Plant Propagation Project

Under the initial Moors for the Future project we tendered for the propagation of 100,000 moorland plants of 5 species *Rubus chamaemorus* (cloudberry), *Eriophorum vaginatum* (Hare's-tail cotton-grass), *E. angustifolium* (common cotton-grass), *Vaccinium myrtillus* (bilberry) and *Empetrum nigrum* (crowberry).

All plants were produced by micro-propagation from material collected from sites above 450metres within the Dark Peak SSSI. This required the collection of a small amount of material which was then multiplied many times by micro-propagation.

The species were chosen for two reasons:

Increasing the biodiversity of the site, the species chosen are significant components of the moorland vegetation communities;

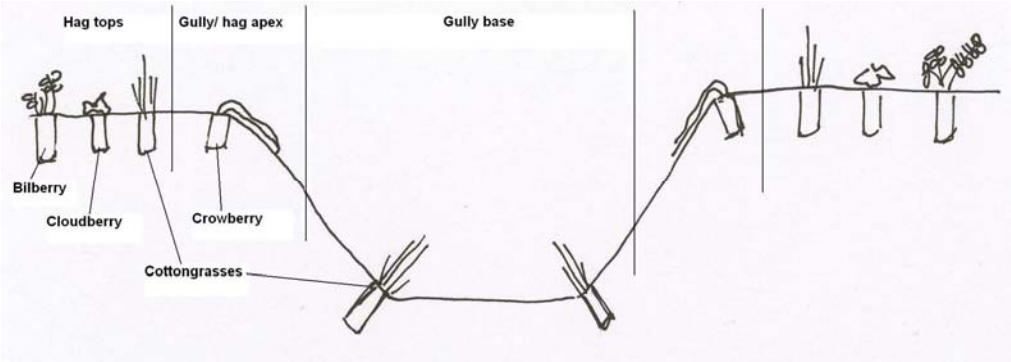
The structural value of the species - each species has either rhizomes or extensive surface growth that work like the heather brash and geo-textiles currently in use by the project to stabilise the surface.

The best locations (aspect, gully slope etc) and planting methods have been investigated for our sites and are shown below.

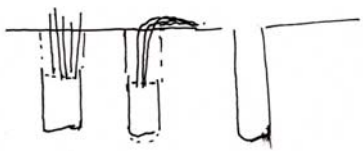
- Crowberry needs to be planted at the apex of the slope, around the slope.

- Cottongrass should be planted on flatter areas, either on gully bottoms or on wetter tops. It's not worth planting into mineral soils.

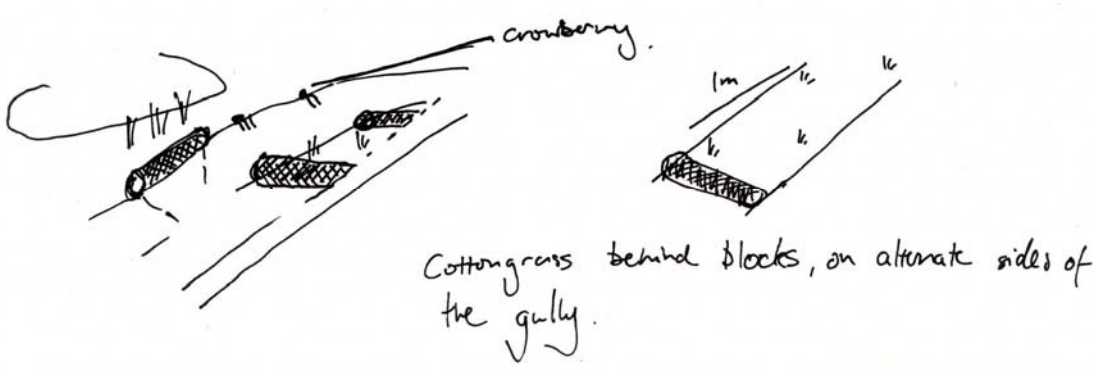
- Bilberry and cloudberry should both be planted on hag tops.



- Because of the time of year, take off the plug wrapper and tease the roots out a bit. Make sure you put the plant in deep, probably the same depth again as the depth of the plug itself.
- Make sure that there isn't an air gap below the plant, so make the hole as deep as you want it and then push the plug to the base of the hole.



Plants should be planted at a maximum of 1 plant per metre^2. A good option would be to plant them either side of the gully blocks, they can be planted at a higher density here, but no more than 3 plants per metre^2.



The contract for the supply and planting of the plugs was awarded to Specimen Trees, High Legh Estate Office, High Legh, Nr. Knutsford, Cheshire, WA16 0QS, following an open tender procedure.
The contact at Specimen Trees is Mark Earle :01925 755204.
Specimen Trees have carried out similar work in the past for Transco in the Brecon Beacons.
All propagation was undertaken by Neal Wright of Micro-propagation Services at East Leake in Leicestershire : 01509 856295.

They are working closely with Steve Hadden from ADAS who is advising on appropriate soils to use and Professor David Read from the University of Sheffield who is assisting with an investigation of inoculating with appropriate endo-mycorrhizas for more effective establishment of the species.

All propagation was initially done in peat free compost but it was not possible to get conditions right for growth, particularly to get the pH low enough to allow transplantation onto the moors. Various peat alternatives were trialled, including peat extracted from United Utilities' sediment traps but none were acceptable. For example, cloudberry did not produce any roots in any of the peat free substrates and required spraying with nitric acid to initiate rooting. Eventually, all plants were produced in a substrate containing 30% peat and 70% peat alternatives.

The plants have been planted at various moorland areas damaged by fire across the Dark Peak, including Bleaklow, Black Hill, Kinder Scout and also used to aid the re-vegetation of restored path sides. Supplies of plants have subsequently been bought by United Utilities and the National Trust.
Moors for the Future contact : matt.buckler@peakdistrict.gov.uk

Figure 1- Cloudberry undergoing micro-propagation

Figure 2 – Trays of common cotton-grass