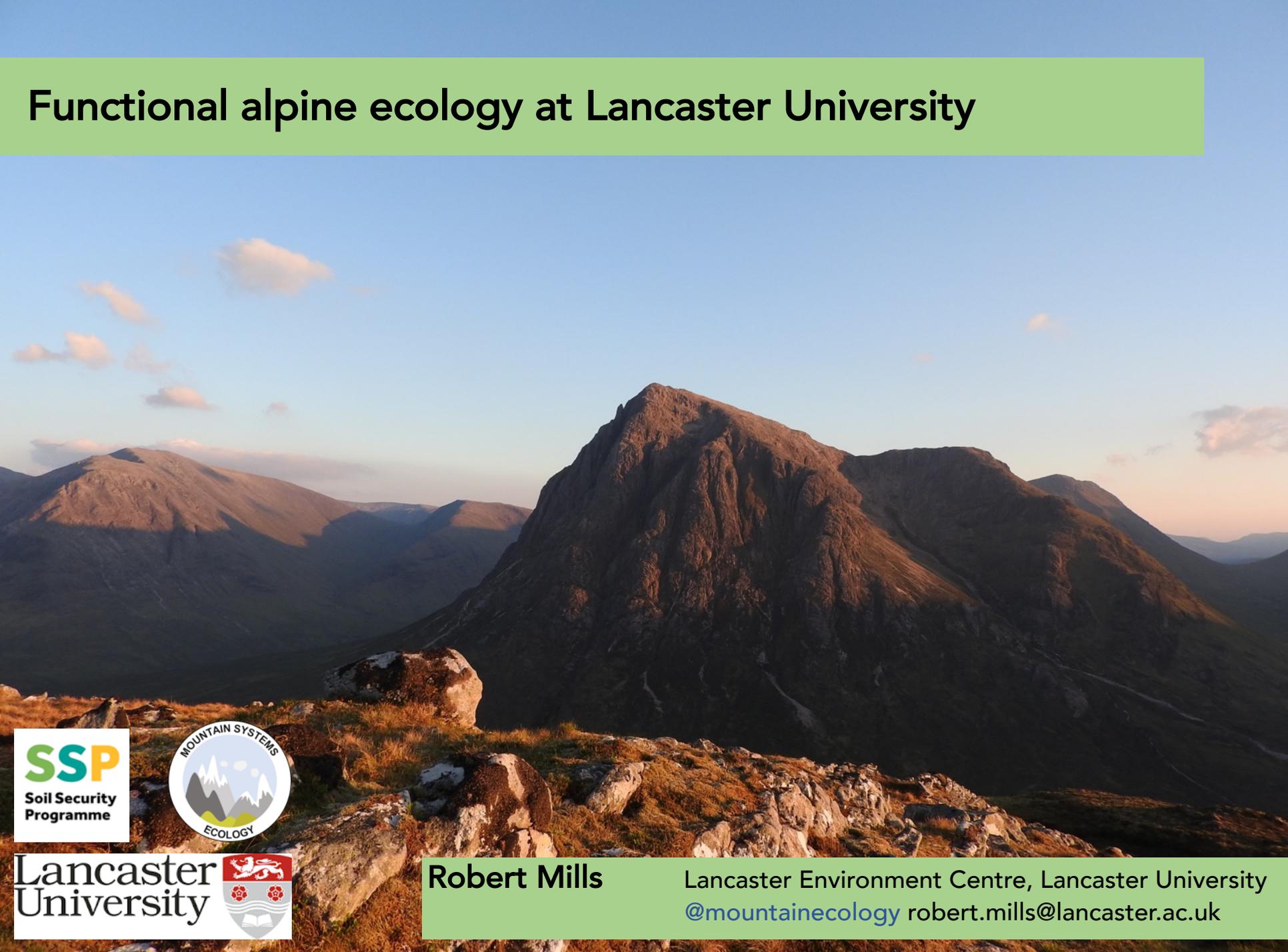


Functional alpine ecology at Lancaster University

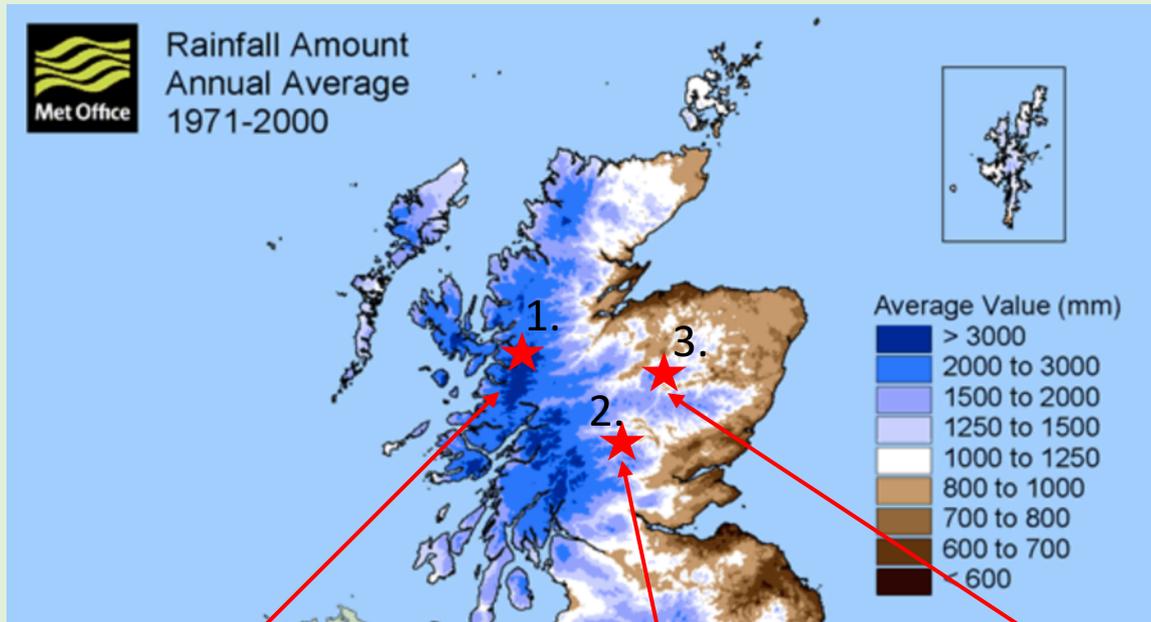


Robert Mills

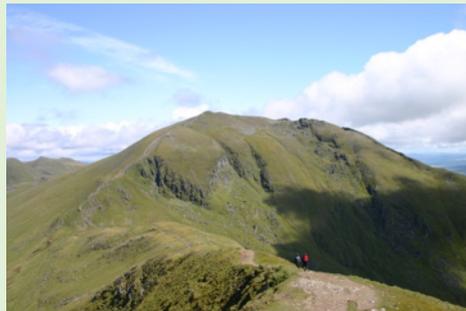
Lancaster Environment Centre, Lancaster University
[@mountainecology](mailto:robert.mills@lancaster.ac.uk) robert.mills@lancaster.ac.uk

UK Research projects

