

P05 Soil Fertility Research



Project Overview:

To understand the nature of highland soils and how current land management may be affecting its historical record, structure, chemistry and fertility; developing a future use for these soils as a contribution to building resilient communities through sustainable land management practices. We plan to study the soil resource in Assynt, detect past land management practices and work together with current land managers to understand what they have learned from their experience of the land. We want to share this knowledge with current and future land managers, from gardeners to large estates to help everyone become the best stewards that they can be of the soil resource. As we undertake field work we want to involve the young people in the area, inspiring and empowering them to think about a career in science, crofting and beyond.

Project lead organisation and other organisations involved: Northwest Highland Geopark

With: University of Stirling

Project Location: Coigach (Achlochan) and Assynt (Clachtoll, Drumbeg, Nedd)

Project dates: June 2017 – February 2022

Project Outputs

Measure	Target	Delivered	Notes
Land Management Booklet (from soils perspective)	1	1	Digital booklet in pdf format: https://www.nwhgeopark.com/current-research/soil-fertility/
Doctoral Thesis	1		Expected defence August 2023
School visits to University of Stirling	2	2	Trips to the university have not been possible, however an alternative travelling lab has brought equipment to the high school for S5 geography students on 3 occasions (1 Year 2, 1 year 3 and 1 Year 4)
Public presentations of past land management practices and resultant soil fertility	4	3	3 so far - 1 Year 2 in Ullapool; 1 Year 3 at The Rock Stop; 1 Year 4 at Coigach Community Hall The PhD supervisor retired before the end of the project and the PhD student is currently on maternity leave. The final presentation was not able to take place within the lifetime of the project.
High School Projects	2	14	Year 1: 8 out of 16 Year 2: 4 out of 10 Year 3: 1 out of 7 plus Iain doing his Advanced Higher study

Video production detailing the projects findings	1	1	Available here: https://www.nwhgeopark.com/current-research/soil-fertility/
Exhibition Materials for Informal Workshops held in local area	4	0	Installed in Clachtoll Ranger Hut. The PhD supervisor retired before the end of the project and the PhD student is currently on maternity leave. The workshops were not able to take place within the lifetime of the project.
Volunteer Days	30	30	Assynt Field Club volunteers, Geopark Volunteers

Scheme Outputs

How has the project contributed to the CALLP Scheme Outcomes:

	1. The key features of the Coigach and Assynt Landscape will better understood and restored with a fit for purpose system in place to ensure the benefits are sustained.
	2. Where appropriate the connectivity and diversity of selected habitats will be mapped.
	3. Increased awareness and understanding amongst all individuals and groups of what makes Coigach and Assynt special and the threats to the unique heritage.
Y	4. Important elements of the built, cultural and natural heritage will be recorded, improved, made publicly accessible and celebrated by the local community. <i>School projects increased the understanding of the students.</i>
Y	5. People will have gained new skills in researching, restoring and understanding their heritage. <i>Students have a deeper understanding of soil formation processes including cultural influences.</i>
Y	6. Collected data, information and interpretation will be more accessible in the public domain including posting on appropriate websites. <i>Soils leaflet and video</i>
	7. Local groups and individuals understand, enjoy, value and take action in the Coigach and Assynt area in ways they did not at the outset.
	8. Increased access infrastructure at key strategic locations enabling people to enjoy the natural and cultural heritage of the area.
	9. Increased opportunities for informal recreation that promotes health and well-being benefits.

Reflecting on the last 5 years, what's the one thing that you're most proud of that has come from your project being part of CALLP?

Involvement of the Local High School surpassed our wildest expectations.

We planned for 2 Highschool projects but 14 young people chose soils for their assessed projects.

We were able to make the fieldwork and lab work interesting and easily accessible for all pupils.

What difference has this project made to the built, cultural and natural heritage of Coigach and Assynt?

We have added to the evidence for and understanding of past land management practices in Coigach and Assynt.

What difference has this project made to People?

The project has ensured that an important piece of academic work to provide a baseline for soil status. The initial work has raised interest in students in the local high school. The initial findings of the Ph.D. have led to a popular booklet on soils that will inform present and interested new crofters.

“the kids did really well in their exams, the soil assignments that they wrote up based on the fieldwork really helped some of the kids pass when they might not otherwise have done so...thank you so much for all of your help and for organising this in the first place!” –Geography Teacher Ullapool High School

Useful Links

<https://www.nwhgeopark.com/soil-fertility/>

Future Plans and Legacy

We have field equipment and will have field guides to allow the school to continue soils work into future years. We plan to develop a similar project for Kinlochbervie and Farr High Schools.

The findings from the research have been compiled in a popular format and is accessible available online. Partners are interested in using the soils leaflet with regards to other projects in the CALLP area. The findings will also be presented in interpretation panels to be installed in the Clachtoll Ranger Hut.

Lessons Learned

What are the three positive lessons gained from the scheme:

1. Lab activities can be adapted for class-room based work
2. University boundaries around maternity leave for PhD students can be expanded
3. Schools in the NWH benefit enormously from heritage projects

What are the three negative lessons gained from the scheme:

1. We didn't budget for enough project management time
2. We didn't plan how to adapt for delays such as maternity leave
3. It was assumed that the student would complete the thesis within the project timescale

Funding Partners



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Photographic Evidence



Louisa Habermann, PhD student records soil properties at Achlochan © L Hamlet



Louisa Habermann, PhD student presenting to Ullapool High School Students © L Hamlet



Soil sampling with Ullapool High School at Achlochan © L Hamlet



Ullapool High School students analysing soil samples in the classroom © L Hamlet



Exhibition in the Clachtoll ranger hut © Iain Young