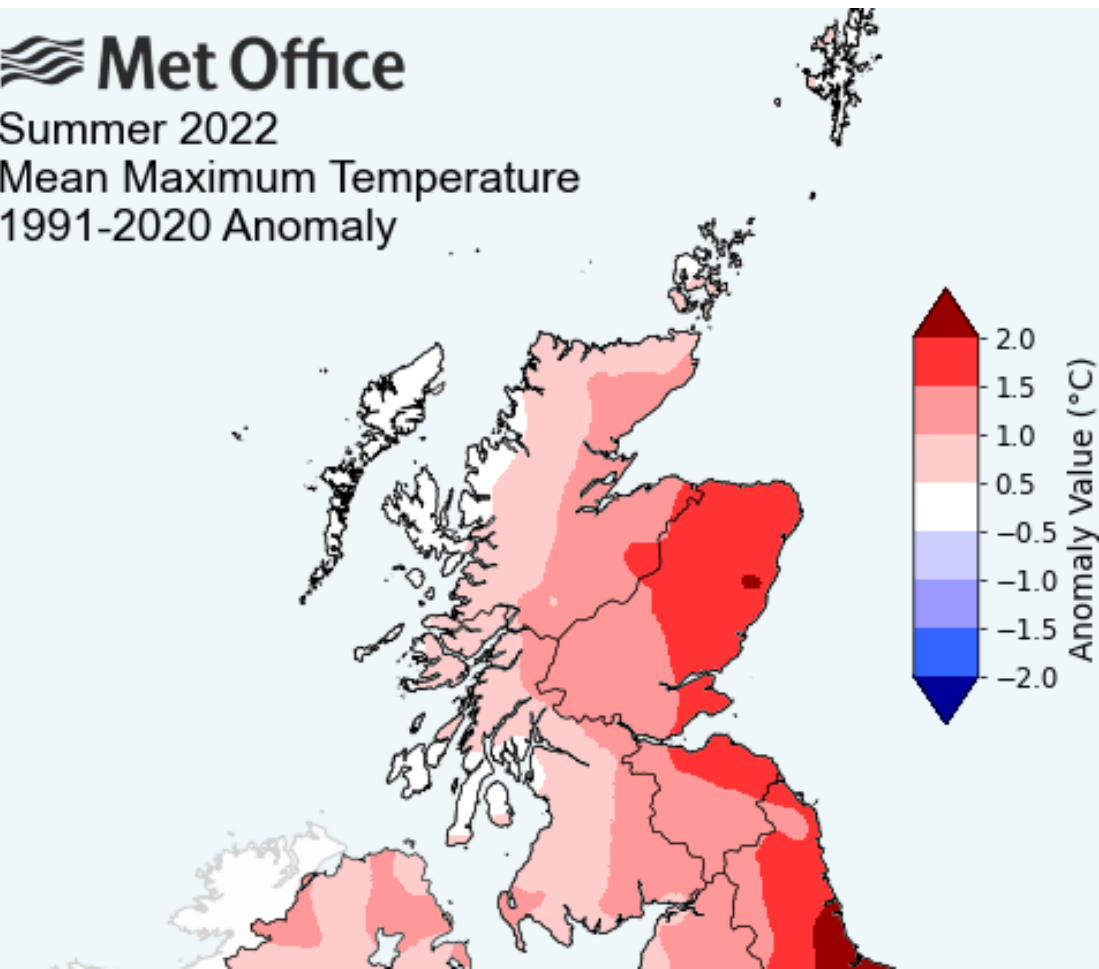
With more  **SRUC**
extreme events

Very wet

And getting wetter



Scottish weather is changing



Projected increases in extreme drought frequency and duration by 2040 affect specialist habitats and species in Scotland

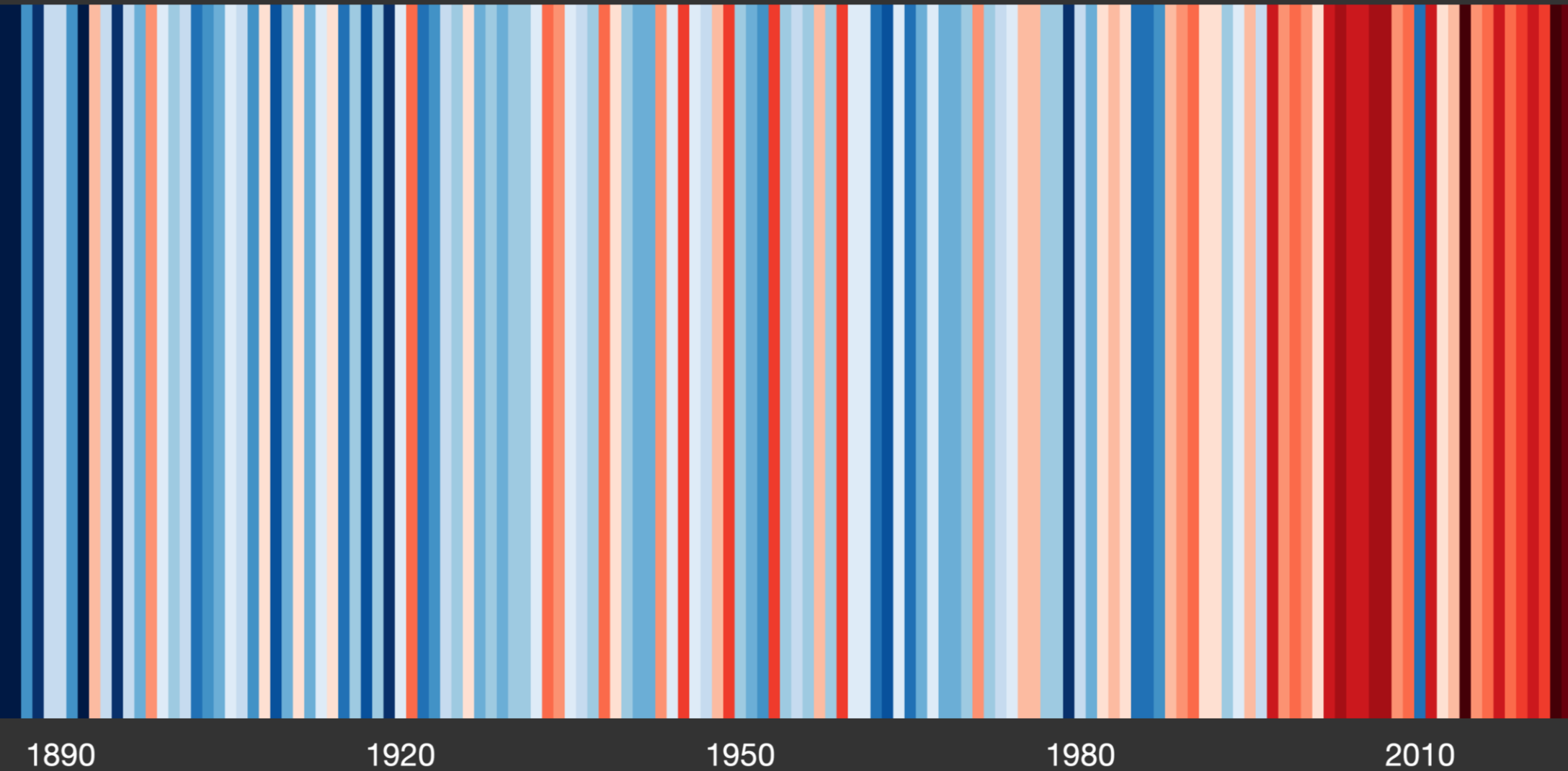
Ecol Sol and Evidence, Volume: 4, Issue: 3, First published: 03 August 2023, DOI: (10.1002/2688-8319.12256)

<https://besjournals.onlinelibrary.wiley.com/doi/full/10.1002/2688-8319.12256>

Challenges and Opportunities: Climate Change



Temperature change in Scotland since 1884



**Warming
Stripes:
Scotland 1854
to 2023 – Data:
University of
Reading**

<https://showyourstripes.info/s/europe/unitedkingdom/scotland>

Challenges and Opportunities

Scale of change needed

Net Zero by 2045

- *Biodiversity management*
- *Pollution mitigation*
- *Flood mitigation*
- *Peatland Restoration*
- *Woodland creation*

Innovation = Doing Things Differently

Inbye grasslands

- Soil pH and nutrients
- GHG emissions
- Grassland management
- Forage & fodder improvements

