



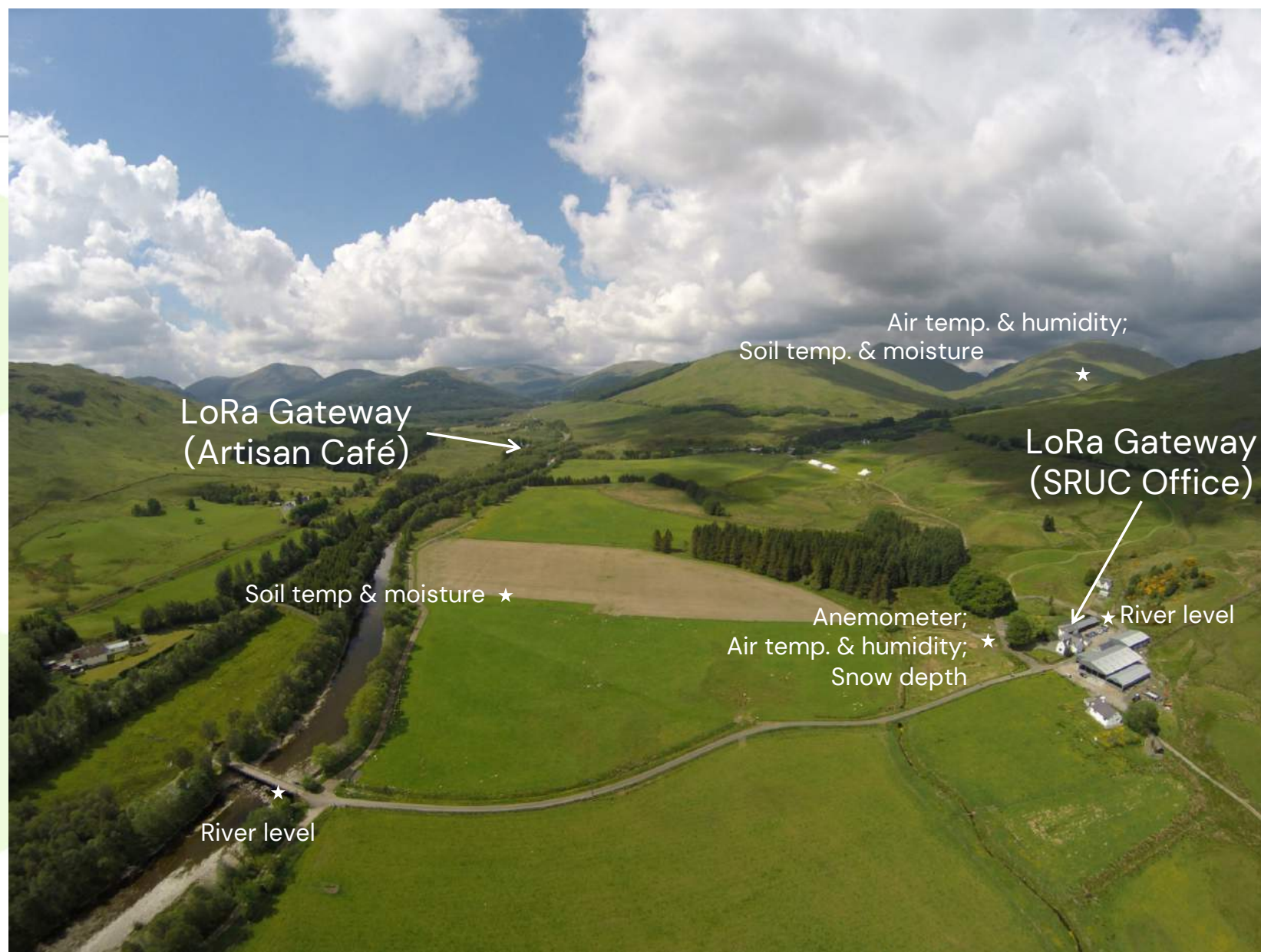
Dr Hannah Rudman  
[hannah.rudman@sruc.ac.uk](mailto:hannah.rudman@sruc.ac.uk)  
Senior Challenge Research Fellow

# Digital Technologies: Easier, Better, Faster



## Smart home IoT sensors

- App || Video doorbell || Thermostat || Smoke alarm ||
- (Nest devices, other brands are available!)

