

## 22. Peatland survey and evaluation

Penny Anderson Associates Ltd. (PAA) has a long established reputation for the survey, evaluation and restoration of moorland, heathland and wetland habitats. In recent years, in response to a number of challenging peatland projects, PAA has developed a further specialism in peatland survey and evaluation. Making use of existing peat survey techniques, modern and bespoke surveying technology and equipment, and the use of GIS, remote sensing and differential global positioning systems, PAA has developed a set of robust and efficient methodologies to provide a cost effective, reliable and insightful survey and evaluation service for these important ecosystems.

**PAA offer a range of peatland survey and evaluation capabilities, including:**

- Peat depth surveys;
- Peat core sampling;
- Surface elevation analysis using topographic survey and remotely sensed digital terrain models;
- Peat sample analyses (including pH, nutrient loading, carbon content, bulk storage, humification, pollen analysis and structural analysis);
- GIS peat depth analysis (peat volumetrics, erosion/deposition assessments); and
- Ground-penetrating radar for peatland evaluation.

**PAA has undertaken survey and evaluation on a range of different peatland locations and habitats, including:**

- Killhope Moor, North Pennines (upland degraded and intact blanket bog);
- Windy Hill, Londonderry, Northern Ireland (proposed windfarm on upland peat);
- Glasson Moss, Cumbria (Lowland raised bog, part of South Solway Mosses National Nature Reserve);
- Martin Mere, Southport, Lancashire (lowland peat - current and relic wetlands sediment);
- Pulfin Bog, Beverley, East Yorkshire (lowland bog/wetland. Yorkshire Wildlife Trust Nature Reserve);
- West Pennines Moors, Lancashire (upland blanket bog and heath); and
- Campfield Marsh RSPB Reserve, Cumbria (restored lowland wet grassland on deep peat).





### Peat Depth Surveying

PAA has developed and perfected a technique for rapid and detailed survey of peat depth. The site to be surveyed is assessed using a Geographic Information System (GIS) in terms of area, topography, land use and level of peat degradation using a combination of aerial photography and terrain data. This assessment then feeds in to the creation of a survey grid, the output of which is a series of points which are to be surveyed in the field for peat depth, using bespoke stainless steel probes. The resulting peat depths can then be analysed using our in-house GIS software to create, for example, models of peat depth, peat volume or erosion/deposition budgets.

### Peat Core Sampling

PAA uses a Russian style D-shaped corer to extract complete cores for further analyses of peat characteristics. The corer produces 0.5m/0.5l sections of near-perfect peat cores, with negligible compaction allowing for detailed analysis of characteristics such as bulk density, carbon content, temporal measurements (e.g. rates of deposition) in addition to standard assessments such as pH, mineral content and humification. The corer is carried on-foot to the sample site, thereby minimising damage to surrounding vegetation and habitats and can be carried out rapidly and efficiently, with upwards of ten cores being possible in one day (depending on site conditions).

### Natural England Standards For Peatland Survey

PAA, in partnership with Natural England and the North Pennines AONB Peatland Programme, has developed a standard methodology for the survey and assessment of English peatlands. Extensively tested over 2011 and 2012, this includes a detailed methodology, indications of probable survey effort, equipment list and a standard field recording sheet for peat depth surveys and peat core sampling. Data collected in this way can then be easily incorporated into Natural England's nationwide peat survey database, which is aimed at improving our knowledge and understanding of the extent and nature of English peatlands, a vital resource for biodiversity, carbon storage, drinking water quality, flood control and local employment.

**For more information, please contact us:** [enquiries@pennyanderson.com](mailto:enquiries@pennyanderson.com)

#### Related Brochure Inserts

Information is available summarising our expertise in the following related areas; please contact us if you require copies of any of these numbered brochure inserts:

1. Air quality impacts on ecological receptors. 3. Applied hydrology and development. 8. Ecological survey and evaluation. 12. Environmental impact assessment. 15. Geodiversity, earth heritage and development. 16. GIS and digital mapping. 18. Habitat creation and restoration. 19. Habitat management planning. 21. Moor and heathland: research, advice, management, creation and monitoring. 23. Quarries and mineral workings: environmental services. 25. Soils and development. 29. Vegetation survey and assessment. 30. Water Framework Directive and water quality monitoring. 32. Wind farms: environmental services. 33. Working in Wales: environmental services