Hill grazing

- Bracken control
- Improving hill parks

Sheep Performance

- Genetic selections
- Blackface and Lleyn

Flock Performance

- EID associated kit
- TST worming of lambs
- Comparison of system trade-offs

Auchtertyre flock

- Restocking
- Blackloss
- Yellowwashes/Ploch each

Technology

- Virtual fencing
- Drones for assessments

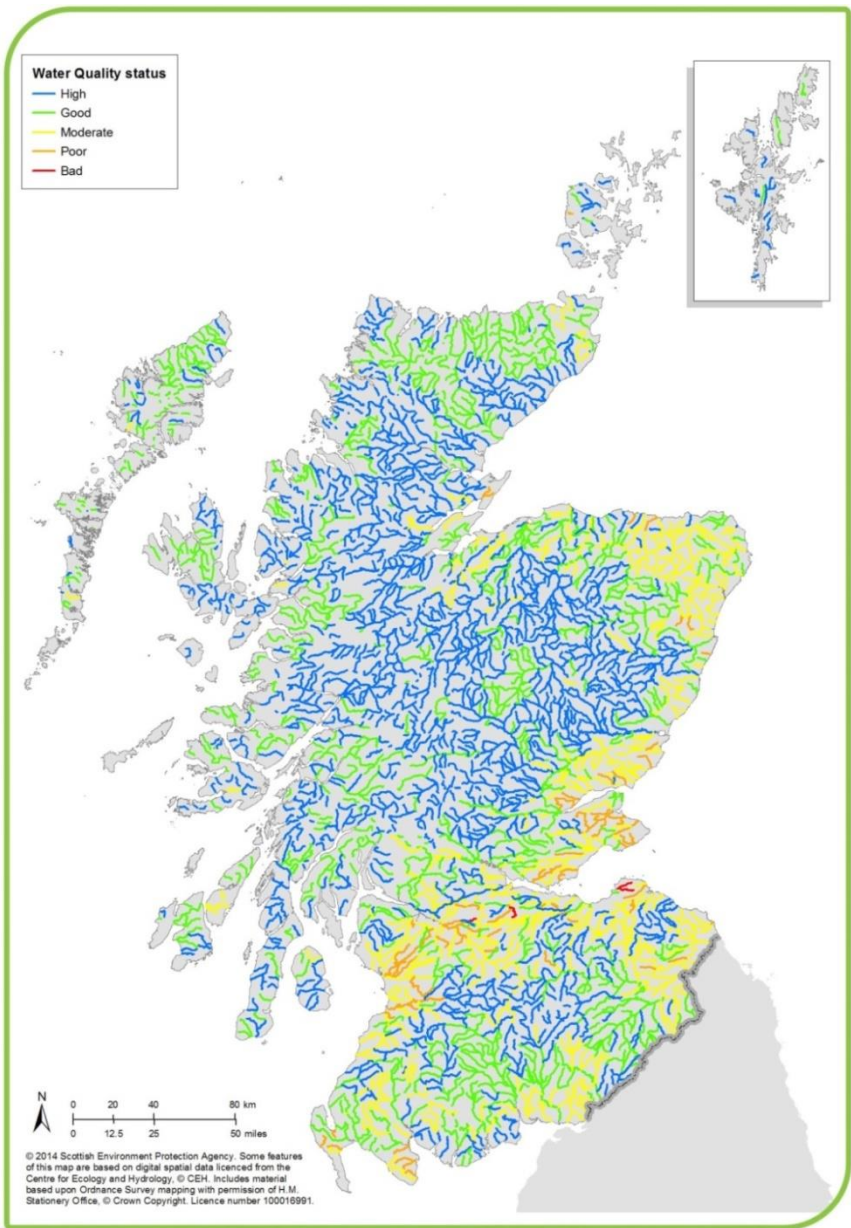
LoRa network

- Tracking livestock
- Sensors

Systems approach to Precision Livestock Farming



Water Quality



Water Quantity



Traffic Scotland 
@trafficscotland

#A9 not looking good!

Please drive slowly and safely  twitter.com/whokens/status...

Craig @whokens
@trafficscotland A9 between Perth and Stirling #StormDennis



87 3:57 PM - Feb 15, 2020

You are here: [Home](#) > [Environment](#) > [Water](#) > Flooding

Flooding

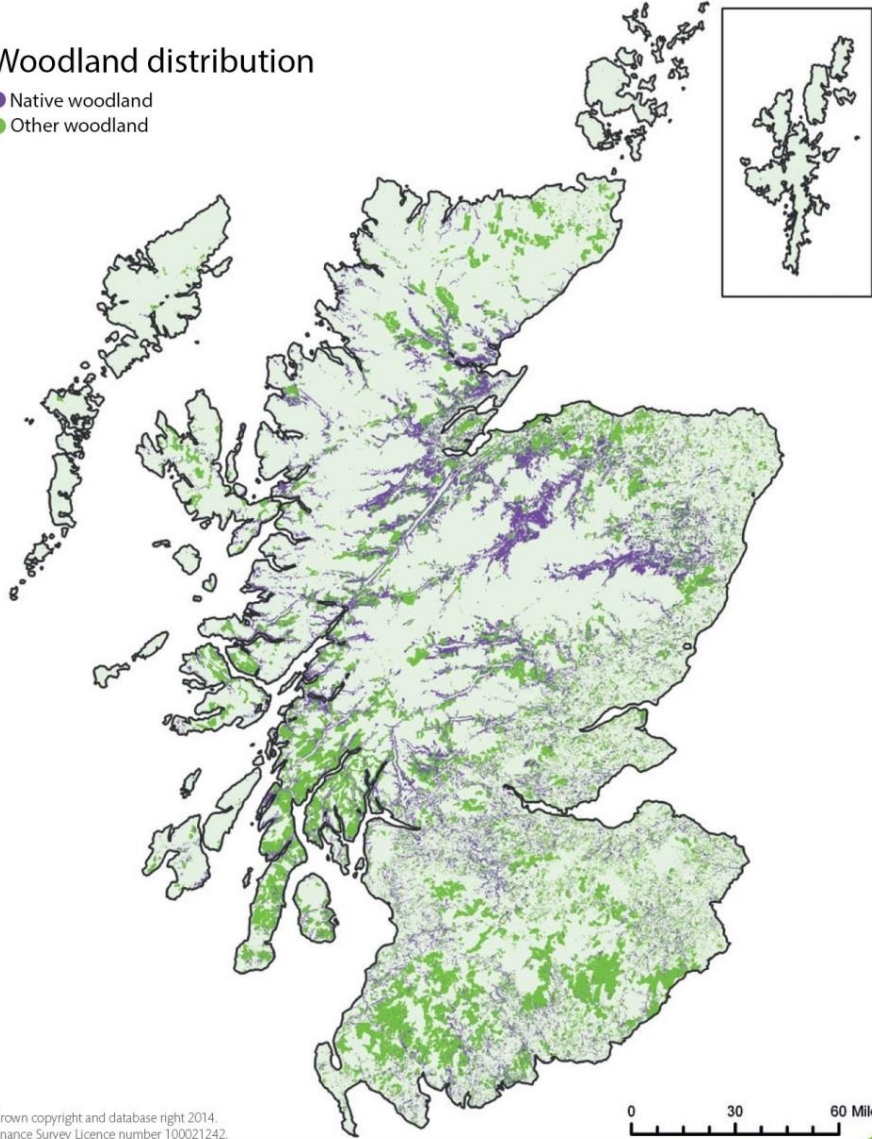


SEPA is Scotland's national flood forecasting, flood warning and strategic flood risk management authority.

Opportunities

Woodland distribution

- Native woodland
- Other woodland



Forestry Business

Forestry Strategy

Sustainable Forestry

Support & Regulations

Forests & the Environment

Forests & People

Integrating Trees Network



Benefits



advice@fas.scot Call 0300 323 0161

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Woodland Creation

There are many reasons why investing in woodland can help your farm business. The benefits include:

- Shelter for livestock and crops
- Biosecurity for livestock
- Improvements in biodiversity
- Reduction of diffuse pollution & bank stabilisation
- Cash inflow from timber crops
- Carbon sequestration
- Sports/leisure diversification

In this section, we have gathered the information you need to help get you started. Our podcast discusses the Top Ten questions our foresters get asked about woodland creation & management.

<https://www.fas.scot/crops-soils/farm-woodlands/woodland-creation/>



Farm Woodland Information Note: Accessing the Forestry Grant Scheme for Woodland Creation