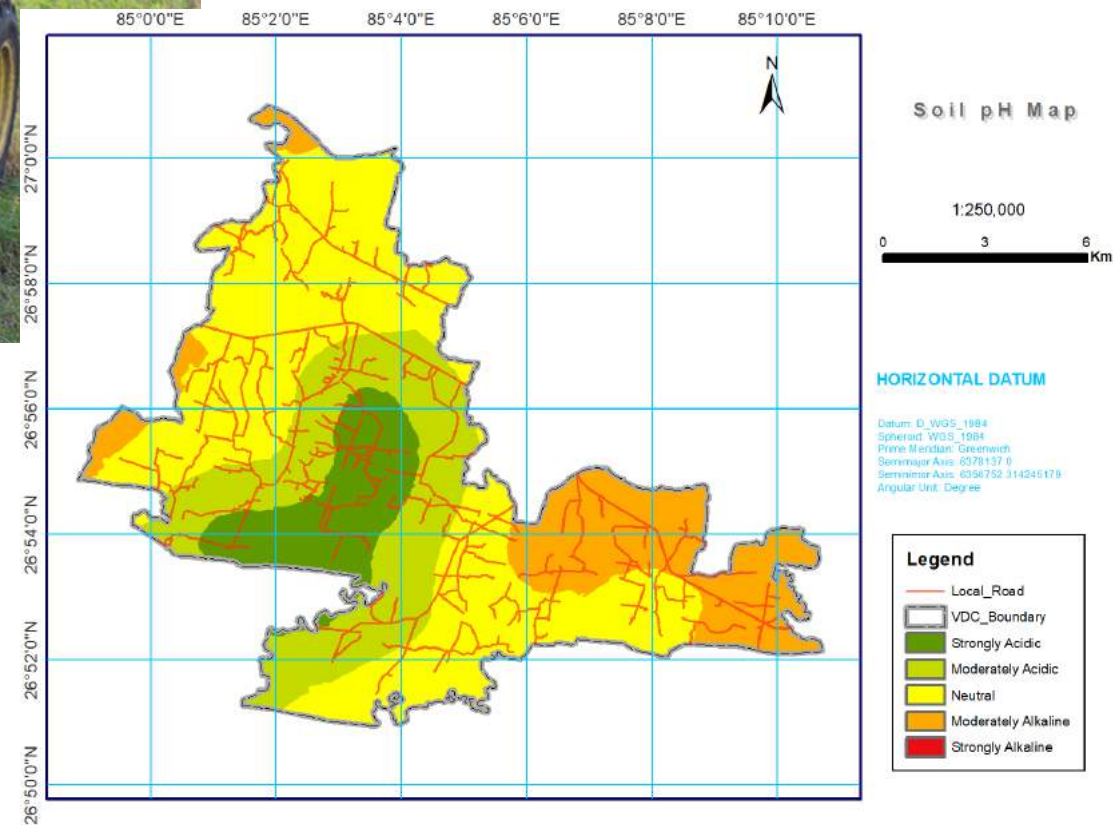


# Soil temperature at 170m (green line) and 520m (blue line) – November 2018





# Precision agriculture





DJI Phantom 4 quadcopter



DJI smart controller



A custom built Vulcan octocopter



**LiDAR device on a  
Routescene  
LidarPod  
Drone for seeing  
through tree  
canopy**



**Tree planting at a rate of 100,000 seeds per day by drone**

## SRUC's Dr Simon Gibson-Poole flying a drone



