The Bryophytes of Cleeve Common

Cleeve Common Board of Conservators is celebrating the return of an extinct habitat on the Common. Working with a local expert the Conservators have commenced an exciting project to try to preserve some exceptionally rare mosses and liverworts (collectively termed bryophytes) on Cleeve Common.

The Importance of Cleeve Common for Bryophytes

As a vast area of agriculturally unimproved habitat, Cleeve Common is of exceptional nature conservation value and is home to many rare animals and plants; bryophytes being no exception. A grand total of 209 species and three varieties of bryophyte has been recorded from Cleeve Common. Some of these species are Nationally Scarce, but others which are not listed as such are still extremely significant records for the Cotswolds because they are acid-loving species which grow on the Common's acidic Harford Sands outcrops. The Common is unusual if not unique at a national level, because it combines some of the most species-rich calcareous grassland with strongly acid habitats supporting acid-loving species.

Working with Richard Lansdown, an independent Ecological Consultant and one of the County Recorders for bryophytes in Gloucestershire, the Board of Conservators has devised a rather radical conservation programme for the bryophytes of Cleeve Common. The scheme is a two-pronged attack; first to re-create the 'mud-capped wall' and second to re-expose acidic Harford Sands substrate. Both of these schemes aim to promote colonisation by rare bryophytes.

*Photos by Richard Landsdown. A*bove: *Polytrichum juniperinum.* Below*: mud-capping drystone walls,*

Creation of Mud-Capped Walls

The mud-capped wall was common-place in the Cotswolds at the turn of the last century, but it has all but disappeared as the practice of capping drystone walls with mud, silt and muck as a way of clearing drove roads ceased with the age of tarmac and the motorcar. The cessation of this practice and the vanishing of a widespread anthropogenic habitat had a catastrophic effect for some species of moss and liverwort. This rather unique habitat, which fluctuates between extremely dry and saturated conditions, is just what some species of bryophyte require to keep their competitive edge over more robust vascular plants and a rich bryophyte flora was documented on these walls, including some species which are now exceptionally rare and even believed to be extinct in the UK.

With Richard's help the Operations Staff at the Common have re-created this habitat by mixing limestone silt, animal dung and water and patting it onto the tops of drystone walls. It all looks a bit bizarre but this is a fantastic opportunity to document the colonisation of a habitat from scratch and we hope to have some of the rarities appearing too.

Exposure of Acidic Substrate

If we cross-reference our current species list for the Common with historic records we appear to have lost a lot of our acid-loving species from the Common; notably those which are generally rare at a national level. Bare ground is important for bryophyte colonisation and at the time that these rarities were recorded quarrying of the acidic Harford Sands would have been quite extensive; notably for the pottery trade. We think that a lack of bare ground with a good variation of aspects and humidities, as would've been created by quarrying, might be the reason why we have lost a lot of our rare acid-loving bryophytes.

To address this problem we have created scrapes in areas of Harford Sands on the Common to create bare, undulating, acidic ground to mimic the quarries of the late 19th and early 20th Centuries. Again, the primary aim is to bring back some of our lost rarities, but nonetheless this is a great opportunity to document the colonisation of a bare habitat.

Why Bryophytes?

Bryophytes may be small but they are still important! Richard says "mosses and liverworts are a great indicator of the health of a habitat. They are one of the first things to arrive but they are sadly one of the first things that we lose if the habitat is artificially enriched with nutrients or if it starts to lose condition in another way".

Back from the Brink?

Can we really restore species which are exceptionally rare or even believed extinct in the UK on the Common? It's not such a far-fetched idea as it would seem. The spores of lower plants, including bryophytes, can enter the jet stream and can be transported for many hundreds of miles before being deposited back on solid ground. If the habitat upon which these spores lands is correct, there's nothing to stop them germinating.

This is an exciting and significant project. Thanks to Richard's expertise and hours of research we have a very well documented bryophyte flora for the Common. The next logical step is to look at which rare species have disappeared over the past 100 years or so, try to work out why and see if we can entice them back again. Time will tell