Loch Lomond and The Trossachs National Park Boundary

Legend



National Park boundary



Local Authority boundary

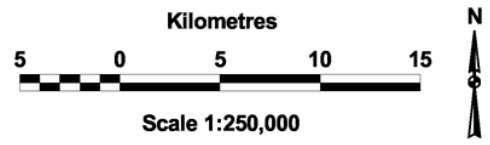
Argyll
& Bute

SRUC Kirkton and Auchtertyre

Perth &
Kinross

Stirling

West
Dunbartonshire



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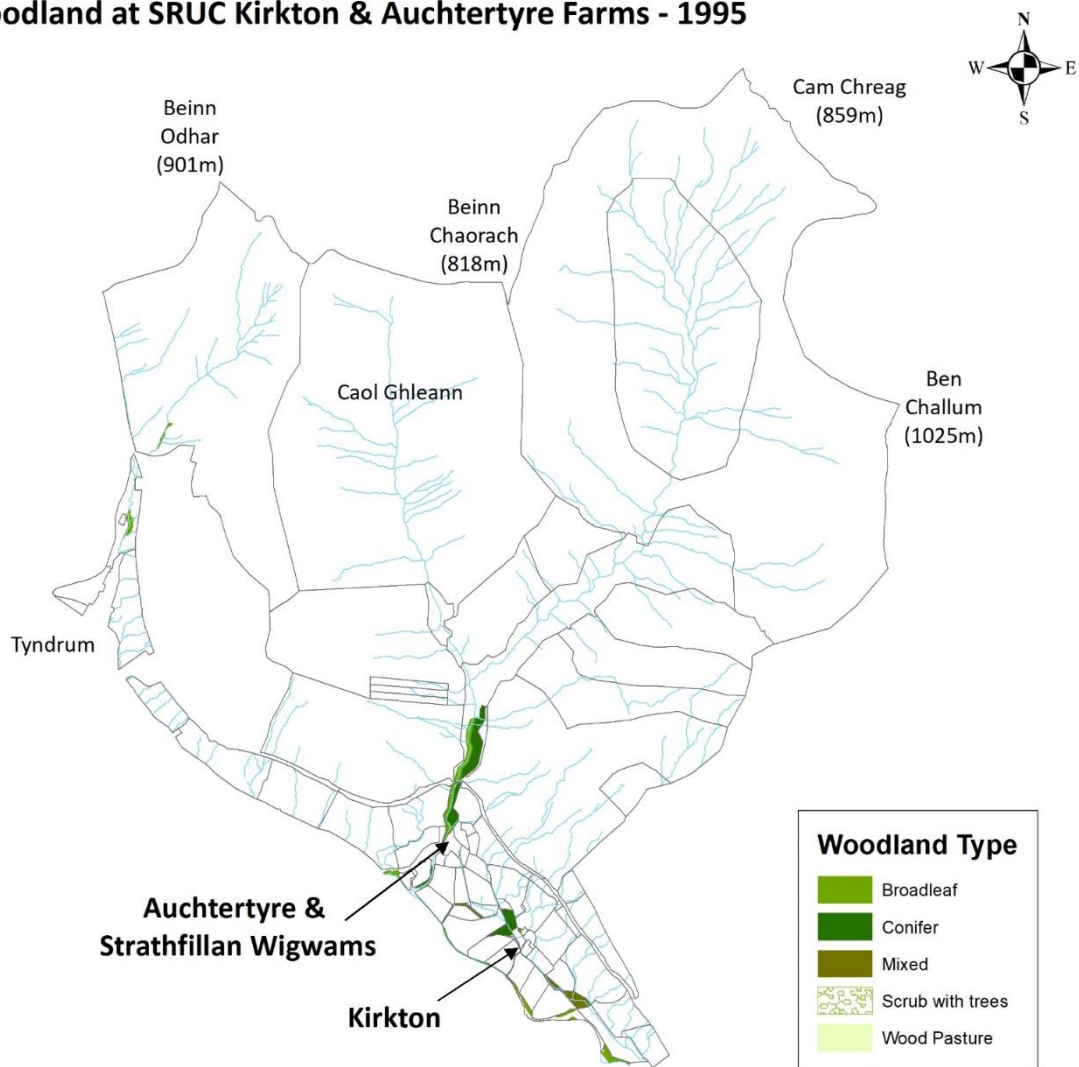
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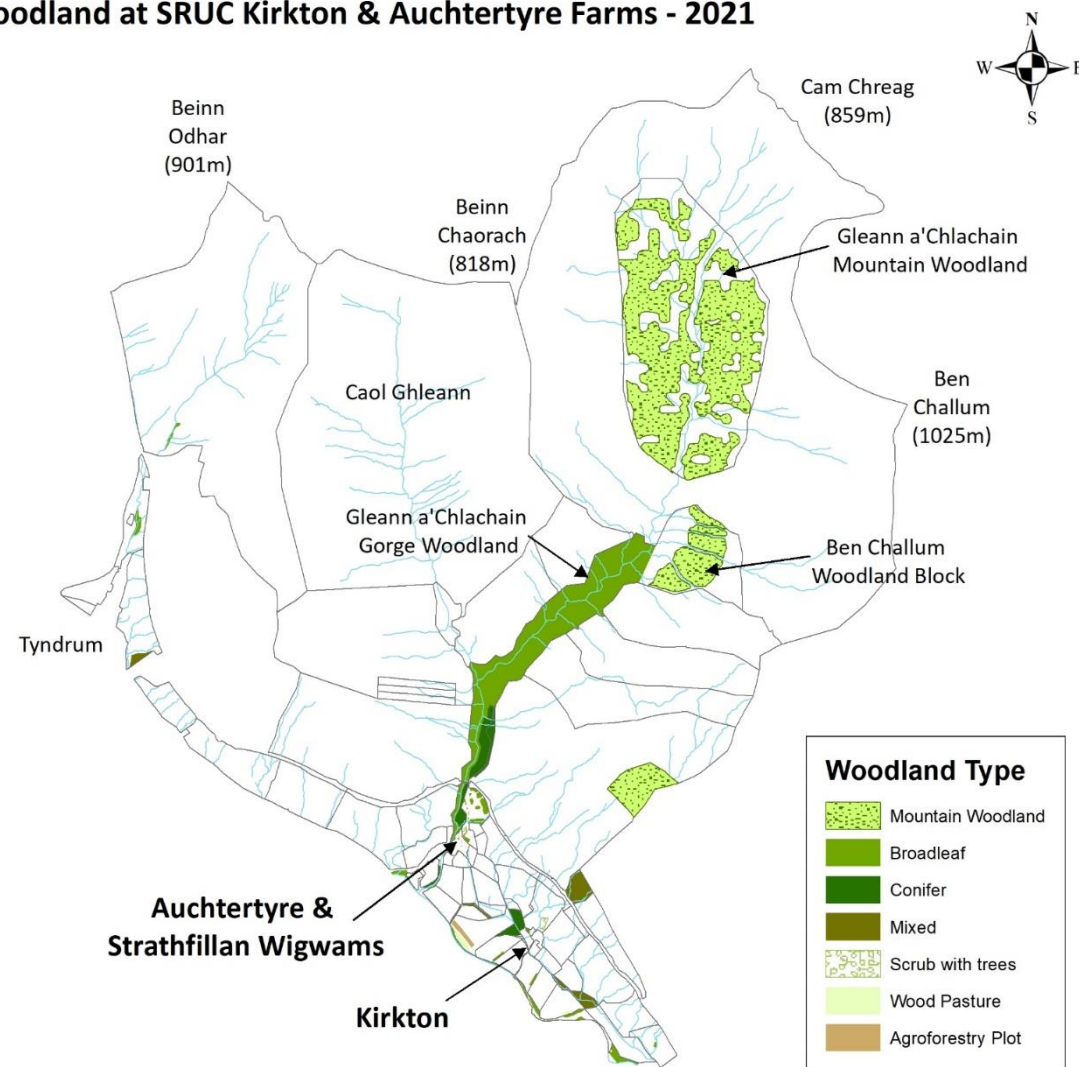
Integrating trees and woodland into a hill farm



Woodland at SRUC Kirkton & Auchtertyre Farms - 1995



Woodland at SRUC Kirkton & Auchtertyre Farms - 2021



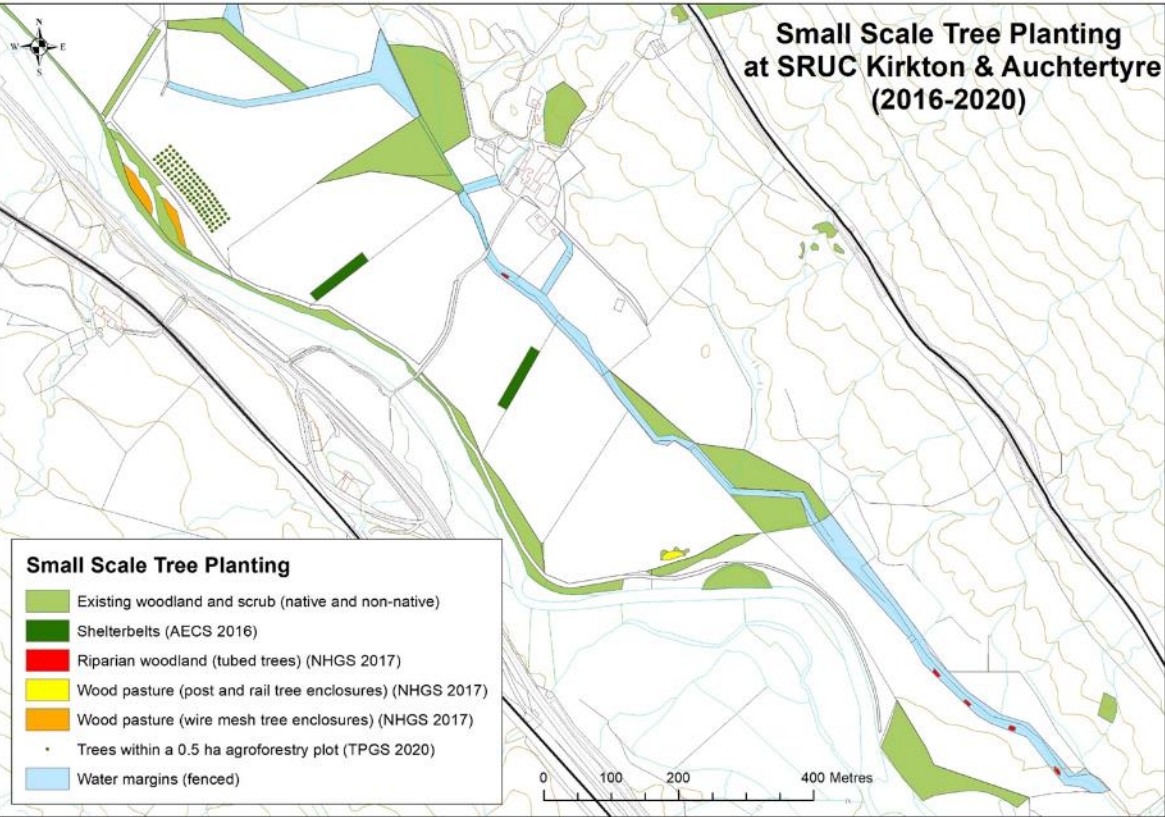
Improving biodiversity on a hill farm: Scrub