Hyperspectral camera embedded on OnyxStar HYDRA-12 UAV from AltiGator

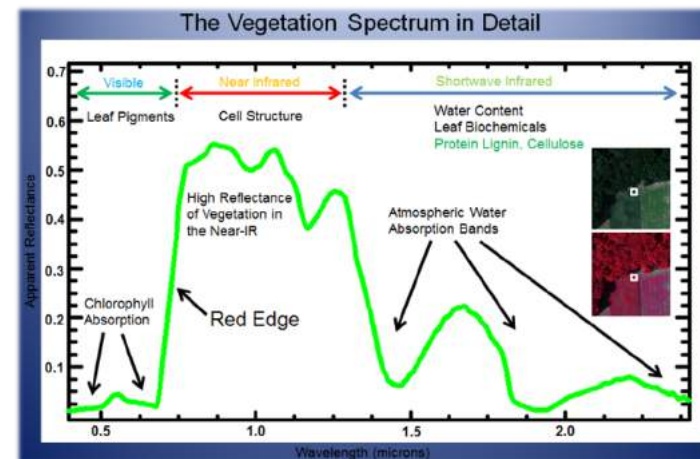


+ Detect weeds

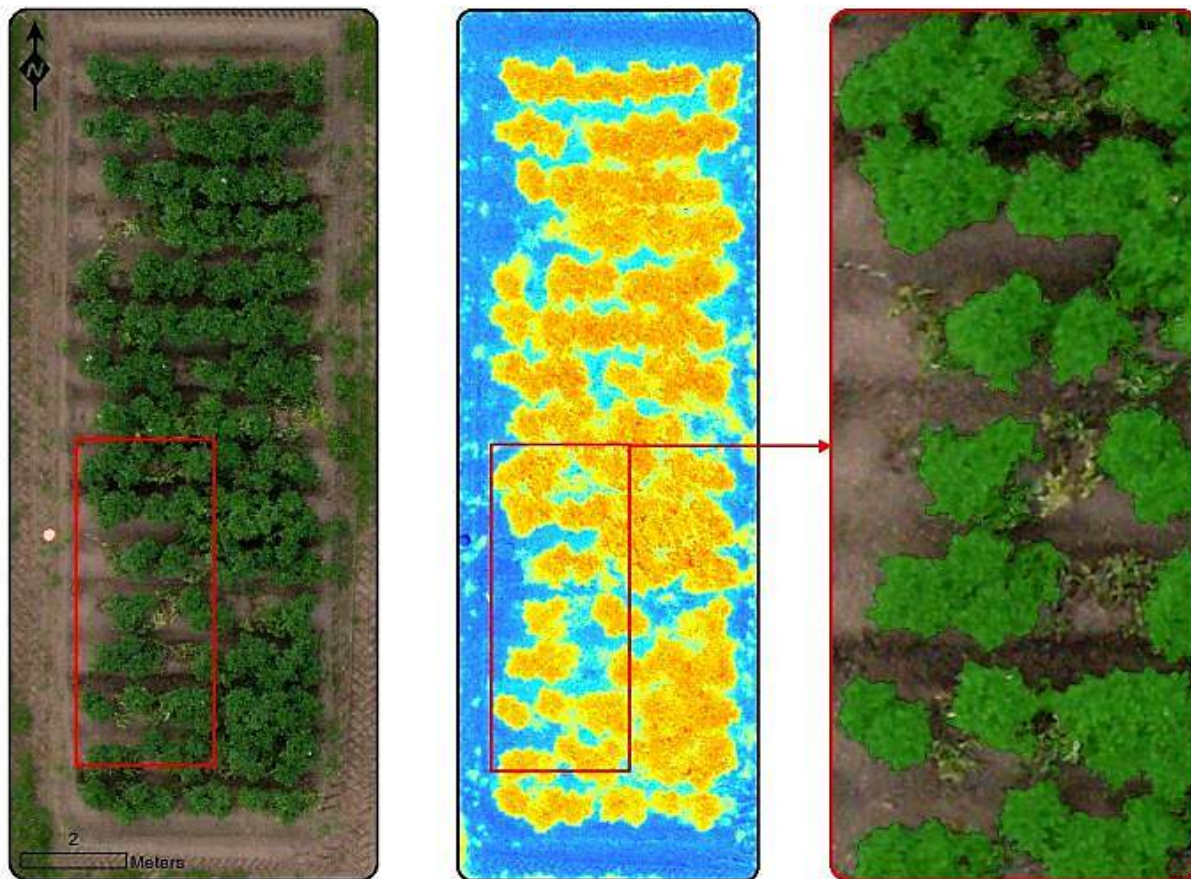
+ Calculate Biomass

+ Identify pests

+ Measure health



Example spectral signature of vegetation



Using vegetation indexes such as NDVI combined with height data allows Blackleg infected potato plants to be identified





Dogtooth and Naio Technologies' robots for:

