

Forest to bog science and management in the Flow Country



By Rob Hughes



Peatland afforestation: impacts and restoration

Robert Hughes¹, Mark Hancock¹, Roxane Andersen², Russell Anderson³, Nick Littlewood⁴

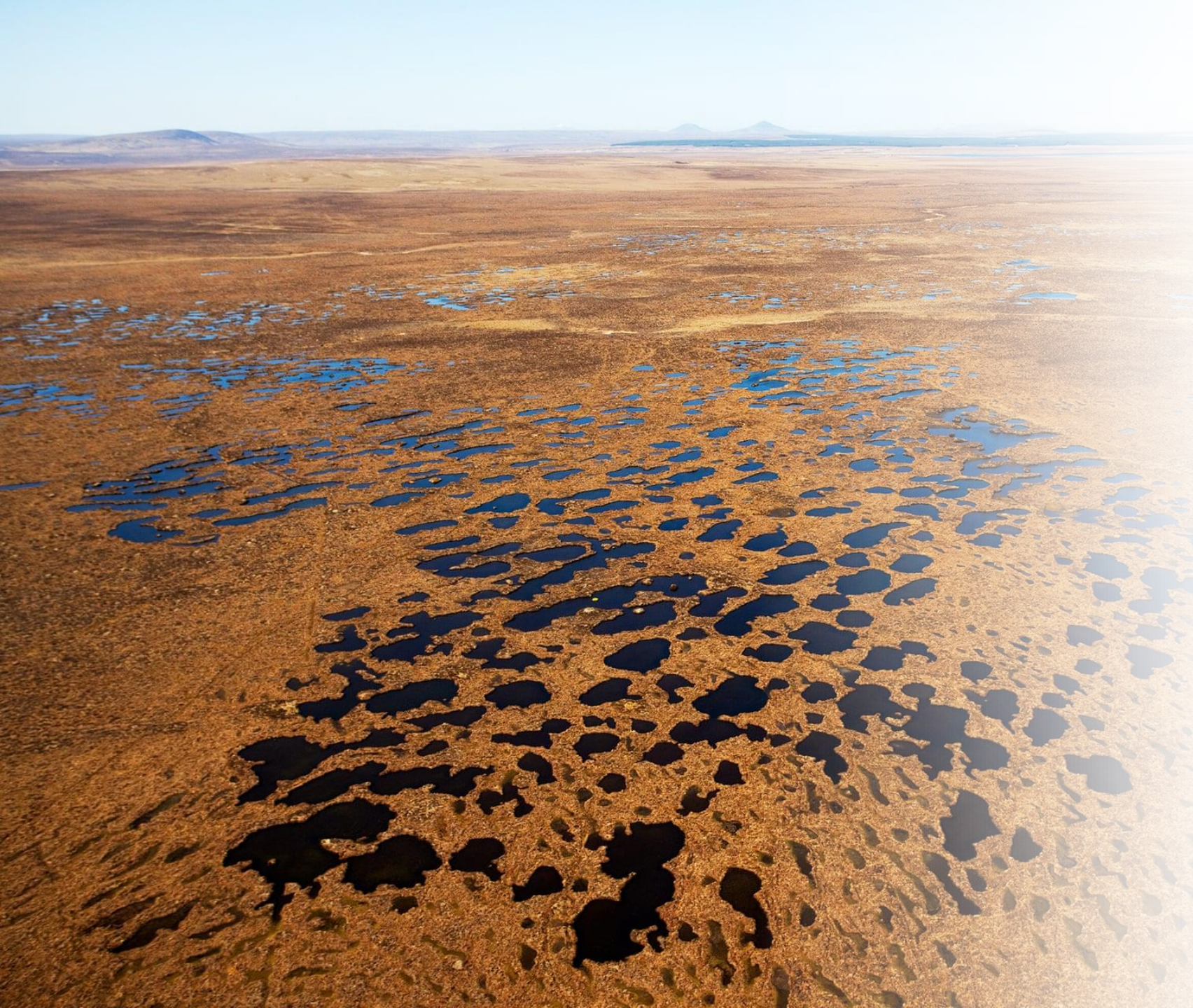


¹ Royal Society for the Protection of Birds (RSPB), Centre for Conservation Science, Etive House, Beechwood Park, Inverness, IV2 3BW, UK