Improving biodiversity on a hill farm: Scrub



Improving biodiversity on a hill farm: Inbye Woodland



Shelter Belt

(Two blocks planted in 2016, each with 165 native broadleaved trees)



2017





2021

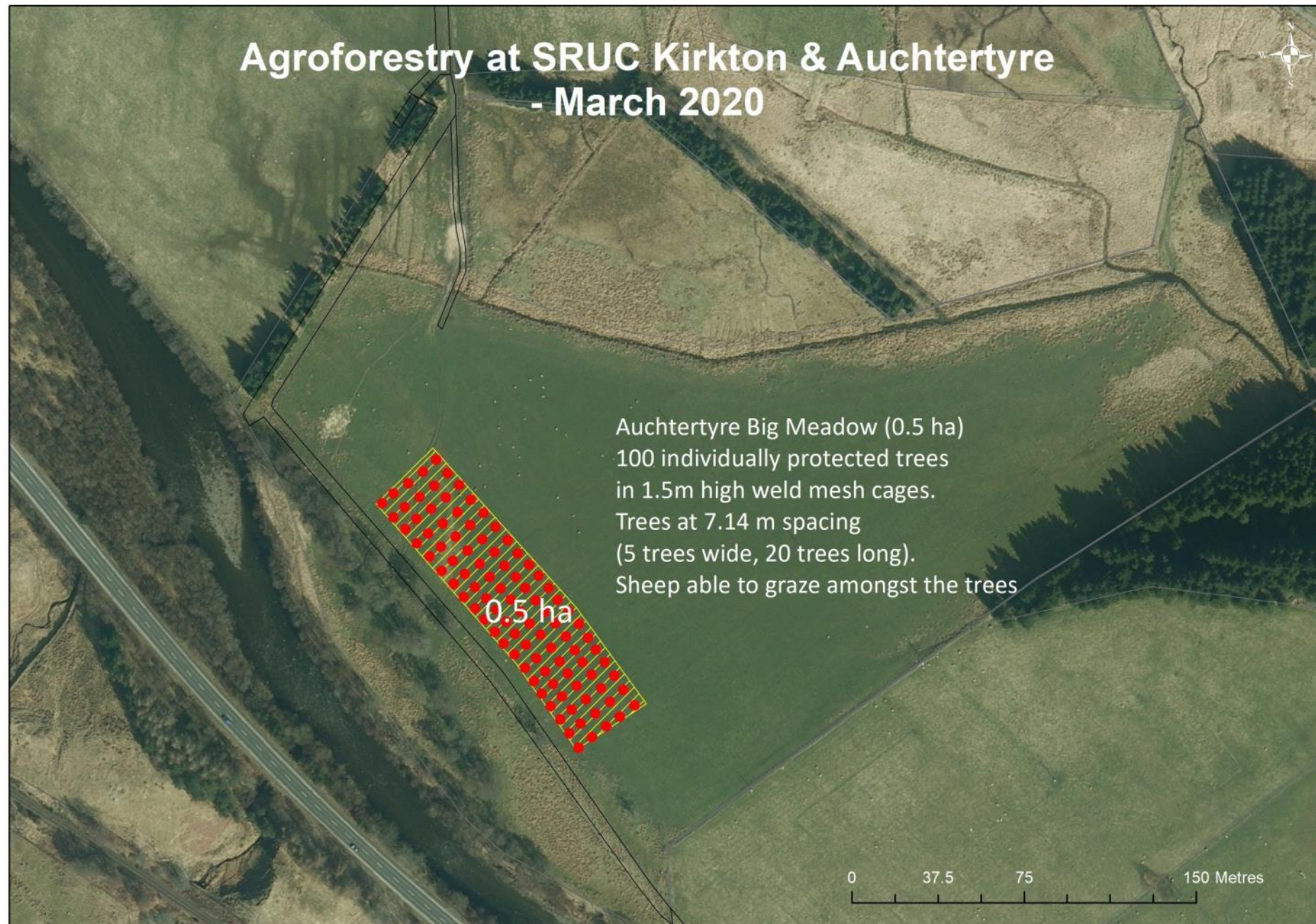
LLTNP Natural Heritage Grant Scheme (2017)

Wood Pasture Tree Planting (10 trees)



October
2020





Agroforestry at SRUC Kirkton & Auchtertyre - March 2020



Tree Species

- Alder (*Alnus glutinosa*)
- Downy Birch (*Betula pubescens*)
- Oak (*Quercus robur*)
- Aspen (*populus tremula*)
- Gean (*Prunus avium*)
- Rowan (*Sorbus aucuparia*)

