

Case Study

Somerset Wildlife Trust

Client: Somerset Wildlife Trust

Requirement: Enviro Technology Services provided Somerset Wildlife Trust with an ABB LGR-ICOS GLA131-GGA Microportable Gas Analyser.



Overview: Peatlands are a vital carbon store and the UK is one of the top 10 countries globally for peatland area coverage, storing an estimated 3.2 billion tonnes of carbon. Somerset alone is estimated to store 11 million tonnes of carbon, equivalent to the carbon sequestered if 182 million trees were grown for 10 years.

Unfortunately, across the UK approximately 80% of precious peatlands are actively eroding and releasing this carbon into the atmosphere, which significantly contributes to the climate crisis.

In the last century, the availability of powerful pumps has dramatically increased the capacity for industrial peat mining, and the reclamation of land for agriculture in Somerset.

Today, water levels continue to be heavily managed to minimise the potential for flooding in winter. By reducing the water table within lowland peat, the anaerobic conditions needed for the partial decomposition of plant matter and therefore the formation of peat are significantly reduced. Instead, oxygen within the peat allows for aerobic respiration and therefore emissions of carbon dioxide (CO₂).

Aim: Over the course of the past year, Somerset Wildlife Trust, and their partners at Avon Wildlife Trust, the RSPB and Natural England, have investigated the greenhouse gas (GHG) emissions from Somerset's lowland peatlands.

The project aimed to provide broad baseline data of GHG emissions from different peatland land use types in Somerset, and how these might be affected by different management actions such as cutting and grazing. The project focused on engaging with local landowners and managers, and those who live and work on the Somerset Levels and Moors.

The outcome: Using an ABB LGR-ICOS GLA131-GGA Microportable Gas Analyser supplied by Enviro Technology Services, the Trust monitored carbon dioxide (CO₂) and methane (CH₄) emissions between May and December 2022 across the lowland Somerset and North Somerset peatlands.

Using portable chambers, 1379 flux samples were taken on 11 different sites. These were a combination of land owned by nature conservation organisations and privately-owned agricultural land. By visiting the sites multiple times throughout the monitoring period, they were able to see seasonal changes, and in particular the effects of the drought of summer 2022.



Image left: Beth Pudifoot monitoring Greenhouse Gases at Honeygar Farm, Somerset

The outcome continued... Overall, the project demonstrated that between May and December 2022, the Somerset Levels and Moors were a constant source of carbon release, ranging from a monthly average of 0.24 – 1.75 g/m²/hr CO₂e.

These results highlight the importance of protecting peatland ecosystems, especially in the face of climate change where extreme weather conditions, such as those experienced during the monitoring period, are expected to increase in frequency and intensity.

The project also reinforced the potential emission reductions that could be made to transform this landscape from net emissions to net sequestration.

Such transformational change cannot be achieved without the cooperation of landowners. Crucially, this project engaged and supported local landowners in exploring peatland restoration and conservation.

Local GHG emissions evidence has been an important part of this engagement work. The project facilitated several on-farm GHG demonstrations, where landowners could see in real-time the GHG flux from their landholdings, and compare and contrast different areas known to be wetter or drier. This has been a powerful way of building trust in the science and theory. The final results of the project have also been presented to local landowners in a combination of group presentations and one-on-one discussions.

Lewis John, ET's UK Sales Manager for Scientific Applications comments,

“ It has been a pleasure to provide the Somerset Wildlife Trust with the instrumentation, training, and support to enable this innovative research. We're very pleased that the team were able to collect consistent, high-quality data with the instrument we supplied, despite extreme weather conditions. It has been a privilege to source an instrument that fits their requirements and to support them throughout this valuable project. We look forward to seeing what novel applications the Somerset Wildlife Trust apply their instrument to in the future, and will be on hand to provide support whenever they should need it. ”



Lewis John and Beth Pudifoot with the GLA 1313 GGA

The future: Somerset Wildlife Trust has ambitions to continue the monitoring of GHGs across the Somerset Levels and Moors into the future, building on the baselines recorded this year.

Following the keen interest and engagement of local landowners, the government-funded Landscape Recovery scheme will look to continue these relationships and further explore the GHG emissions associated with agricultural systems within Somerset's peatlands.

Meanwhile, an innovative project at Somerset Wildlife Trust's Honeygar Farm will use GHG monitoring to explore high-integrity carbon finance with Wilder Carbon.

Beth Pudifoot, Peatland Partnership
Greenhouse Gas Monitoring Officer,
Somerset Wildlife Trust comments,

“ We found the GLA131-GGA very simple and user-friendly, particularly the associated real-time interface. The smaller size meant it was convenient to transport and carry across site. It consistently produced good quality, reliable data, which along with quick and detailed support and assistance from ET, meant the GLA131-GGA was ideal for use in our project. ”



For more information on how the GLA131-GGA Microportable Greenhouse Gas Analyser can help with your research, contact us on:
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