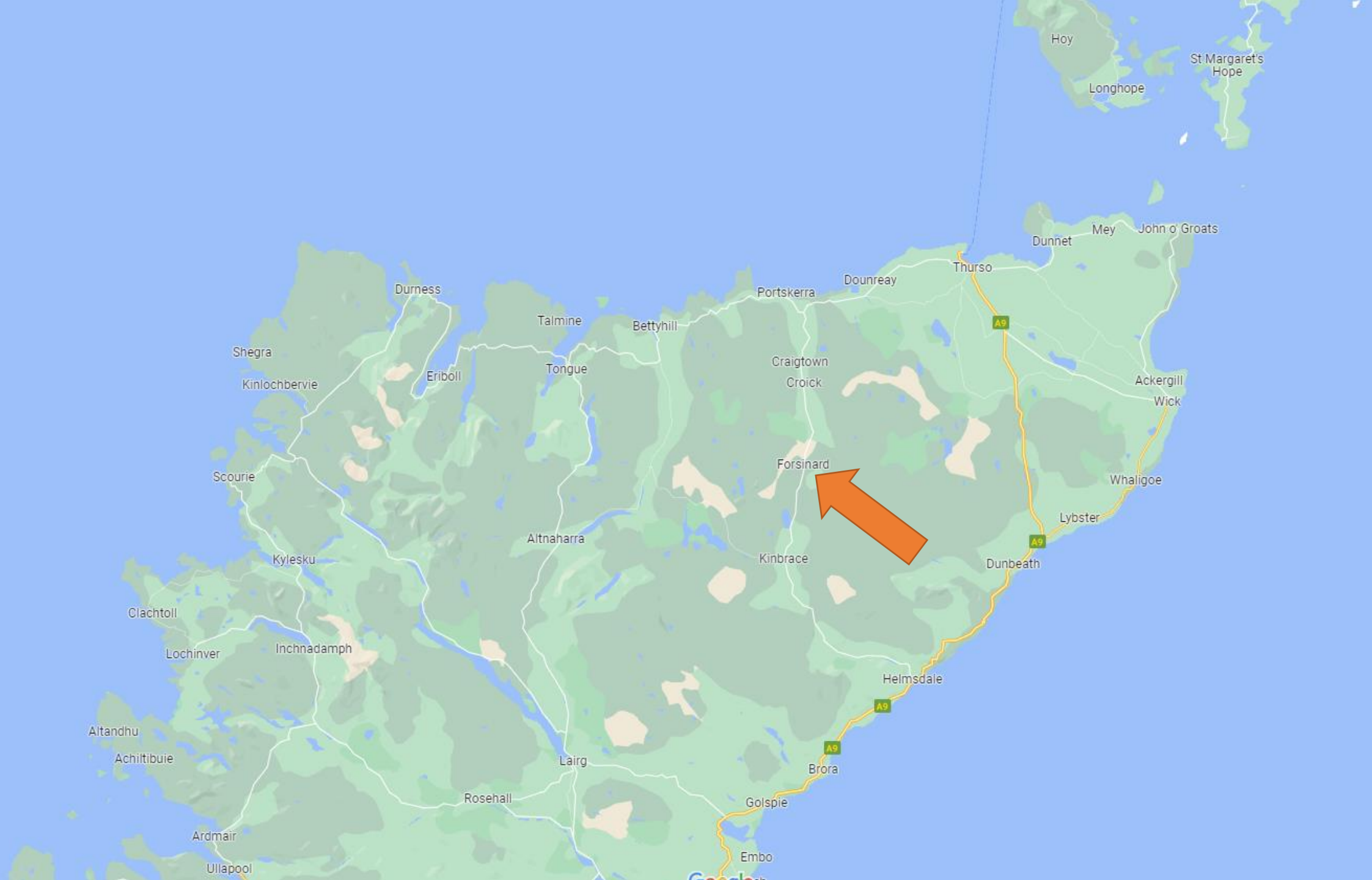
² Environmental Research Institute, North Highland College, University of the Highlands and Islands, Castle Street, Thurso, KW14 7JD, UK