0 15 30 60 Metres

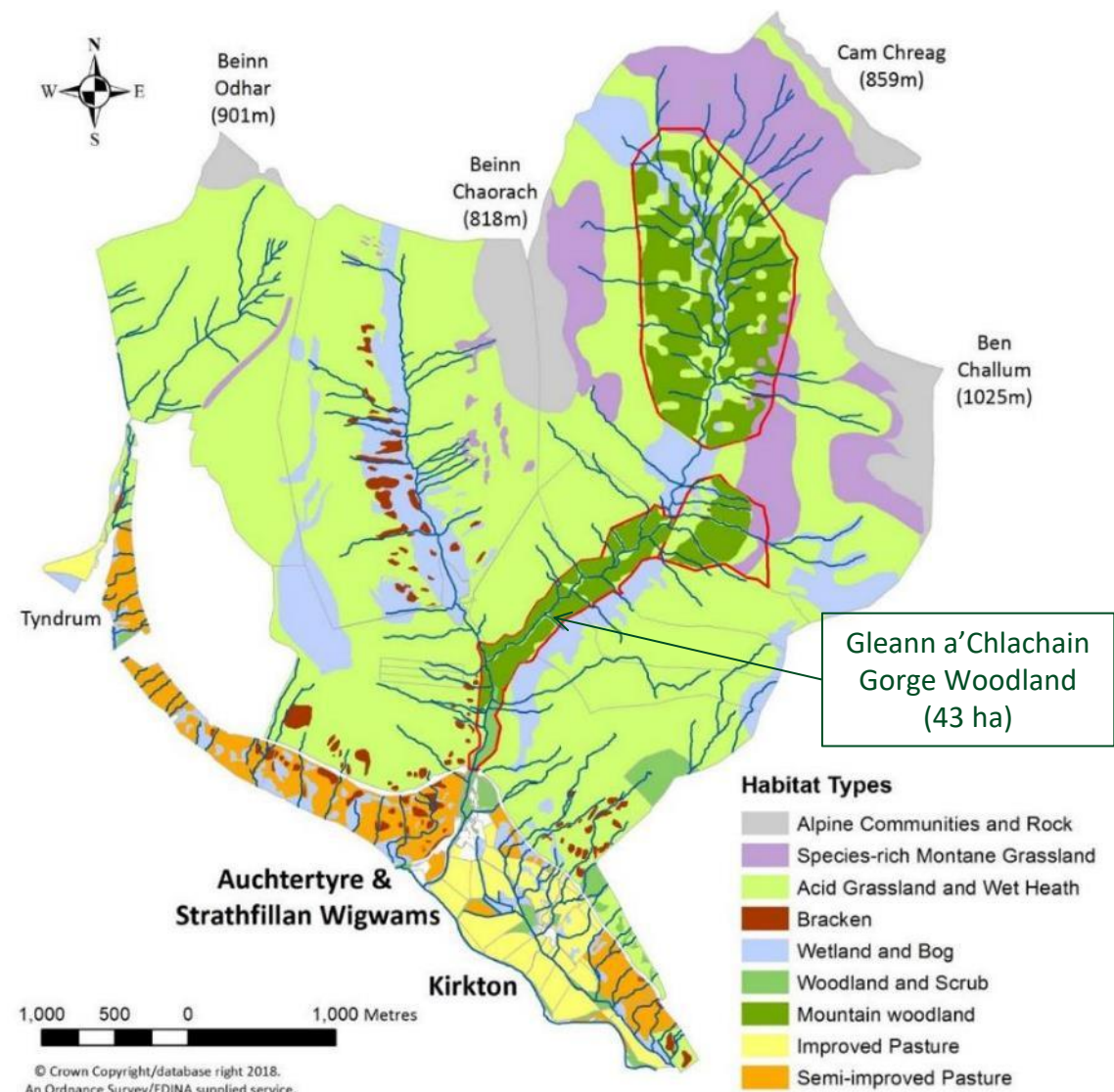




2021



Improving biodiversity on a hill farm: Mountain Woodland & Scrub



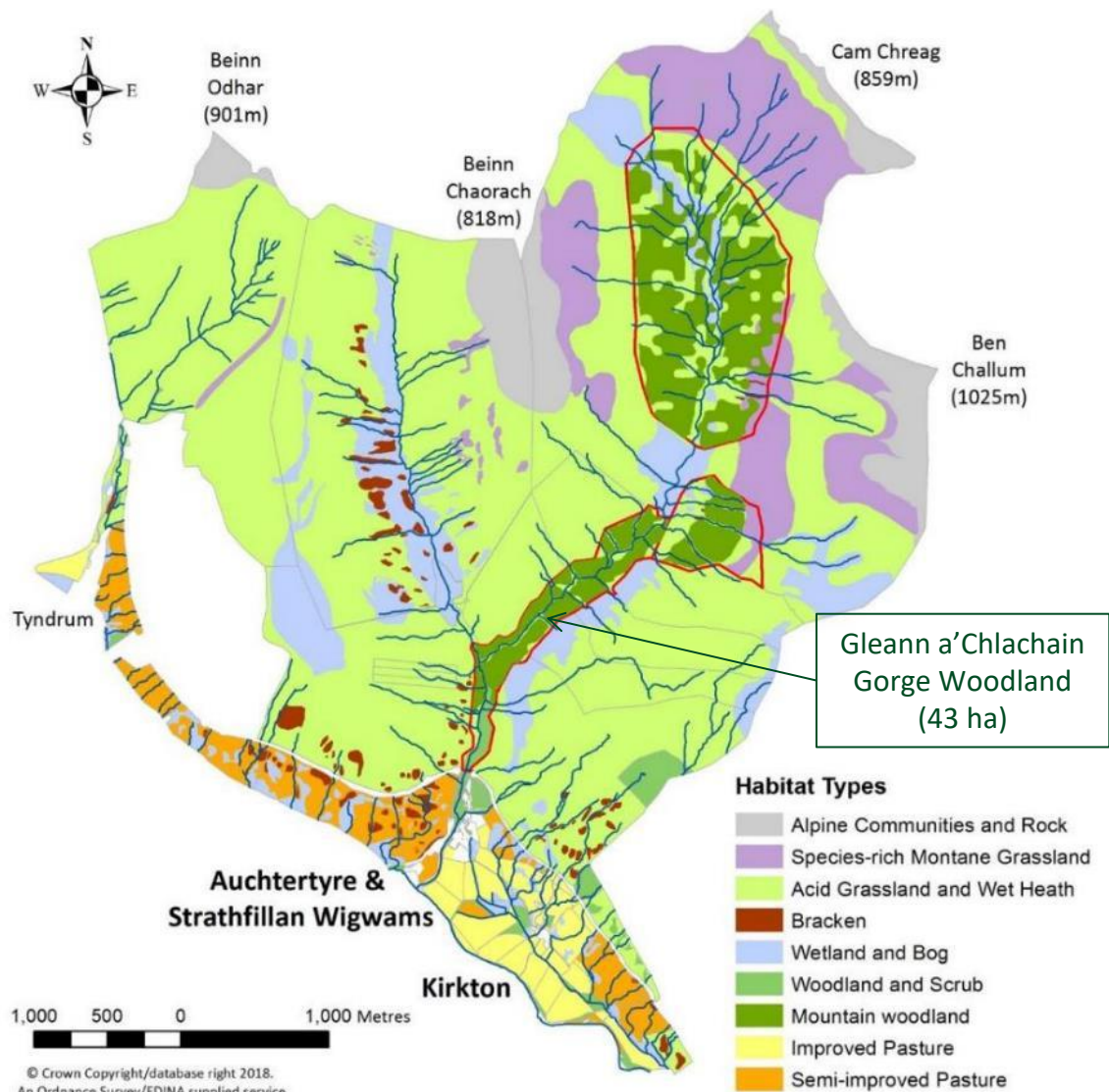
Trees planted in the in the Allt Gleann a'Chlachain Gorge Woodland and Gleann a'Chlachain Mountain Woodlands (260 ha)



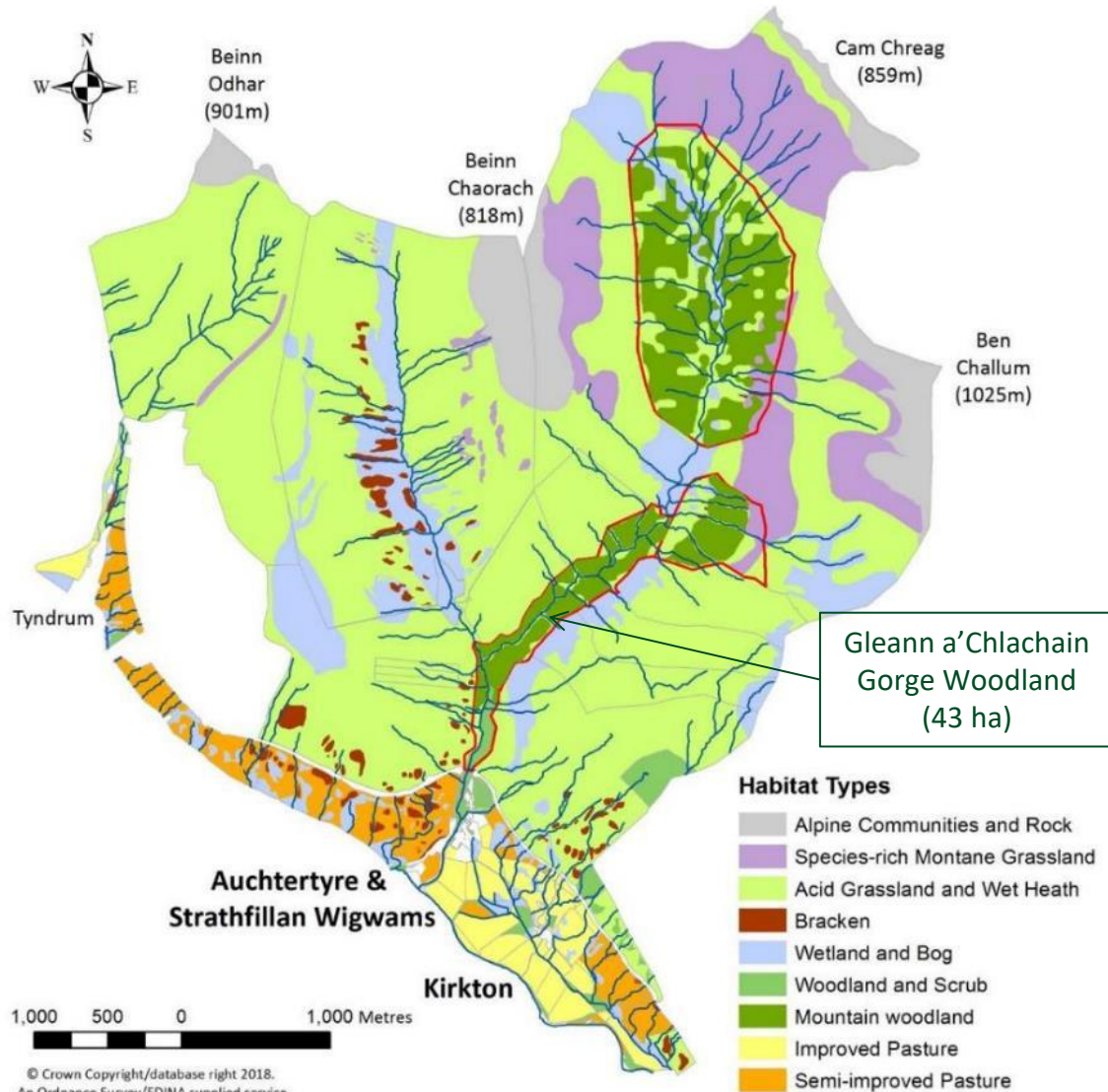
Latin Name	English Name	Total	Percentage
<i>Betula pubescens</i>	Downy Birch	219710	45.35%
<i>Betula pendula</i>	Silver Birch	63505	13.11%
<i>Pinus sylvestris</i>	Scot's Pine	49300	10.18%
<i>Alnus glutinosa</i>	Common Alder	43765	9.03%
<i>Sorbus aucuparia</i>	Rowan	38110	7.87%
<i>Salix cinerea</i>	Grey Willow	23250	4.80%
<i>Salix caprea</i>	Goat Willow	17505	3.61%
<i>Quercus petraea</i>	Sessile Oak	8850	1.83%
<i>Salix aurita</i>	Eared Willow	6250	1.29%
<i>Salix mysinifolia</i>	Dark-leaved Willow	5010	1.03%
<i>Fraxinus excelsior</i>	Ash	4060	0.84%
<i>Corylus avellana</i>	Hazel	3300	0.68%
<i>Populus tremula</i>	Aspen	1110	0.23%
<i>Salix lapponum</i>	Downy Willow	750	0.15%
Total		484,475	100%