1. Sensitivity of alpine soils to perturbations and extreme climate events

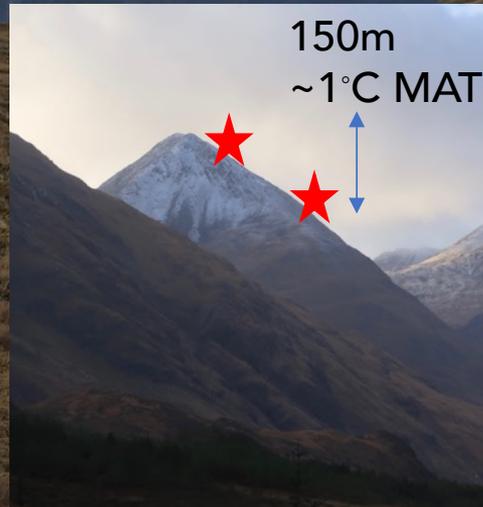


1. Bein Fhada (Kintail)
2. Ben Lawers (2018)
3. Geal Charm (Cairngorms)



Micrometeorological station

Vegetation and soil monitoring

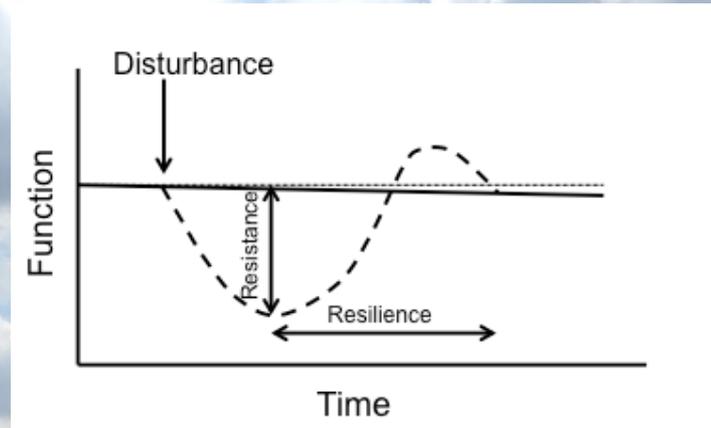


Two study sites/location

~900 m

~750 m

Freeze-thaw
Moisture perturbation
(extreme events)