³ Forestry Research, Northern Research Station, Roslin, UK

⁴ Scotland's Rural College, Craibstone Estate, Bucksburn, Aberdeen, AB21 9YA



- Use the large-scale forest to bog management trials at Forsinard, to measure the rate of recovery of (i) the hydrology and vegetation; and (ii) birds and their invertebrate prey, across four management treatments.
- Measure the rate at which waders return to adjoining bog once forestry has been removed.
- To investigate wider forestry impacts on breeding wildfowl communities, their habitat use, breeding productivity, and responses to restoration using a long running dataset.



Hoy

St Margaret's Hope

Longhope

Dunnet

Mey

John o' Groats

Thurso

Dounreay

Portskerra

Durmess

Talmine

Bettyhill

Shegra

Kinlochbervie

Eriboll

Tongue

Craigtown

Croick

Ackerhill

Wick

Scourie

Forsinard

Whaligoe

Aitnaharra

Kinbrace

Lybster

Kylesku

Dunbeath

Clachtoll

Lochinver

Inchnadamph

Helmsdale

Altandhu

Achiltibuie

Lairg

Brora

Rosehall

Golspie

Ardmair

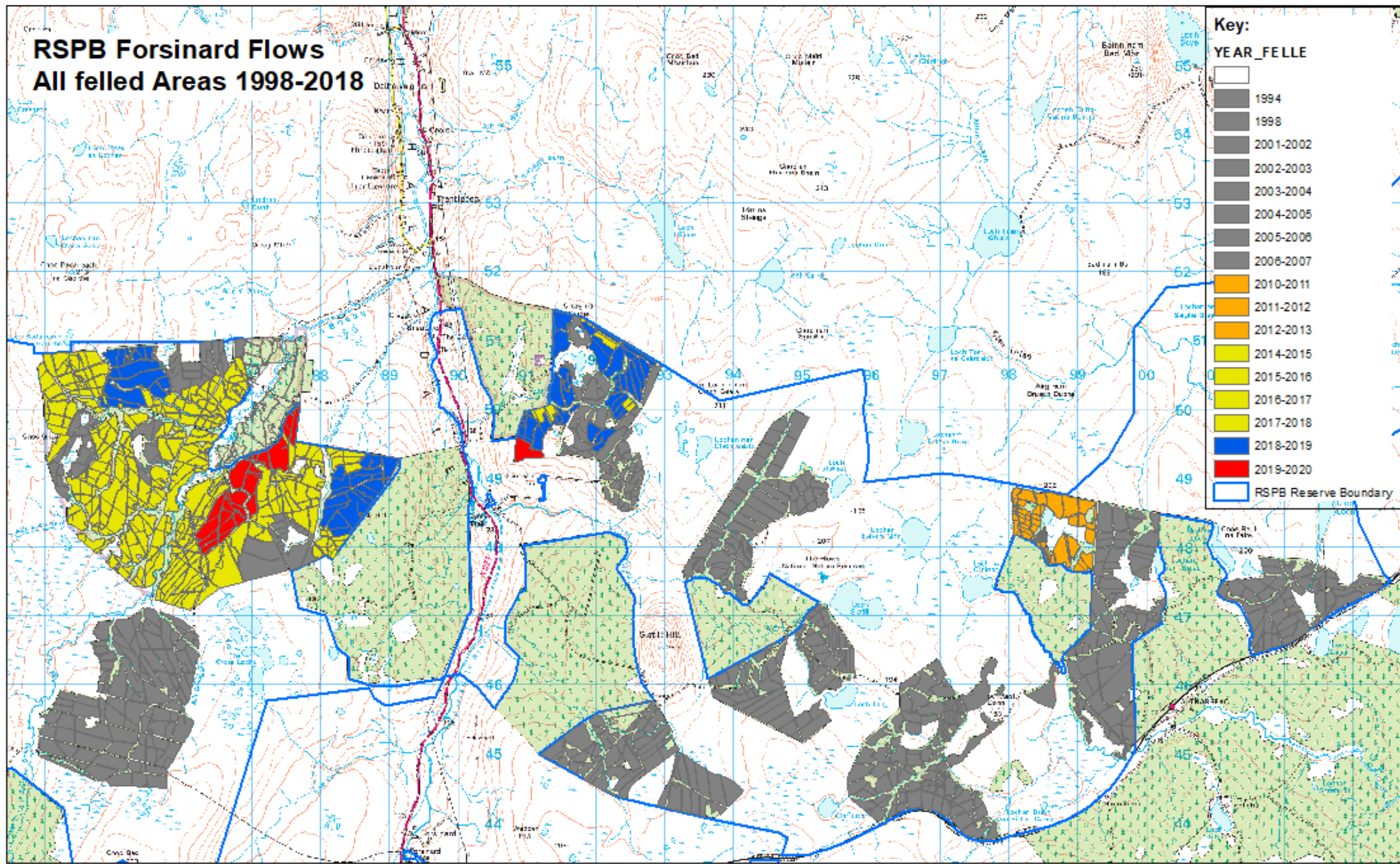
Ullapool

Embo

Google

RSPB Forsinard Flows

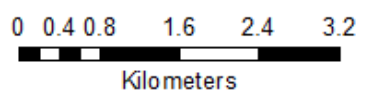
All felled Areas 1998-2018



Key:

YEAR_FELLE

- 1994
- 1998
- 2001-2002
- 2002-2003
- 2003-2004
- 2004-2005
- 2005-2006
- 2006-2007
- 2010-2011
- 2011-2012
- 2012-2013
- 2014-2015
- 2015-2016
- 2016-2017
- 2017-2018
- 2018-2019
- 2019-2020
- RSPB Reserve Boundary



Treatments

- Phase 0: Enhanced and standard blocking with enhanced and standard felling
- Phase 1: Standard and enhanced blocking (furrow blocking)
- Phase 2: Enhanced blocking versus enhanced blocking and re-profiling
- Phase 3: Standard blocking versus no-blocking with no dams
- All have comparable open bog control plots plus standing forestry controls for Phase 0



