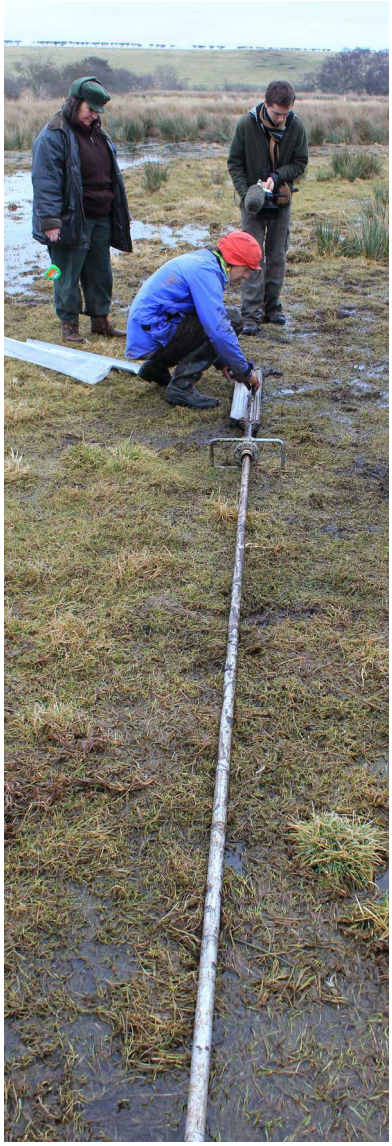
BRADFORD KAIMS ARCHAEOLOGY PROJECT

ARCHAEOLOGICAL CORING

Our coring programme has been led by Dr Richard Tipping of Stirling University along with his colleague Dr Danny Patterson. Numerous volunteers from the local community have also taken part.



Coring is used to take column samples very many metres down into sediment layers. Each sample (each about 1m long) is taken deeper than the last, with a little overlap each time, to ensure a continuous column is produced.

The photo to the left shows a sample of a core being taken from several metres down. A series of extensions have been added to the auger (the coring tool) to enable it to reach this depth and they can be seen extending into the foreground of the photo.

Once each section of the core is lifted, it has to be carefully packed to prevent contamination before it is transported to the laboratory.

We have used archaeological coring, in lines, across the former lake, to understand the sediment layers that make up the bog itself. By comparing the sequence of cores in a line we can create profiles of the buried sediment layers.

In addition to the cores used to map the sediment sequence across the former lakes, we recovered one, wider diameter, core, some 10m long, for laboratory study. This core-sample has been used for pollen analysis and will also have carbon 14 dates taken. This will allow us to reconstruct the vegetation of the immediate area, overtime, helping to construct a model of the past climate.

The core shown above, and below (in close-up), is from the base of the sequence. The light coloured sediment, on the left is marl from the bottom of the lake, laid down during a warm period at the end of the last Ice Age, 10,000 years ago. You can also see green layers of well preserved moss, laid down during a cold wet period. Peat cores are a powerful tool for studying the environment.

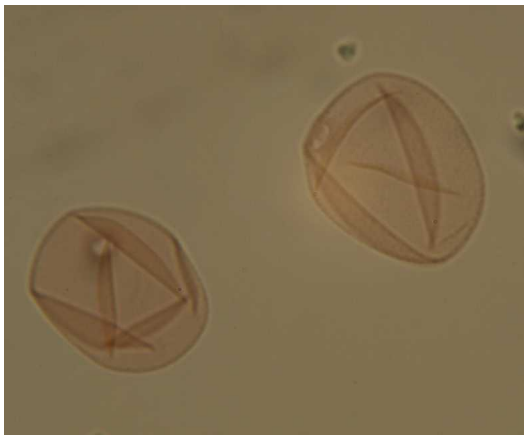
The core tells us about the plants that have grown on the bog and in the immediate area, from the end of the last Ice Age, 10,000 years ago, to about 2000 BC. The reed bog seems to have developed early, and we have not found much evidence for the introduction of farming, as few cereal pollen grains were identified.

Pollen cores are processed in the laboratory to produce slides that can be viewed under a microscope. The pollen grains can then be identified, as each species has a distinct shape.