Functional response

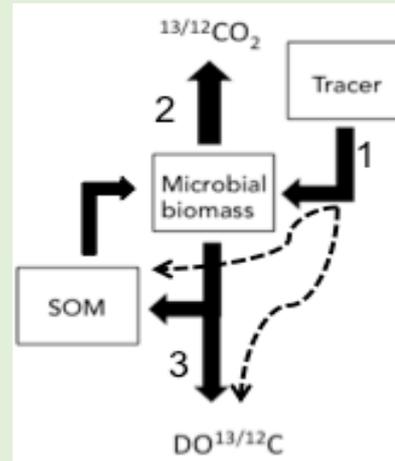
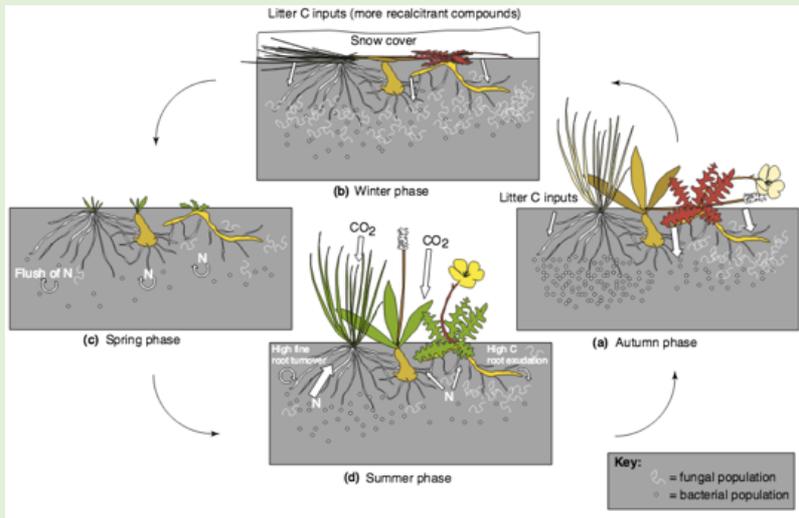
EEA, GHG production, SIR
and CUE