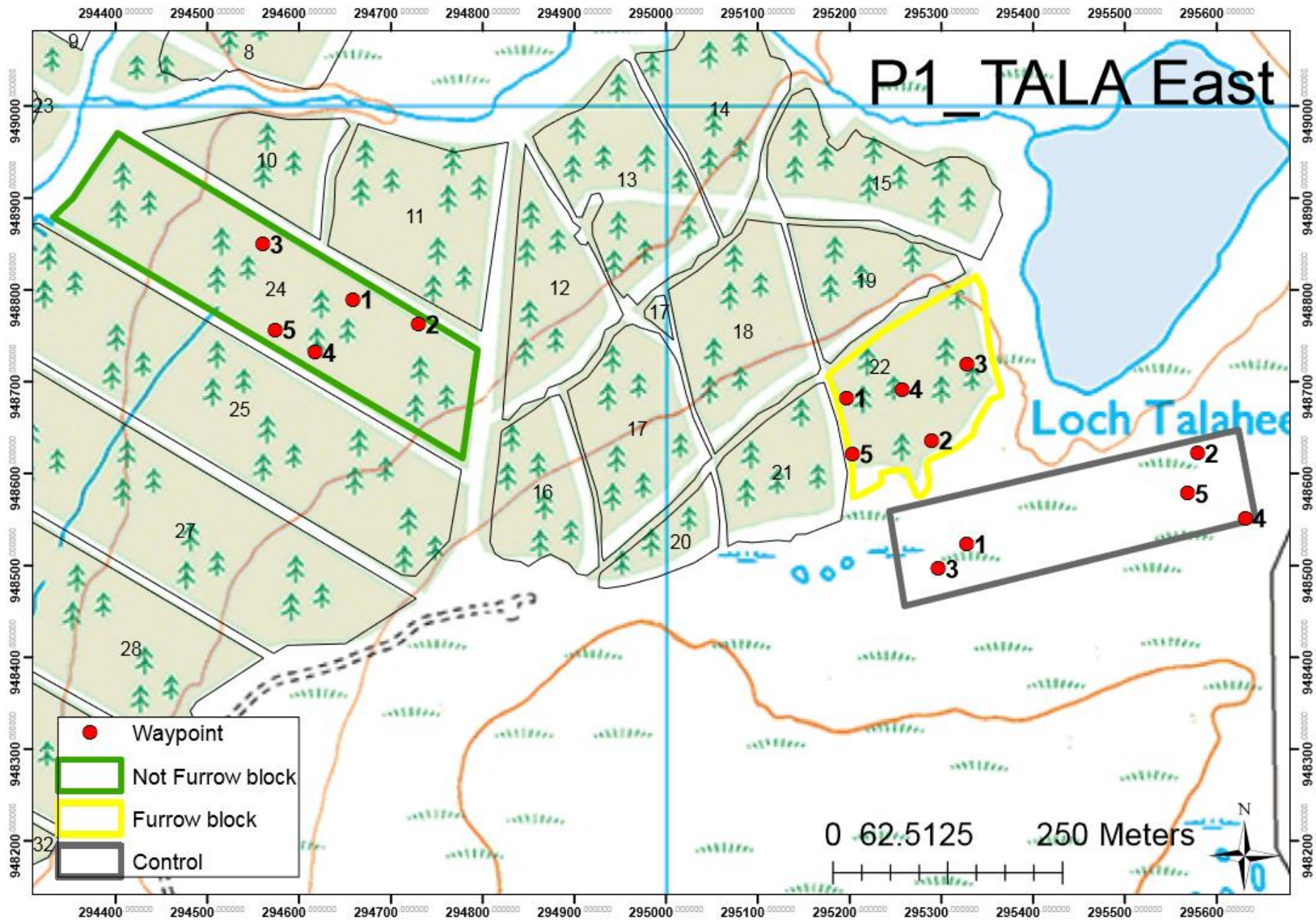
Standard restoration = Brash crush, furrow block



Re-profiling with full height dams = Brash crush, furrow block, cross track

- New treatment rolled out since 2015 is re-profiling with full height dams
- Brash crush
- Furrow block through creation of dams that completely block the furrows
- Infill the furrows with ridge material
- Cross track over entire area