Counting the number of pollen grains of each species within a sample tells us how common or rare the plant was in the area where the core was taken.

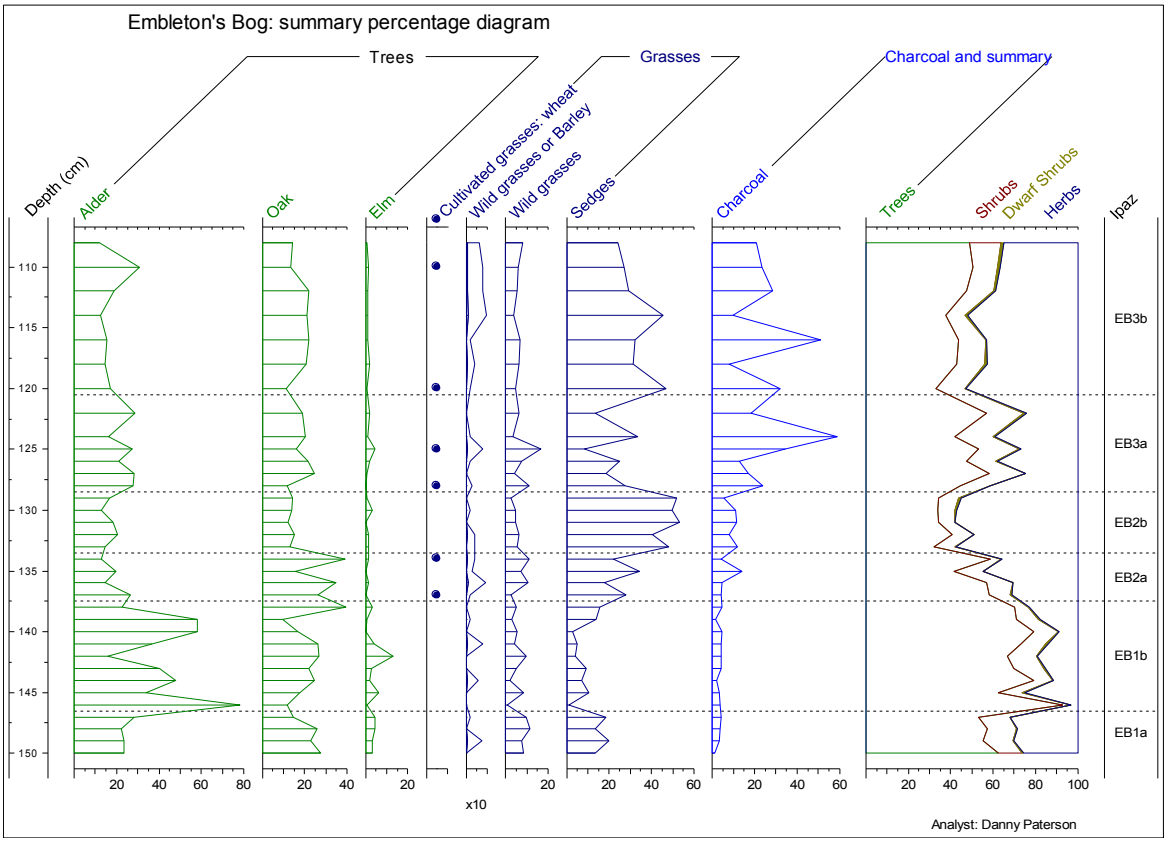
To the right you can see a section of the core from Embleton's Bog being prepared for analysis. We filmed the process for our blog.

The photograph above, shows pollen species identification being undertaken by one of our volunteers, under the supervision of Dr Richard Tipping, during our Stirling University visit..



Two different types of pollen grains, Alder (left) and wild grass (right) are shown below, as they appear under the microscope.

Eventually, after much hard work, it is possible to construct a pollen diagram like the one below. It shows the various different plants, large and small, across the top and the depth down the left side. Since the peat accumulates year on year, the deeper you are below ground the older the layers are. The wiggly line shows how abundant the pollen was at a given depth. This tells us how common the plant that produced it was in the landscape around.



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