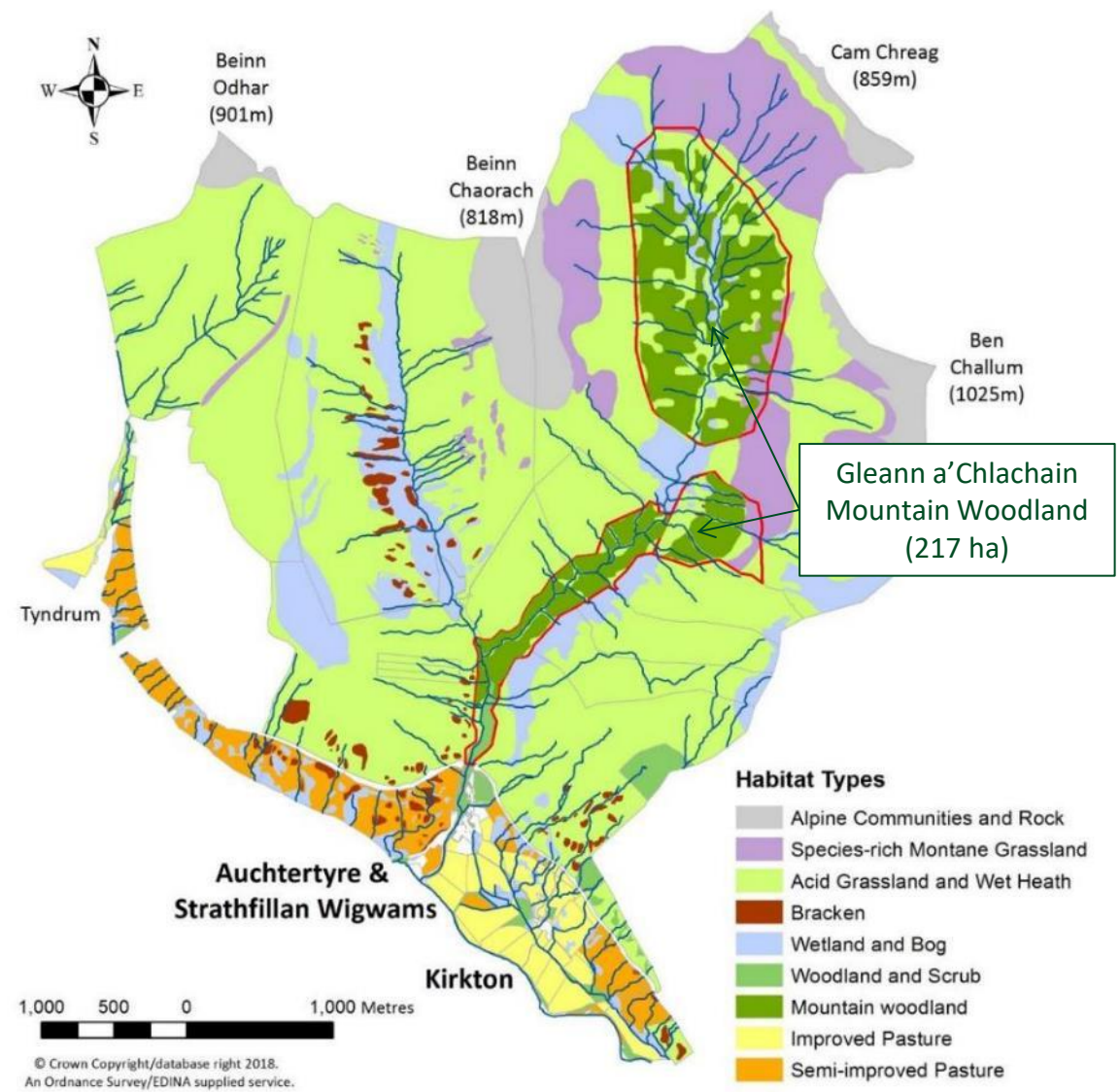
Improving biodiversity on a hill farm: Mountain Woodland & Scrub



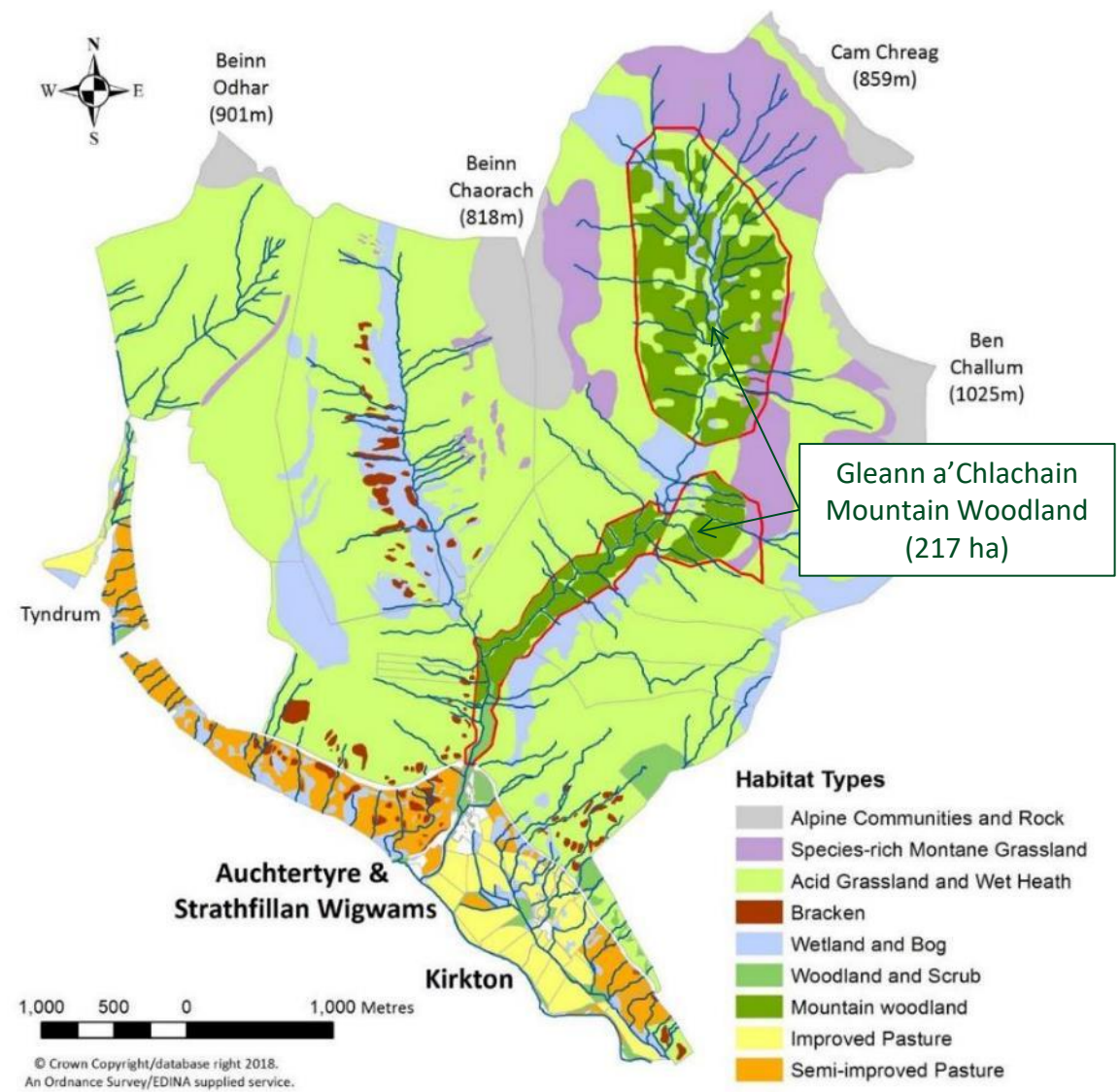
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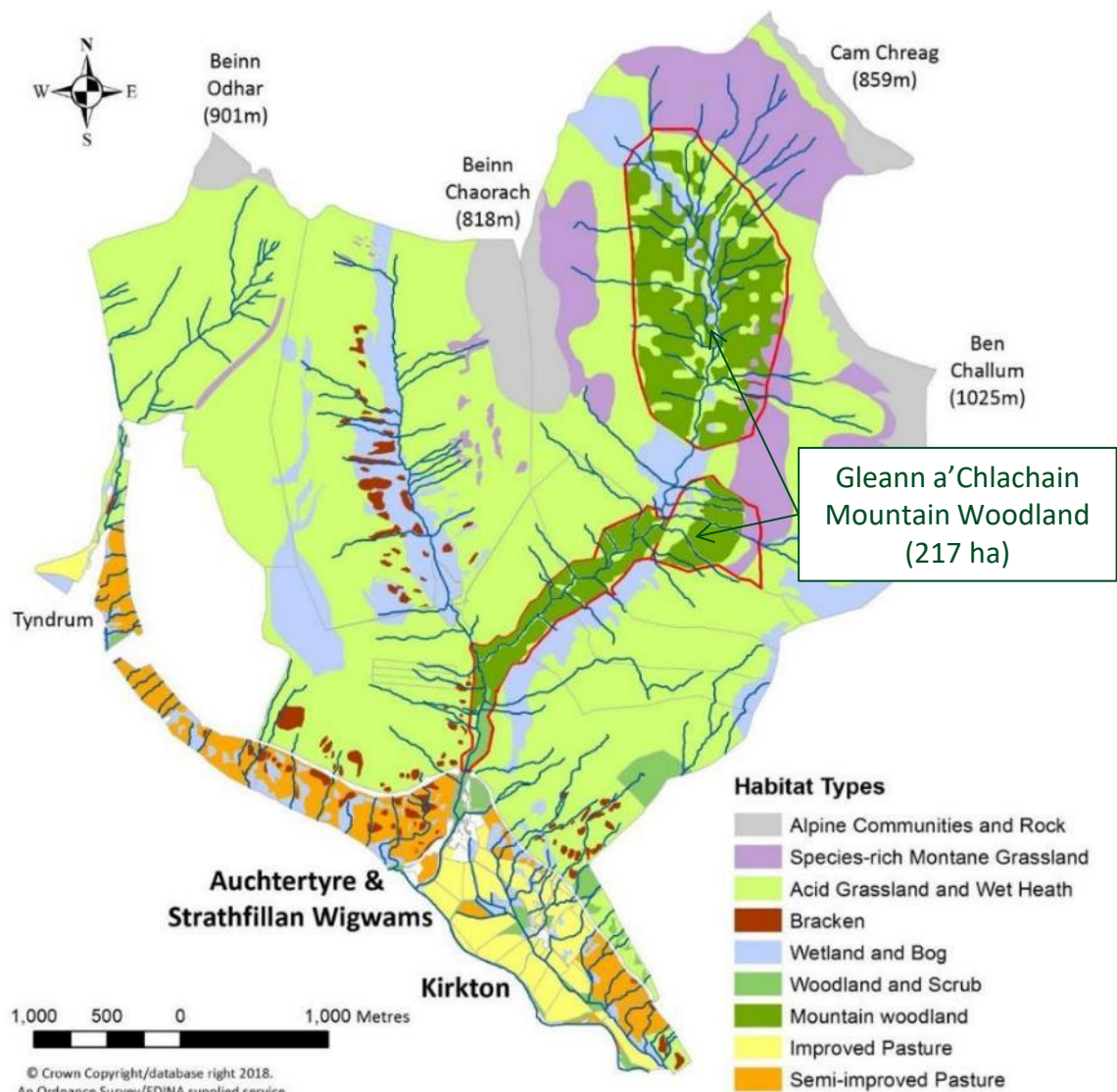
Improving biodiversity on a hill farm: Mountain Woodland & Scrub