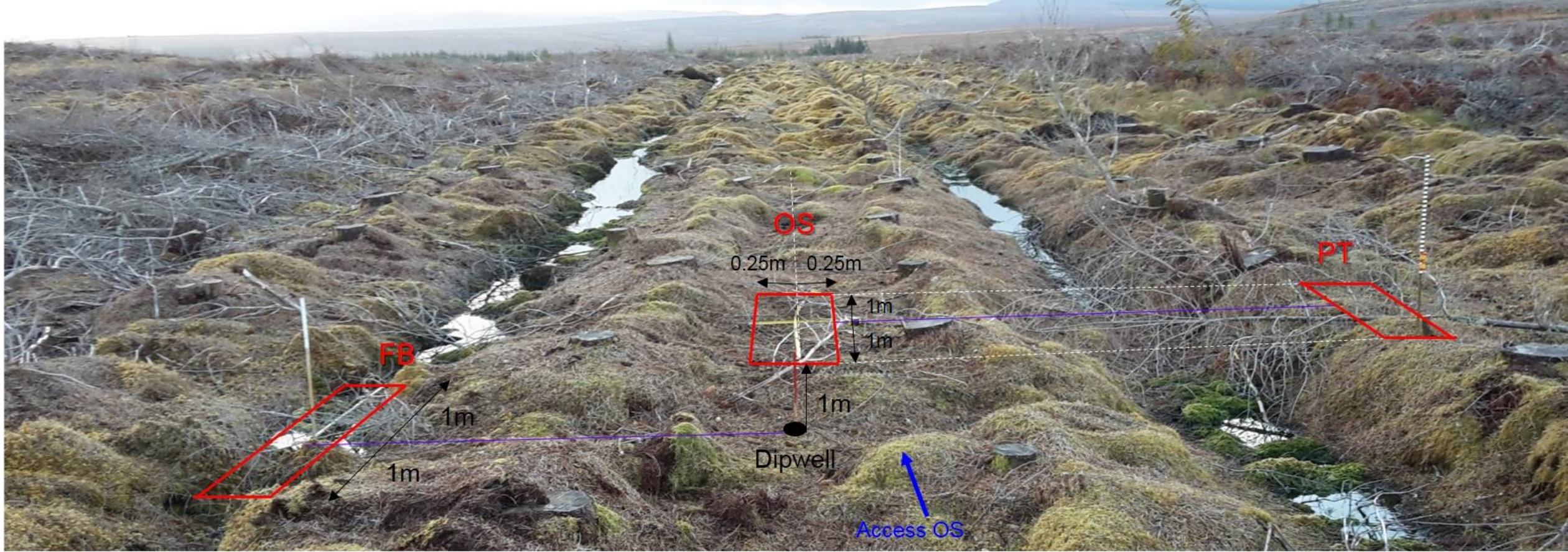




Hydrological monitoring > Dipwells



Hydrological responses at Talaheel

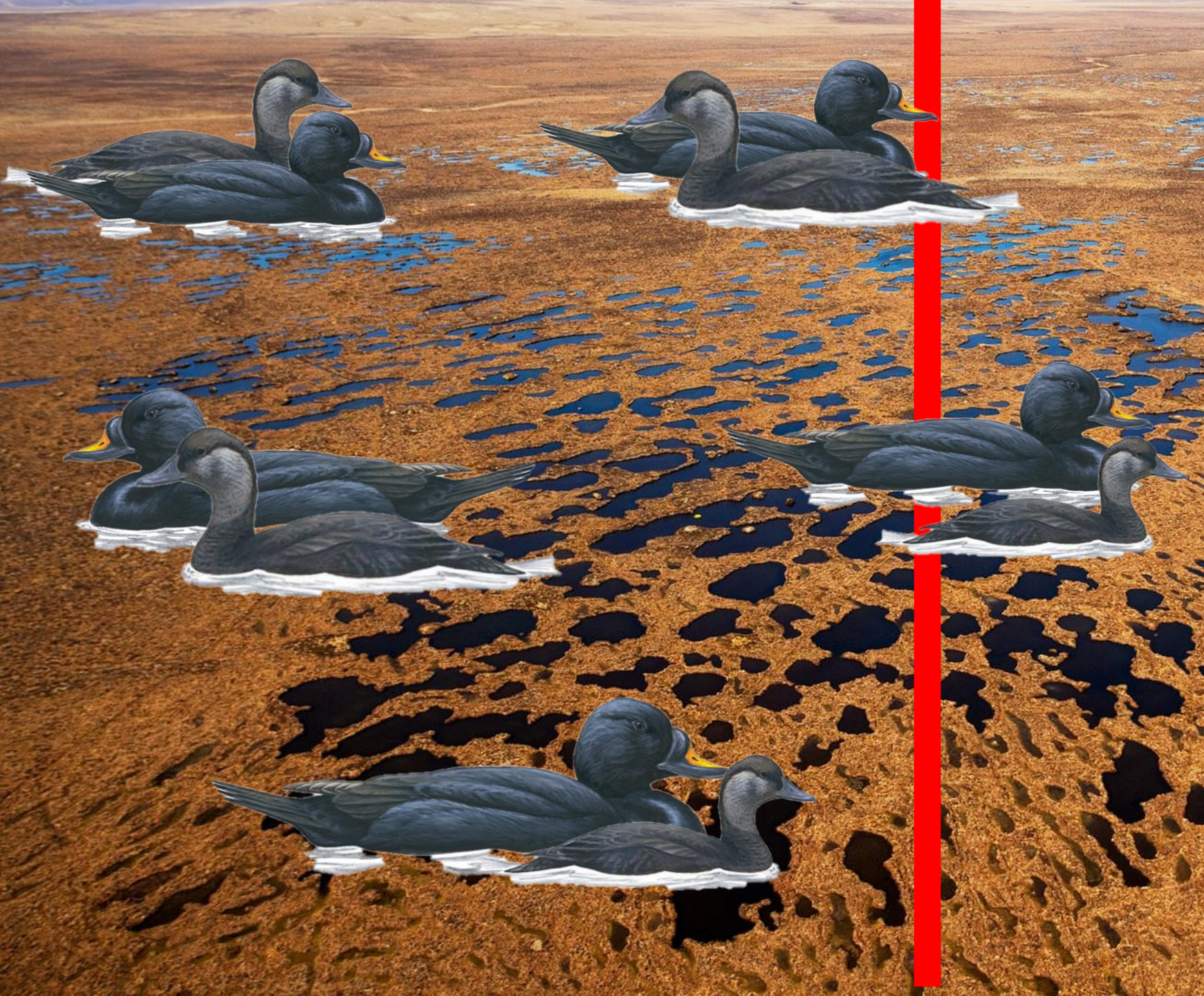


Vegetation monitoring



Bird and Invertebrate monitoring



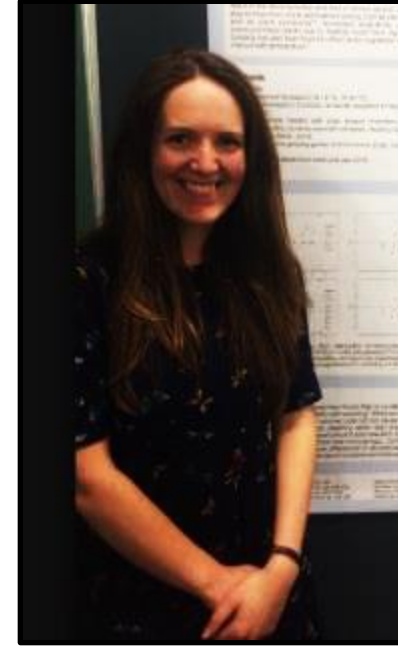
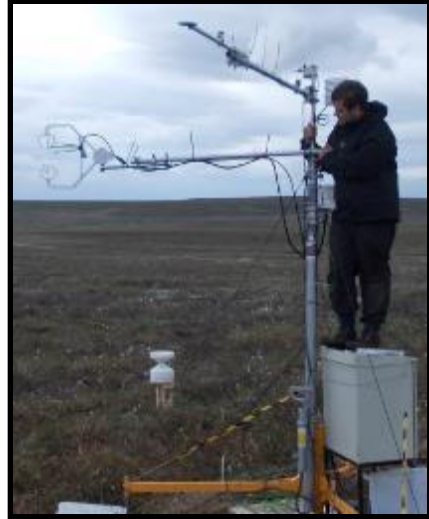




Is there a difference in predator activity and abundance between active roads, abandoned and re-vegetated (i.e. naturally restored roads), and open near-natural blanket bogs?



Measuring climate-related outcomes



UNIVERSITY OF STIRLING





Thank you for listening

Any questions?

Robert.hughes@rspb.org.uk