NatureScot Peatland ACTION
Restoring Scotland's Peatlands
Ath-stèidheachadh talamh mònach na h-Alba

Peat Depth and Peatland Condition Survey

Figure 1 Two people taking a sample of peat using a peat or Russian corer.

Why are we asking for a peat depth and peatland condition survey?

The primary funding purpose of the Peatland Action Programme is to reduce carbon release to the atmosphere and ensure carbon is stored in peatlands.

Current mapping of peat depths in most areas is neither accurate nor detailed. Collecting data on peat depth will allow better quantification of the stored peat resource where restoration is taking place. This in turn enables a partial estimation of the carbon stored on the site.

Collecting information on the peatland condition will facilitate an estimation of the greenhouse gas emissions from the peatland.

What will we do with the information?

The peat depth and peatland condition survey will be made publicly available to further our understanding of the total peat and carbon resource and greenhouse gas fluxes.

Forms and guidance

All the forms and guidance documents referenced below can be found on the Peatland ACTION – Peat depth and survey guidance webpage.

Survey method

You will need;

1. A peat probe with sufficient length of rods to measure the full depth of the peat. NatureScot may be able to loan peat probes upon request, but they are also available to buy on the internet as 'peat probes'. Bamboo canes are unsuitable as they will snap and could cause injury;
2. A handheld GPS device. This is used to record the sampling locations;
3. Tape measure;
4. Gloves with latex palm;
5. Pre-printed field forms (Excel recording template);
6. Peatland Condition Assessment guide;
7. Weather writer;
8. Digital camera.

Before you start

1. The survey should cover the area(s) within the overall project area (including any previously restored areas) identified as containing 'carbon and peatland Classes 1-5' using the Carbon and peatland map 2016 and associated guidance;
2. Mark 100 m x 100 m grid on a map and aerial photograph;

3. Check that there are no overhead cables or underground utilities that run across the peatland.
4. Plan your route to enable the crossing of ditches and other obstacles;
5. Measure the length of an individual rod to speed up the measuring process;
6. You may wish to mark graduations on the rods with tape;
7. Carry out a risk assessment. HSE offers useful guidance on working around overhead lines.

Important Note: Do not probe peat near or under electricity powers lines and beware of very wet ground.

Peat depth can be measured relatively easily using a narrow rod pushed into the peat at regular intervals across the site. The depth to which the rod sinks reflects the local peat depth.

The survey is completed on an approximate 100 m by 100 m grid basis, which provides information on peat depth variability and identifies areas where areas of deeper peat are present. The peat survey should cover the whole area that is restored. Where precise probe locations are considered unrepresentative of the adjacent surrounding habitat, they should be better relocated and geo-referenced to ensure more representative samples.

At each intersection of the 100 m x 100 m grid, record the position by noting the grid reference using the GPS. Record the peatland condition category (at each grid intersection) using the Peatland Condition Assessment guidance. Take 1 representative photograph of each sample area (please also record metadata for each photograph including 6-figure grid reference, image file name, description and date). Push the first rod into the peat. Initially this may be difficult to do particularly if the peat is dry and vegetation thick. Add further rods as necessary. When the rod comes to a halt or you feel additional resistance or note a change in progress of the rods, mark or note the surface level on the rod and remove the rods, unscrewing each section as it is removed. This reduces the risk of bending the rods.

Points to note

1. The exact position of the probing point is more important than sticking to the 100 m x 100 m grid positions. Ground conditions or access may restrict access to the exact grid point. An accurate national grid reference of the actual probing point is our main aim.
2. Select a probing location that is representative of the immediate area. Tussocks and hummocks raise the surface level above the actual peat level. The peat surface near ditches is often lower due to erosion and degradation of the peat.
3. Peat deposits are a mantle which sits above rock, gravel or clays. When the rod reaches the mineral substrate below it will either stop suddenly, or get more increasingly more difficult to push in. When extracting the final rod check the tip – if it has sand or clay at the point, this indicates it has reached the substrate below the peat.

4. Tree roots, wood and trees buried in the moss may affect the depth at which the probe stops. Where the peat depth unexpectedly appears shallower it is advisable to probe a metre or so away from the original probe point.

5. Peat probes should never be used near power lines or buried utilities, and you should not walk around with an extended peat probe.

6. Take care when pulling out the probe, particularly if the depth is greater than three metres and always attach the T- piece handle when pulling. Refer to HSE Manual lifting guidance and follow the manufacturer's instructions.

Information that should be recorded on the survey

The following information must be provided on the peat depth and peatland condition survey Excel template.

1. Information about the survey

   - Data supplier organisation and contact
   - SNH Grant number (50xxxx)
   - Site name
   - Date(s) of survey (e.g. 10/08/2019 to 11/08/2019)
   - Total number of points surveyed
   - General weather conditions at time of survey
   - Model of GPS device and accuracy during the survey

For each peat depth sampling point, provide the following information in the peat depth and peatland condition survey Excel template. You can also submit the data in GIS shapefile format, provided that all of the attributes that are required in the Excel template are included.

2. Information about each probe point

   - Grid reference (in British National Grid) or 6-8 figure eastings and northings, in British National Grid.
   - Date of sampling (day/month/year) Please also include time of sampling when using electronic recording system
   - Peat depth (in cm, to the nearest centimetre)*
   - Sample point identification reference (e.g. A1, A2…)
   - Peatland condition category
   - Photographs taken at each probe point**
   - Comment or observation (if appropriate)

   * This level of detail is required due to the various thresholds (30 cm, 50 cm) for categorising depth.

** The photographs are useful for long term monitoring purposes. A photo should be taken at each probe point for sites <30 ha. For sites larger than 30 ha, a representative sample of photos from 10% of the probe points will suffice.

To assess the peatland condition category at each probe point, simply chose one of five condition categories. The Peatland Condition Assessment Guide includes descriptions and photographs of four categories. And, as we do a lot of restoration work on previously afforested sites, we are asking that you record forested, or previously afforested sites, as such. The five categories are: Near natural, modified, drained, actively eroding and forested/previously afforested.

Maps of areas surveyed and peat depth and peatland condition can also be produced. Please include appropriate copyright to take into account the basemaps used. Any additional information collected during the survey is also welcome.

All the forms and guidance documents can be found on the project webpage.

Please submit peat depth survey data electronically to: peatlandactionpeatdepth@nature.scot using our recording templates.