On Moral Grounds? Carbon Futures for Lowland Peat

7 November 2024

Field Notes

Walkway to a data-collection point in Estonia's Ess-soo peatland. © 2023 Kärg Kama. All rights reserved.

by Aneurin Merrill-Glover

Across Europe, peatlands have nurtured sophisticated and distinctive socio-ecological systems for thousands of years. The process of restoring these unique landscapes—or "peatscapes"—is one that is neither strictly ecological nor exclusively ordered as part of a top-down international response to global warming. On the contrary, peatland restoration as a form of climate-change mitigation must inevitably observe both local environmental conditions and broader political and economic agendas. Peatland restoration is shaped by socio-ecological interactions that are indelibly linked to specific places.

One such place is Honeygar, located in the Somerset Levels, a large wetland network and an internationally significant area for prehistoric archaeology located in the southwest of the UK. Here researchers are working on restoring a vital carbon sink. Like so many sites of newfound distinction, Honeygar sits on peat soil. This ensnares Honeygar in complex biogeochemical, scientific, and socioeconomic processes, the coming together of which raises critical questions about the forms of environmental improvement, economic reinvigoration, and, indeed, social justice, that peatland restoration is intended to bring about.

Peatlands: A Natural Climate Solution?

Peat forms when plants die in waterlogged ground and cannot completely decompose in the anaerobic conditions. The undecomposed plant matter eventually becomes the main constituent of the soil itself. This is peat. Since the organic material does not fully decompose, it does not release the carbon that it absorbed over its life,

which is what enables healthy peatlands to function as carbon sinks. However, widespread peat extraction and agronomic drainage have interrupted the hydrological integrity of peatlands worldwide. Europe in particular has suffered a larger proportional reduction of its peatlands than any other continent.[1] These “degraded” peatlands are now oxidizing, hemorrhaging carbon dioxide into Earth’s atmosphere. As a result, efforts to restore peatlands are rapidly being incorporated into national emissions reduction and “net zero” strategies.

In the UK, ambitious plans for scaling-up peatland restoration as a powerful natural climate solution must negotiate limited public resources, leading to the articulation of a 500 million-pounds “funding gap.”[2] In this context, state-linked restoration initiatives are increasingly characterized by the pursuit of “blended finance,” the addition of private investment linked to the sale of carbon or biodiversity credits.

Urged on by a policy infrastructure newly unshackled from EU membership, conservation organizations in the UK are seeking to quantify and accredit the environmental benefits of peatland restoration for the international offsetting market. These credits, and their role in what has been called the “new carbon economy,” offer an apparently novel way of thinking with and about peat. However, thousands of years of geographically varied human engagements with peatlands and with the land that became Honeygar form a complex and sensitive backdrop to efforts to bring this new epistemology to life.

Honeygar: New Pasts and Older Futures

Honeygar is a 200-acre piece of land (around 100 football fields), which was for centuries a dairy farm, then an abandoned dairy farm, and most recently an acquisition of the **Somerset Wildlife Trust**. The entrance to the site is a straight shot north through three fields of rough pasture to a copse of crumbling farm buildings, the oldest of which was erected in the early nineteenth century. The farmhouse’s array of now-decorative solar panels dates the point of last occupancy to sometime this millennium.

The full socio-ecological framing of Honeygar is labyrinthine. For us, Honeygar encompasses a set of place-specific socio-ecological relations, framed by the environmental history of the site and the wider Somerset Levels landscape. The site’s archaeological inheritance continues to inform the way that its future is interpreted and

understood. Indeed, a popular folk etymology casts the origin of the county name Somerset as the “land of the summer people,” recalling the seasonal Neolithic retreat into the hills to escape winter’s inundation. Before the centuries of drainage interventions that transformed them into permanent pastures, the Neolithic levels were large tracts of seasonally flooded ground, punctuated by raised islands, traversed by wooden trackways.

This legacy textures socio-ecological relations on Honeygar today, even as it is mobilized by different actors for divergent and sometimes opposing ends. For conservationists, for example, this landscape history denaturalizes the year-round agricultural drainage of the levels today. Many farmers, by contrast, locate their own ways of working the land along a continuum with Neolithic attempts to live with and manage the levels responsibly. One of the fields at Honeygar, only recently shedding its agricultural moniker, was rebaptized as the “Scheduled Monument Field,” now named for the preserved Neolithic trackway crossing below its surface. In short, the complex environmental histories of the Somerset Levels are constantly being retold and renegotiated as part of broader socio-ecological change in the region, both at Honeygar and beyond.

Peatland Futures: Scaling up Carbon Storage?

