Heathland Creation
at
The Roft, Lower Harglodd
St David's, Pembrokeshire

Client: **Pembrokeshire Nature Partnership**

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1. Introduction

Photo of site prior to works

A heathland creation project at The Roft, Lower Harglodd, St David's, was established in October 2021 with funding from the Pembrokeshire Nature Partnership. Works were carried out by David Murphy, and designed and supervised by Matt Sutton.

Habitat survey of the field by the author during the summer had found it to be improved grassland with no ecological significance. The adjoining Rhos Pasture and nearby Waun Fachelich are, by contrast, valuable heathland, marshy grassland and pond habitats with a selection of rare plants, reptiles and breeding birds. The aim of this project was to create suitably low-fertility conditions for development of similar vegetation.

Soil sampling in October revealed that, in the Roft, the Index of Available Phosphorous (the key element determining plant growth) averaged 1.56 at 0-5cm of soils, 1.24 at 5-10cm, and 0.8 at 10-15cm. A reference soil sample at 0-5cm from heathland in the adjoining Rhos Pasture was 0.8. This suggested that removal of at least 15cm of topsoil would be desirable.

2. Groundwork Details

Work was carried out with a 17-ton tracked excavator, 1-2 tractors with 14-ton dump trailers, and a 6-ton dumper truck. Earth moving started in the lower part of the field, using a grading bucket to leave a compacted finish suitable for water retention. Soil stripping in the upper three quarters of the field was done with a toothed digging bucket to leave a looser, rougher finish more suitable for seed germination.

Much of the turf and topsoil was moved to the intended tree planting area in the upper part of the field. The piles here were subsequently roughly spread with the excavator, ready to be rotovated and perhaps power-harrowed prior to tree planting. The remaining soil was rowed up around field edges, where it was used to form new internal hedge-banks, creating a ‘green-lane’ on the line of the public footpath, a dividing hedge between the new heathland and the remaining meadow area, and banks separating proposed tree planting areas from glades.

An estimated 16,000m^3 of soil were moved and shaped over a 6-day period of ideal, dry weather. The following photos illustrate some of the details of the operation.


(left) Soil being used to form a curving, low bank delineating the edge of a proposed glade in an adjoining tree-planting field. The south-facing side was left intentionally steeper to provide nesting habitat for solitary bees; (right) Soil being used to form a conventionally-shaped bank alongside the public footpath to the farm, creating a ‘green lane’ with wildlife (and biosecurity) benefits. Rock piles were left at strategic locations to be used in a following programme of clawdd end-details on the new banks.


(left) Three shallow scrapes with varying profiles were created in the lower part of the field, and compacted with the bucket to seal the clay; (right) Sections of the ditch along the lower boundary of the field were filled with clay from the scrapes in order to retain water and force it up into the scrapes. This location could be suitable for a new gateway, allowing cattle to circulate between the Rhos Pasture and The Roft


(left) A line of pea gravel in the sub-soil marked the location of a buried drain, which was found, broken and plugged. This should allow any drainage water to flow over the surface towards the new scrapes instead of underground into the ditch; (right) Most of the clay-rich subsoil from the new scrapes was used to form a ‘bee-bank’ within the new heathland area, gently curving round from the lower edge to the south-side and providing a long length of south and east facing ‘cliff’ which should be readily used by a variety of mining bees and other invertebrates. A couple of gaps were left to allow easier tractor and livestock access.


(left) A small amount of turf with *Molinia* and other wetland species was scraped from between tractor ruts on the adjoining rhos pasture. This was partly done to trial the spreading of such material as a seed source on the lower part of the new heathland area, and partly to create a new habitat for the Nationally Rare *Didymodon tomaculosus* (sausage beard-moss), found by the author less than 50 yards away on exposed clay near a pond; (right) Although some rocks exposed by the excavation were removed to detail the ends of new banks, others were left on the surface or roughly piled to form potential refuges for herptiles, perches for wheatears or other birds, and exposed rock for mosses and lichens.

(left) Some of the larger rocks were positioned upright to seal the ends of new banks; (right) Others, such as this large boulder, were left as features – perhaps a good rock for a picnic.

3. Recommended Management

The exposed soil would ideally receive seed-rich arisings cut from Waun Fachelich with a flail-mower-collector. Scraping some mown areas of this common and spreading this material on the new heathland would provide an additional source of propagules, as well as exposing some bare ground to enhance this existing heathland. The limitations of time and budget may mean that not enough material can be obtained to cover the whole of the new heathland. This can be seen as a positive – some heathland creation projects are too successful too quickly, and the bare ground which is so valuable to invertebrates, bryophytes and lichens can all too quickly be replaced by heather. It will be prudent, for example, not to spread seed up against the face of the new ‘bee-bank’, to allow this to remain unshaded for longer.

Introduction of plug-plants is not recommended. Allowing nature to choose the successional path with limited assistance will be inherently more interesting to study than an approach which seeks to ‘garden’ rather than ‘re-wild’. It is also likely that plugs planted into newly exposed soil without vegetation would suffer a high proportion of losses.

Although most of the seed-bank will have been removed by scraping, there will inevitably be the potential for colonisation by ‘weed’ species in the early years of vegetation development. The pulled ragwort which has been left in bags around the field edge should be removed as soon as possible, as it has ripened seed heads which are now prone to wind dispersal. Pulling or spot treatment of problem species such as ragwort may be required to maintain neighbourly relations.

The decision as to when to introduce grazing will have to be guided by vegetation development. As a general principle, it will be preferable to introduce an element of late summer cattle-grazing before vegetation is fully established. It is also likely that pulses of grazing in late winter / early spring and late summer / early autumn will prove to be the most desirable regime, supported by some limited flail-mowing if required.