- Harvesting
- Seeding
- Inspecting
- Weeding

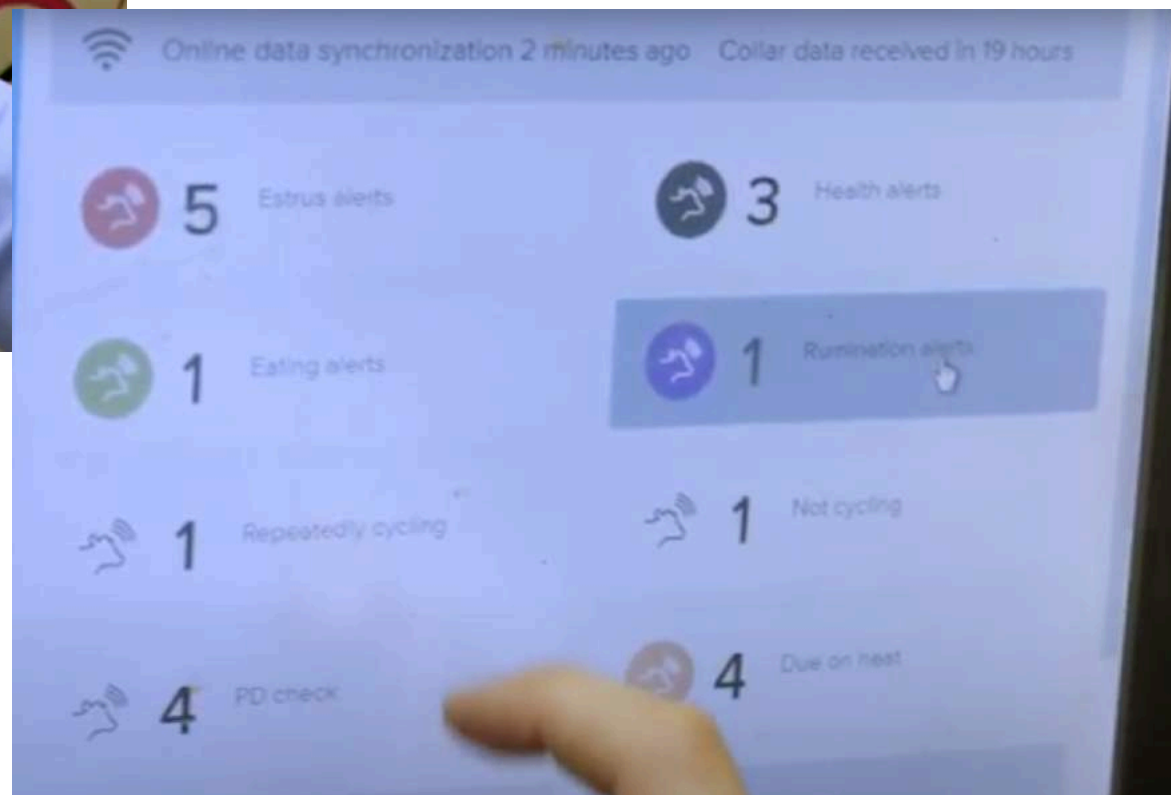


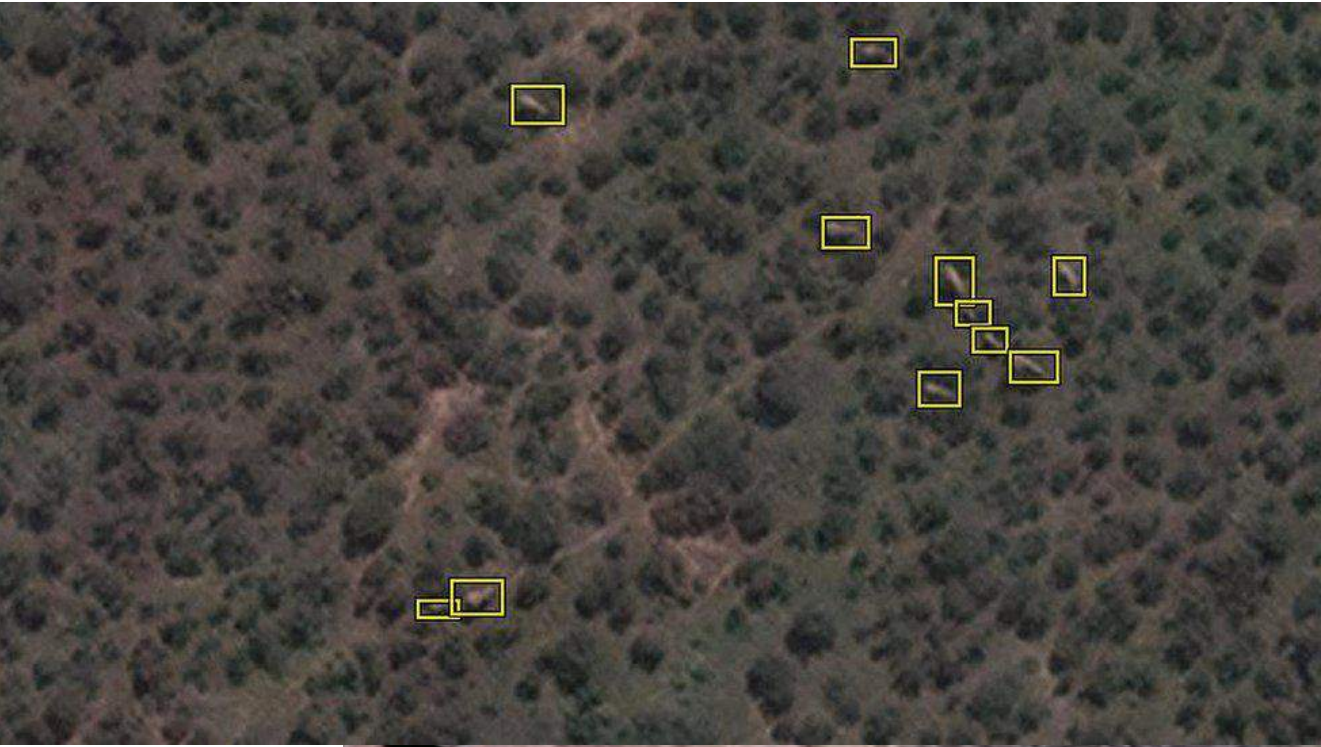
## Dairy Research & Innovation Centre



Robotic feeding & milking

## Decision support tool





Elephant  
Tracking



LymeApp, our first product, aims to help reduce the risk of tick bites to users, and therefore the incidence of Lyme disease.

[Click here to read more...](#)