Adding further depth to these complex histories, researchers at Honeygar today are mobilizing a diverse range of instruments, equipment, and data-collection techniques to produce an immense amount of new biogeochemical, ecological, and hydrological knowledge. This research infrastructure combines, in often unexpected and generative ways, with Honeygar’s preexisting socio-ecology. Alongside various insect trapping and identification sessions, carbon-flux monitoring, and machine-learning-driven birdcall-identification software, is the humble dipwell.

A dipwell—a plastic tube between one and two meters long that has very small holes drilled into its side designed to admit water but deny entry to any and all voluminous soils—is an instrument for measuring the distance of a subterranean water table from the surface of the ground. This tube is driven into the ground, and a screw cap is twisted onto the top, incorporated to protect adventurous voles and other small mammals from terrible (and for them, incomprehensible) fates. A manual reading involves the use of a dipwell meter, which is a sturdy tape measure with a probe on one end. Once the probe contacts water, the meter’s housing produces an unmistakeable high-pitched, continuous tone. A reading may then be taken from the top of the dipwell. Some dipwells

are housed in small cuboid excavations, covered with square patio stones. At Honeygar, one such dipwell, “HG9,” was the temporary address of a toad, who became accustomed to regular disturbances and even suffered to be picked up.

(Left) A toad in the author’s hand. (Right) A toad living in the dipwell’s cuboid recess in the new carbon economy. © 2023 Aneurin Merrill-Glover. All rights reserved.

As they provide a measure of the saturation of peat, dipwell readings are a central component of the suite of methodologies being used to estimate changes in greenhouse-gas emissions from peatlands over time. Restoration projects that demonstrate a decrease in emissions can then sell these reduced emissions as carbon credits in the so-called new carbon economy. But this “scaled-up” peatland restoration promised by private finance sharpens existing local controversies around restoration projects and objectives.

The broad church of ecological, social, and now economic priorities covered by the term “restoration” further complicates the picture. How will this scaled-up approach to peatland restoration impact local communities and the future of peatscapes themselves? What kinds of resources does the restoration process make out of peat, and for whose benefit exactly? Will we all be as lucky as the Honeygar toad to find a comfortable recess in the new carbon economy? Will the communities that live and work with peatlands today suffer to be picked up and carried along by the growing rush to generate peatland carbon credits? Or will concerns emerge and be heard—concerns that might bring the restoration process itself to a different understanding of its ultimate purpose?

The Peatscapes Project

Over the next three years, the **Peatscapes** project, funded by the Leverhulme Trust, hopes to address these questions. The product of a collaboration between the University of Bristol and the University of Birmingham, Peatscapes adopts a critical social-science approach to peatland restoration. The project team is composed of four researchers, James Palmer and myself at the University of Bristol, and Kärg Kama and Roosa Rytkönen at the University of Birmingham. The Bristol wing of the research project focuses on two sites in the UK, Honeygar on the Somerset Levels and the Great Fen on the East Anglian Fenlands. Meanwhile, the Birmingham side of the project engages with numerous lowland sites in Estonia, where industrial peat extraction has been widespread.

But what methods are appropriate for a critical social science of peatland restoration? This, and more existential questions, flicker over my awareness as I drag a 20-kilogram post rammer across a baking Honeygar, tripping some 10 meters behind a restoration professional far better qualified for such work than I. Alongside sustained engagement with peatland restoration on the ground, the Peatscapes project conducts interviews with local stakeholders, conservation volunteers, restoration professionals, peatland scientists, and actors in emergent carbon markets. Later in the project, we will use more participatory workshops to interrogate the question of what successful peatland restoration and what healthy peatscapes of the future should look like. By drawing on all of these sources, we hope to generate a set of policy recommendations that guide efforts to scale up peatland restoration across Europe in a manner that is both sustainable and socially legitimate. Despite the urgency of climate change then, the Peatscapes project aims to highlight the need to attend carefully to diverse perspectives—both scientific and experiential—on the questions of what makes peatlands valuable today and what successful restoration should ultimately look like.

1. Franziska Tanneberger, Asbjørn Moen, Alexandra Barthelmes, Edward Lewis, Lera Miles, Andrey Sirin, et al. “Mires in Europe: Regional Diversity, Condition and Protection.” *Diversity* 13, no. 8 (2021): 381. **https://doi.org/10.3390/d13080381**. ↩
2. *Natural Capital Financing for Peatland* (International Union for Conservation of Nature—National Committee United Kingdom, 2018), **https://www.iucn-uk-peatlandprogramme.org/sites/www.iucn-uk-peatlandprogramme.org/files/Natural%20capital%20financing%20for%20peatland_eftec_final_311018.pdf**. ↩

“On Moral Grounds? Carbon Futures for Lowland Peat” © 2024 by Aneurin Merrill-Glover is licensed under **CC BY-ND 4.0**.