Fluxes of CNP to waters



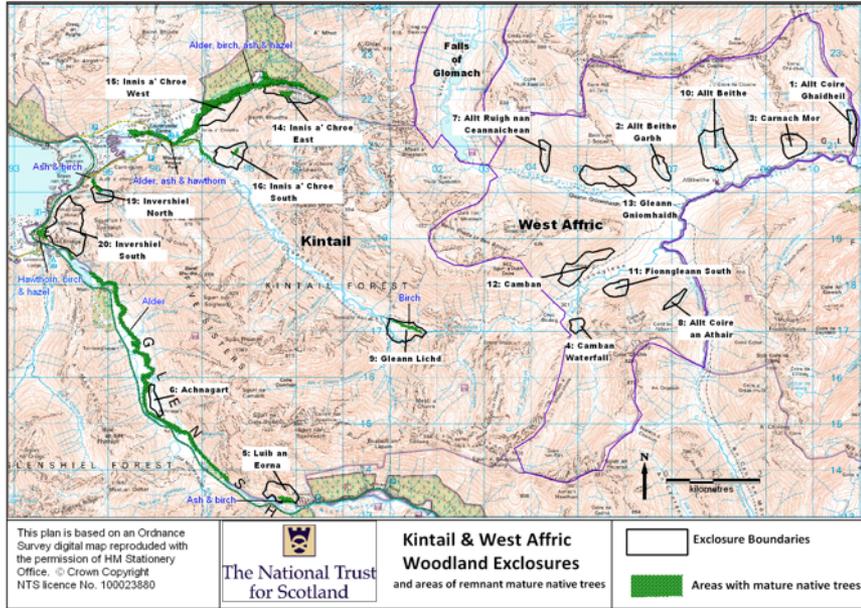
UK Research projects

2. Seasonal dynamics soil functional ecology in alpine microhabitats



UK Research projects

3. Landuse change; grazing exclusion and woodland expansion impacts on soil C and functional ecology



Pine vs birch/mixed deciduous

Soil CNP stock and stability

Changing microbial functional ecology; links to decomposition and SOM turnover

Soil hydrological response



UK Research projects

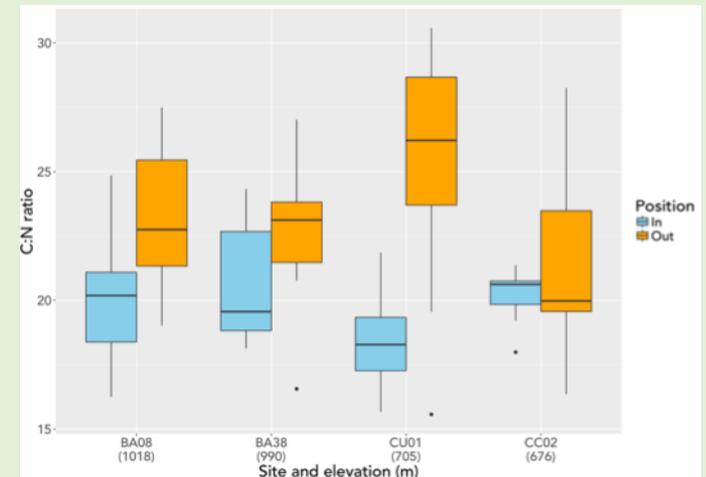
4. Student projects

1. Rosanne Broyd (Lancaster and JHI Aberdeen)



Exploring soil C in alpine snowbeds

Impact of changing winter conditions on soil functional ecology



UK Research projects

1. Rosanne Broyd (Lancaster and JHI Aberdeen)

2. Matt Barter

4. Student projects



Reciprocal core transplant to look at GHG fluxes under changing winter conditions

UK Research projects

1. Rosanne Broyd (Lancaster and JHI Aberdeen)
2. Matt Barter
3. Zander Lee

Seasonal GHG fluxes

Are snowbeds hotspots of CH_4 production?

Can we use RNA SIP to get at mechanisms?

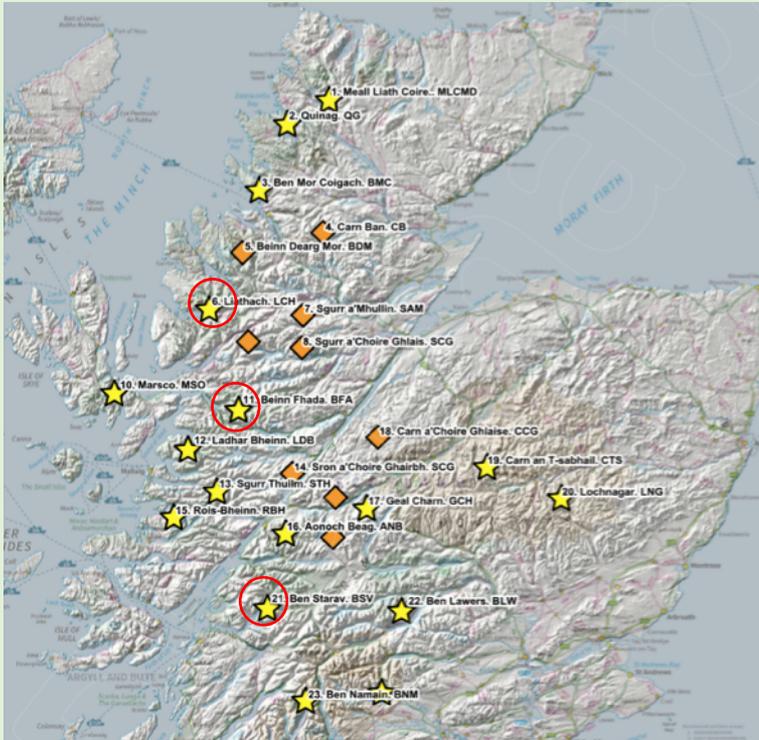
4. Student projects



Research projects

4. Student projects

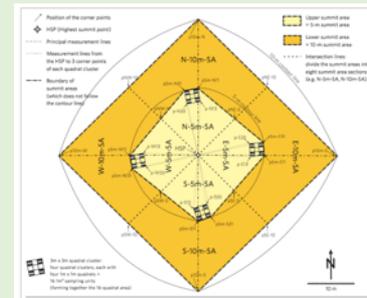
Ongoing spatial survey



Summit survey (GLORIA style)

Gradients – sea to summit (~1km gradients)

Soil functions and veg community structure



Others and next...

Have a strong research infrastructure
in CH (Jura mts and Alps)

Sample sites across Europe

Setting up a western highlands
GLORIA site

Writing next ERC/NERC/RS fellowship

Interested to seek interactions, and
open to collaborations



