

Developing a Mountain Peatland Restoration Manual: Combining Lessons from the UK and the USA

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Blanket Bog in Scotland

Theme 1: Natural Capital

Host Institution: University of Highlands and Islands (UHI), Environmental Research Institute (ERI)

Host collaborator: Dr. Andersen

Dates of fellowship: July 31st, 2023 to January 29th, 2024

I consent to have my report on the Co-operative Research Programme's website

1. What were the objectives of the research project? Why is the research project important?

The degradation of ecosystems undermines the well-being of 3.2 billion people and costs about 10% of the global gross domestic product. Ecosystem restoration is fundamental to reversing those losses and achieving global sustainability goals. Peatlands contain a disproportionate amount of earth's soil carbon, but this carbon is easily degraded. Mountain peatlands are numerous but experience many disturbances (Figure 1). However, there is little information available to practitioners to restore mountain peatlands because most peatland restoration projects have occurred in flat boreal regions and these techniques do not transfer to steep mountain peatlands. The objective of this CRP fellowship was to create a manual for restoring mountain peatlands. The manual was developed based on prior experience, but required an additional comprehensive literature review of published papers and reports on peatland restoration projects, as well as interviews with other scientists, both in person and remotely. Additionally, field visits were conducted to observe current and past restoration projects.



Figure 1. Examples of degraded peatlands in need of restoration from Scotland, Colorado (USA) and Peru. This manual was written to provide step by step information on how to restore these types of peatlands.



2. Were the objectives of the fellowship achieved?

Yes, the objective was achieved. The first draft of the manual is being published online this month. The link to the publication is: <https://digitalcommons.mtu.edu/oabooks/9/>.

3. What were the major achievements of the fellowship? (up to three)

- During my sabbatical, I delivered three talks on peatland restoration. The first was at the Environmental Research Institute in Thurso, Scotland, the second at Trinity College in Dublin, Ireland, and the third at the University of Exeter in England.
- During my visits to restoration sites, I had the opportunity to meet with practitioners and scientists. I conducted field trips throughout Scotland, as well as visiting sites in Ireland, Wales, and Southern England.
- I wrote a book on restoring mountain peatlands.

4. Will there be any follow-up work?

This document is an online book that will be updated periodically to include new information on peatland restoration. I view this first edition as the start of the process and plan many updates in the future. I also plan to continue to collaborate with several scientists from the UK and Ireland on peatland restoration.

5. How might the results of your research project be important for helping develop regional, national or international agro-food, fisheries or forestry policies and, or practices, or be beneficial for society?

Ecosystem restoration is just one aspect of wider natural resource policies. While many policies include peatland restoration for climate change and other benefits, there is often a lack of expertise in actually carrying out the restoration in many countries. This manual provides methods for restoring peatlands in line with current policies. This manual is currently being used in two papers on global and regional peatland policies.

6. How was this research relevant to:

This research aligns strongly with the objectives of the CRP, which is to “strengthen scientific knowledge and provide relevant scientific information and advice that will inform future policy decisions related to the sustainable use of natural resources in the areas of agriculture, food, fisheries and forests”. The new book provides scientific knowledge, relevant information, and advice to inform future peatland restoration work worldwide (Figure 2).

This research also aligns strongly with The CRP research Theme I ‘Managing Natural Capital’. This project will strengthen scientific knowledge and provide relevant scientific information and advice that will inform future policy decisions related to the sustainable use of natural resources. Peatlands are located at the intersection of land, water, soil, and biodiversity. Restoring peatlands helps with natural resource management and climate change mitigation, as well as improving the resilience of natural capital.



7. Satisfaction

I am incredibly satisfied with this program. The program was easy to apply for and was not burdensome with excess reporting. The funding was timely and easy to set up. It increased my career opportunities both directly and indirectly by allowing me to travel and meet fellow scientists. This allowed me to greatly enhance my book and develop more contacts than I had before this work. I expect to see dividends for many years from this program.

8. Advertising the Co-operative Research Programme

I learned about this program through a colleague in my department who had a fellowship several years earlier. I had never heard of the program until he mentioned it to me. I thought the program was great and do not have any issues with it at all. To improve the visibility in the US, it should be advertised more as a sabbatical option. Usually everyone knows about the Fulbright opportunities, but not this program. For instance, my university subscribes to GrantForward (<https://www.grantforward.com/index>) but I did not see this program in that database when search for sabbatical opportunities.

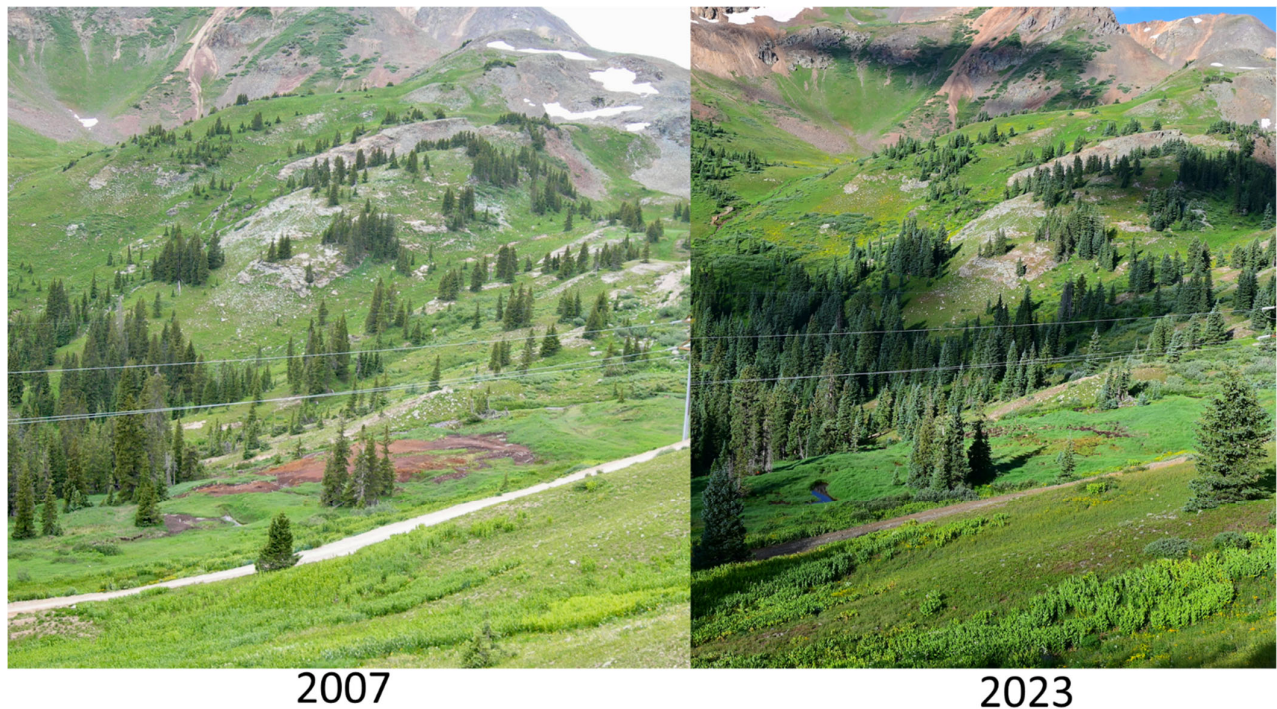


Figure 2. Example of a mountain peatland restoration project in Colorado. The peatland on the left has been degraded since 1971. Restoration occurred in 2014 and the site has been rewet and revegetated.