



# BRECOG WORKSHOP 2007

Preston Montford, 9-11 March

Jeff Bates

## Introduction

Following on approximately one year after BRECOG's inaugural workshop at Silwood Park, the aim of the workshop was to launch the group's flagship enterprise, the Bryophyte Habitats Survey. This is a projected 5-year survey of the habitats of common bryophytes in Britain and Ireland using a quadrat-based method of sampling. About 15 people attended either for the whole weekend or as day visitors.



The Friday evening provided an opportunity to socialise while constructing some of the simple equipment required for the field work over the weekend. Fundamental to the project is the use of rectangular quadrats to delimit samples of vegetation containing bryophytes (full size quadrats, 50 x 25 cm; half width size, 50 x 12.5 cm, for sampling shrub branch communities). Soon, coils of wire were being fashioned with varying agility into the required oblongs and adorned along the sides with strips of coloured tape to aid cover estimation. Slightly less demanding was the construction of simple clinometers for measuring the slope of the surface within each quadrat. A photocopied circular compass scale in degrees (and rather optimistically labelled 'BBS Clinometer') was cut out and glued to card, covered in sticky-back plastic to keep out damp, and the instrument's 'gnomon' made from a straightened-out (again with varying fastidiousness) paper clip let through the centre of the dial and bent over on the back to hold it loosely in place. This winning design proved its worth repeatedly during the weekend. After this enjoyable exertion many enjoyed a nightcap in the centre's comfortable bar.

Saturday began with a presentation by the writer on the Bryophyte Habitats Survey. This is one of those things which, like riding a bike, is much easier to do than it is to describe. Nevertheless, the ensuing discussion was a useful one and several refinements were added to what had already been a reasonably well-tested method. The

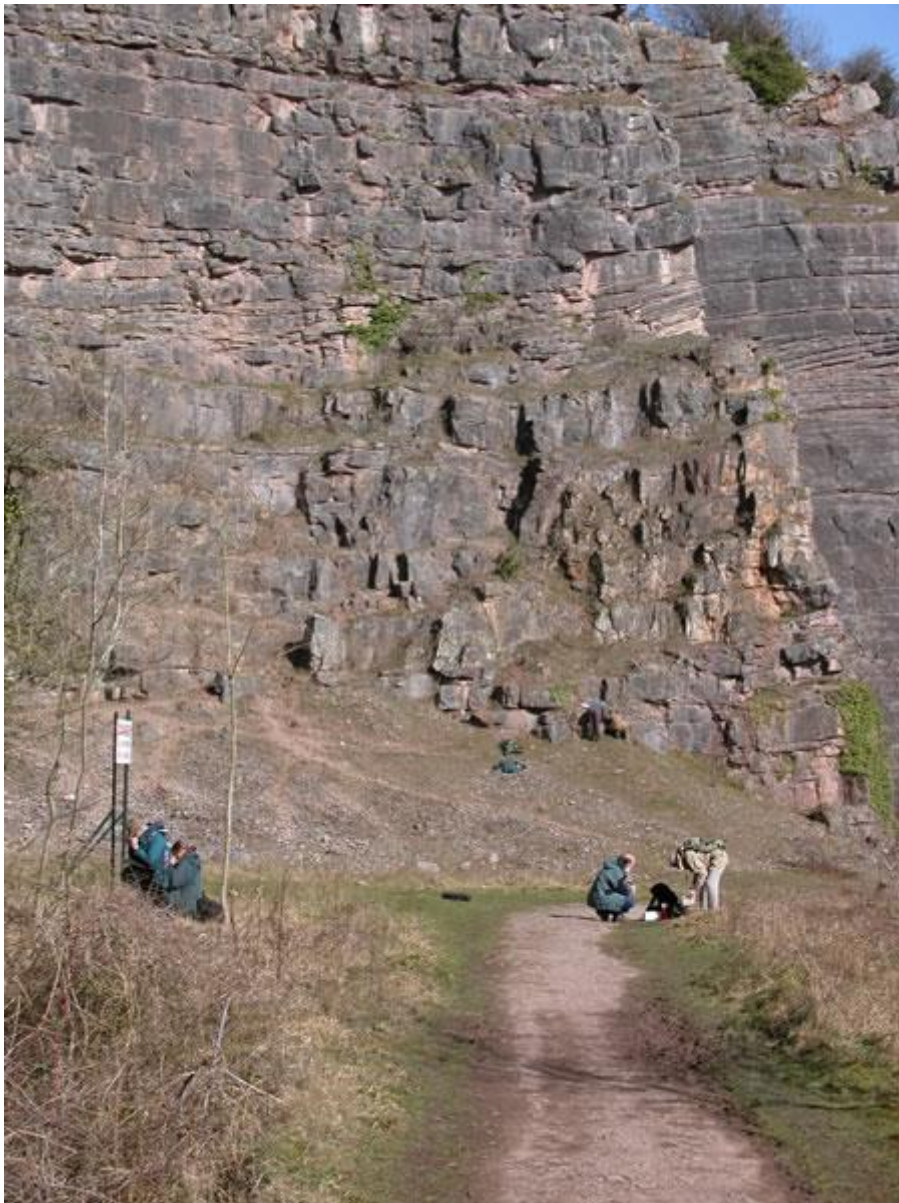


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suggestion to include 'total bryophyte cover' on the field card was incorporated and proved particularly useful when estimating cover of the individual species present. We also added birch and rowan to the short list of tree species already selected for study of their epiphytes to suit sites (particularly in the north) lacking extensive lowland forest.