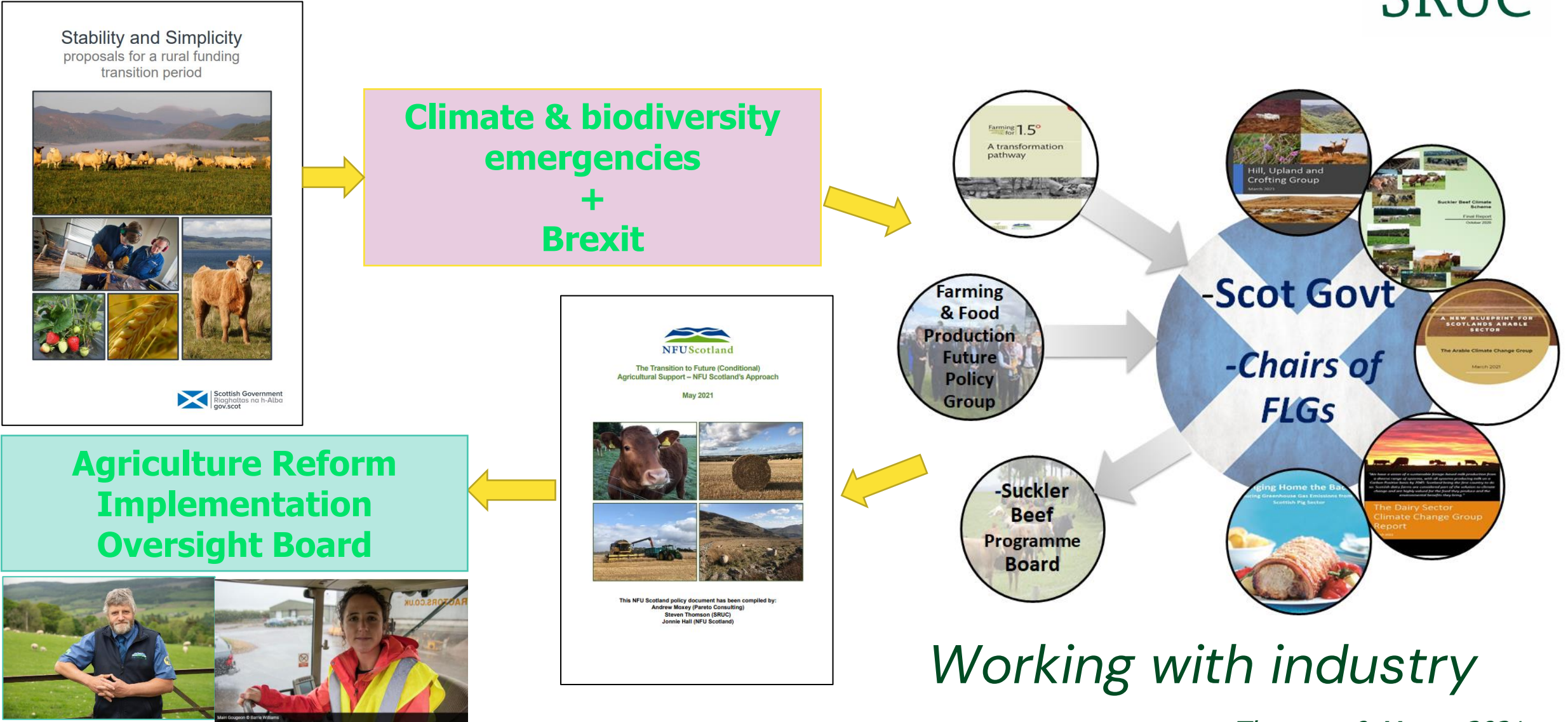
Improving biodiversity on a hill farm: Mountain Woodland & Scrub



Improving biodiversity on a hill farm: Mountain Woodland & Scrub



Some final thoughts



Some final thoughts



THE AGROFORESTRY HANDBOOK

Agroforestry for the UK

<https://www.soilassociation.org/media/19141/the-agroforestry-handbook.pdf>

Figure 3: Examples of silvopastoral systems include



A Wood pasture

Extensive wood pasture systems with grazing cattle at Epping Forest in 2014



B Parkland system

Parkland system in Leicestershire in 2018



C Individually fenced alder trees with sheep grazing

Individually fenced nitrogen-fixing alder trees with sheep grazing at Henfaes in North Wales in 2012



D Individually fenced trees and hay production

Individually fenced trees combined with hay production near Louth Wood in Derbyshire in 2009

Photographs: ©Paul Burgess

Figure 5: Examples of silvoarable systems include



A Silvoarable alley cropping

Poplar with oilseed rape at Leeds University Farm, Yorkshire, 2003



B Alley coppice

An alley coppice system with wild cherry with willow short rotation coppice at Loughgall in Northern Ireland in 2016



C Hazel coppice system at Wakelyns

Planting of cereals between rows of hazel coppice at Wakelyns Agroforestry in Suffolk