## Environment Team

Location Search

☒ Annotation

☒ SNH

☐ Scottish Government

☐ Historic Environment Scotland

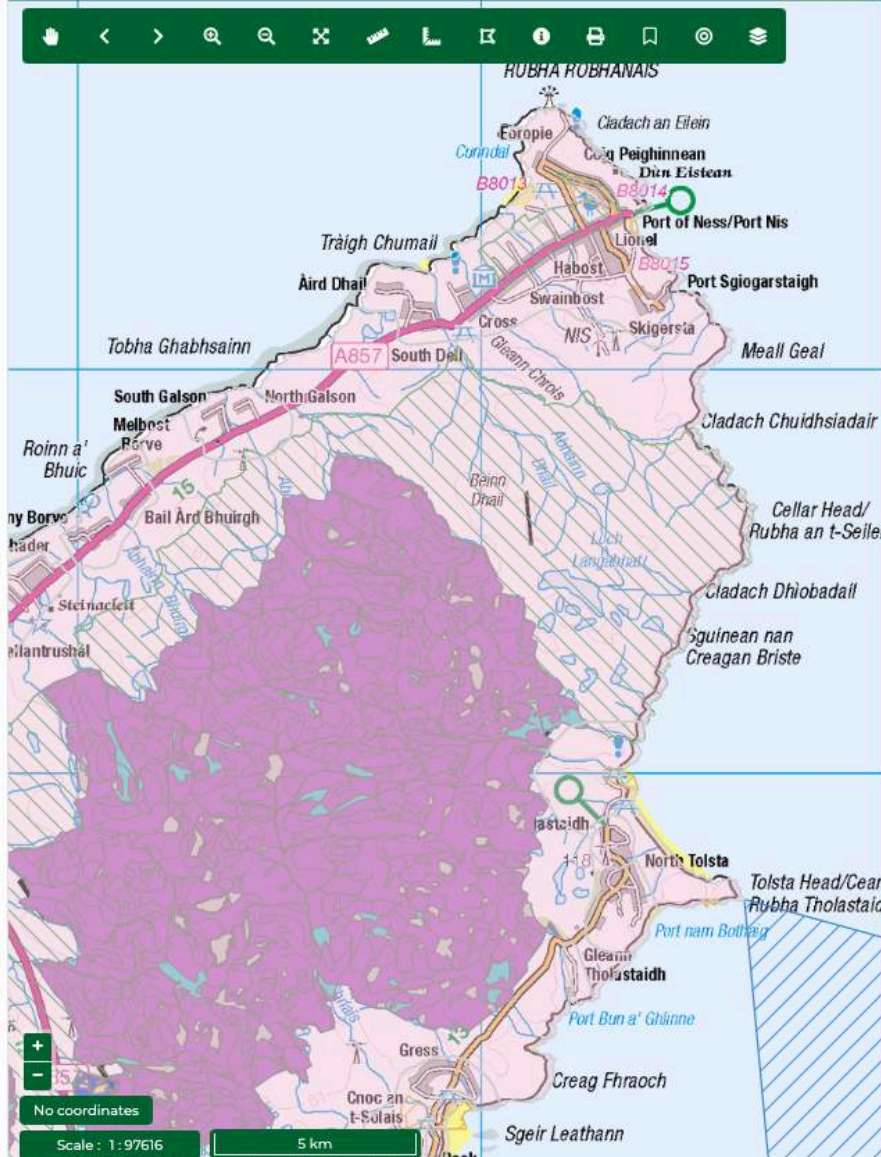
☐ Hutton Institute

☐ GetMapping

☒ Ordnance Survey

☐ Cadastral Parcels

Powered by thinkWhere



☒ Annotation

☒ SNH

☐ Ancient Woodland Inventory

☒ CSGN IHN - Acid Grassland

☒ CSGN IHN - Heathland Network

☒ CSGN IHN - Neutral Grassland Hotspots

☒ CSGN IHN - Neutral Grassland Network

☒ CSGN IHN - Wetland Hotspots

☒ CSGN IHN - Wetland Network

☒ CSGN IHN - Woodland Hotspots

☒ CSGN IHN - Woodland Network

☒ Landscape Character Assessment

☒ National Vegetation Classification

☐ Onshore Wind Farm Proposals

☒ Semi-Natural Woodland Inventory

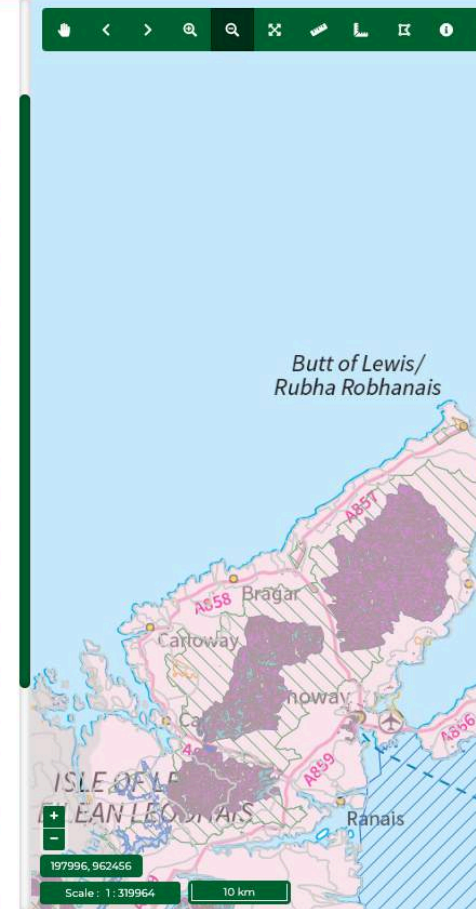
☒ Sites Of Special Scientific Interest

☐ Special Areas Of Conservation

☒ Special Protection Areas

☐ Scottish Government

☐ Historic Environment





Dr Hannah Rudman  
[hannah.rudman@sruc.ac.uk](mailto:hannah.rudman@sruc.ac.uk)  
Senior Challenge Research Fellow

**Digital Technologies:  
Thanks for listening**