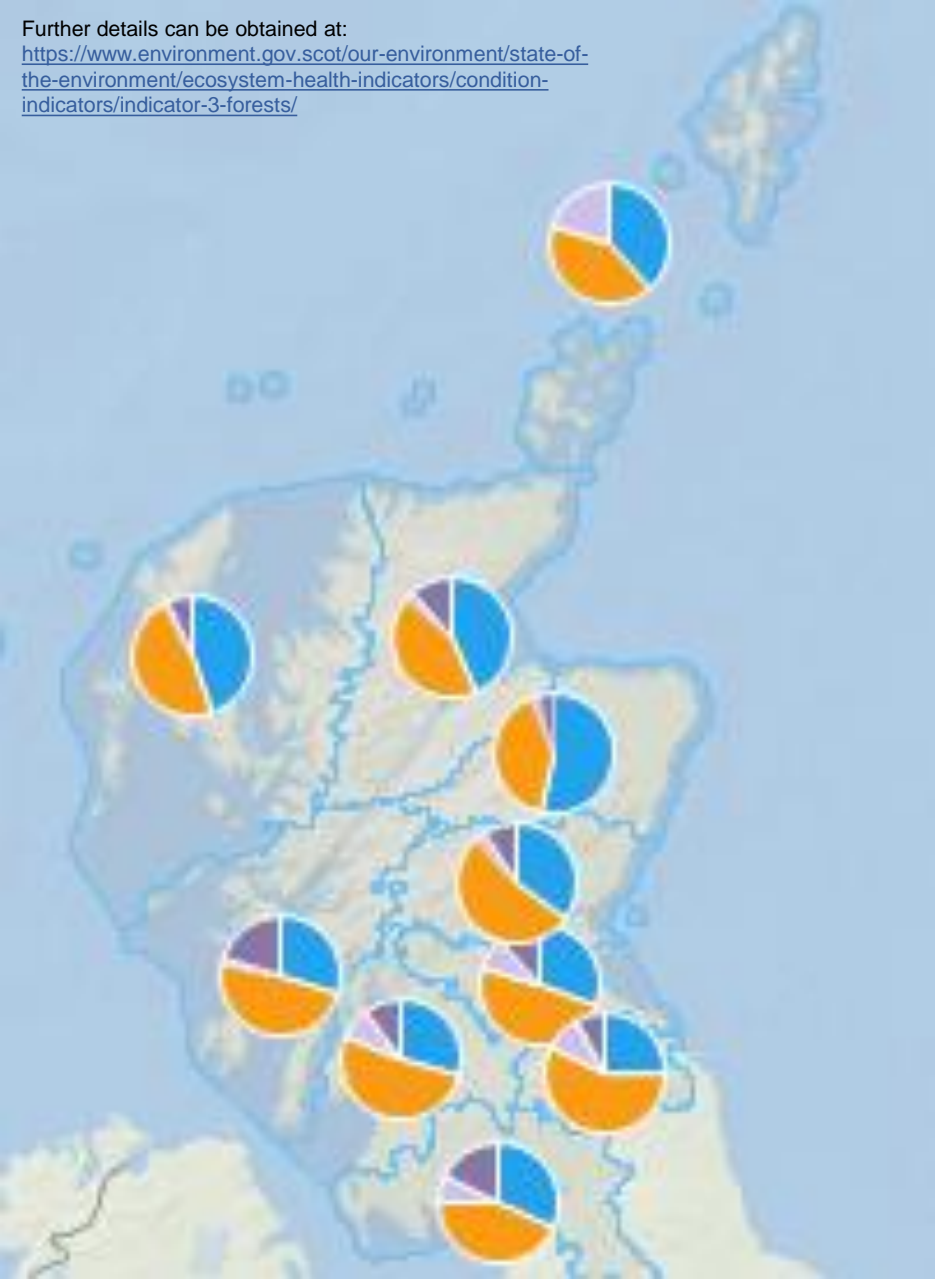
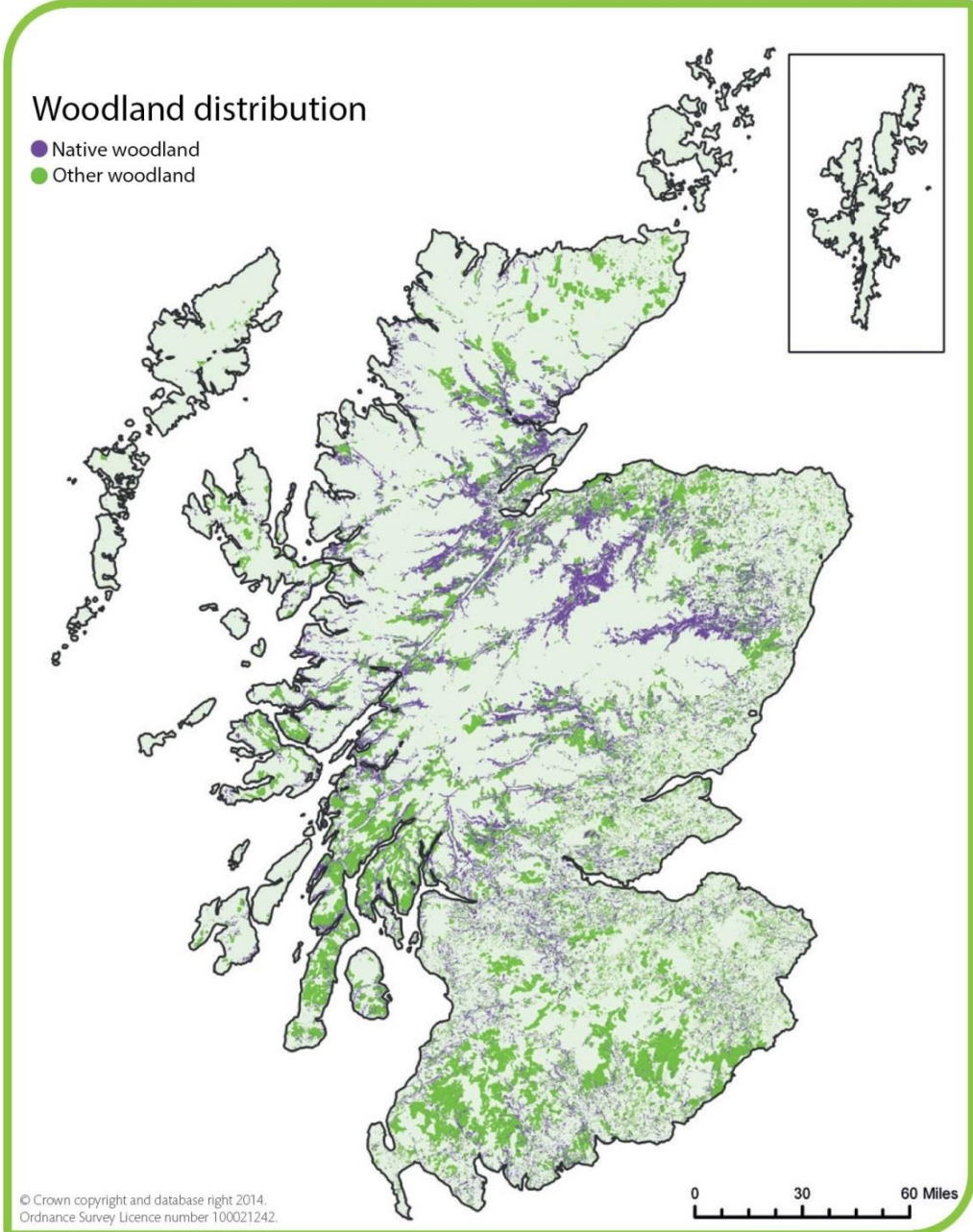


D Alley cropping with vegetables

Use of tree rows to provide shelter for vegetable production at Shillingford Organics in Devon in 2014

©Paul Burgess

Some final thoughts



Woodland
distribution and
native condition
(NWS 2014)

Making your farm more resilient

Scale of change needed



More detailed background information available at:



Agri-Environment management at Kirkton & Auchtertyre farms



Podcast: <https://www.fas.scot/publication/the-benefits-of-agri-environment-management-at-kirkton-auchtertyre-farms/>

Farming for a Better Climate
Climate change in agriculture and rewilding



Podcast: <https://audioboom.com/posts/7598101-climate-change-in-agriculture-rewilding>

The benefits of wader scrapes on an upland farm



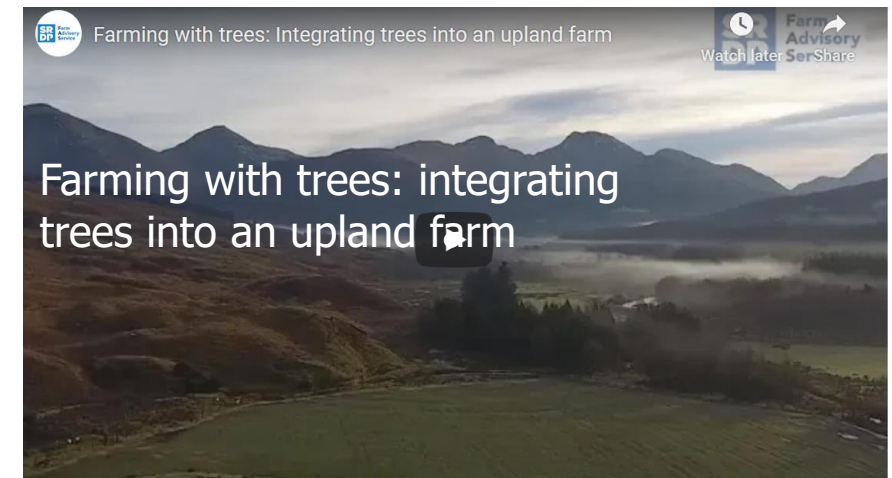
<https://youtu.be/S65y-u8tpQM>

The multiple benefits of water margins on an upland farm



<https://youtu.be/5LZV5OuUIzU>

Farming with trees: integrating trees into an upland farm



<https://youtu.be/eelpplVvQ3c>

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