The Habitats Survey is open to all and it is something in which any BBS member with a basic knowledge of our common bryophytes can make a useful contribution. Indeed, members may find this to be a useful vehicle for improving their identification skills. In a nutshell it requires participants to record the cover of individual bryophytes in up to ten random quadrats and to make some simple accompanying measurements of environmental factors (slope, aspect, soil or water depth, a 7-point index of shade, etc.) in each of the main bryophyte habitats recognisable in their region. They are also required to collect some soil (or bark) for later pH measurement and to make a simple assessment of the frequency and stage of fruiting in each species. The instructions are slightly more complicated for aquatic communities where pH and conductivity measurements need to be made *in situ*. The group is currently seeking support from Council to buy suitable meters for surveyors. The project focuses on a regular network of 'target' 10-km squares but keen recorders may also send in data from other squares.



Afterwards the party set off for Llanymynech Quarry, a disused limestone quarry, now a nature reserve, bisected by the border between England (v.-c. 40) and Wales (v.-c. 47). We assembled into pairs to try out the sampling





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methodology in a range of predominantly calcareous habitats including cliffs of varying exposure, detached blocks, grasslands, scrub, woodland banks and tree trunks. Recording cards designed for the project helped greatly in ensuring that important measurements were not omitted and everyone quickly became adept at estimating percentage cover. As Mark Hill wisely noted, the secret of effective recording of plant cover is not to get too hung up with over-zealous exactitude! At the end of the afternoon a reasonable proportion of the main bryophyte habitats in the quarry had been sampled.

Back in the laboratory at Preston Montford, after suitable refreshment, pH measurements were carried out on the collected soil samples, the majority being distinctly alkaline. Later, John O'Reilly expertly led us through the stages of a simple key for determining the texture classes of soils (e.g. sandy-loam, silty-loam, etc.) by a process involving hand kneading and rolling of moistened samples. John provided a range of contrasted soil types he had earlier collected in the Pennines. Where the substratum is soil the soil texture is a required detail (on the field card) as it indicates the likely drainage properties for the bryophytes growing above. Most of us were unfamiliar with the 'hand texturing' approach and thoroughly enjoyed the experience, although it left us with very muddy hands and a small collection of dubious sculptures!

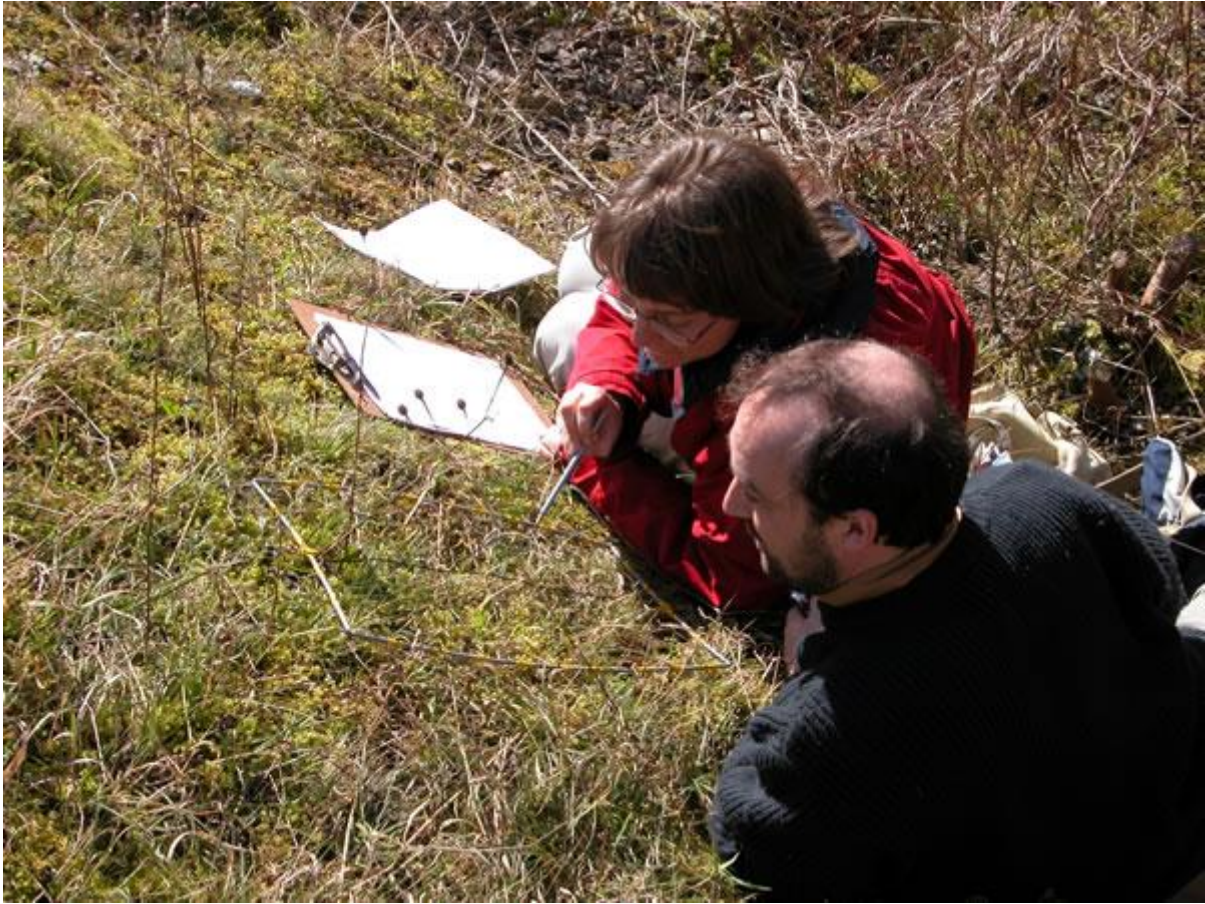
After supper, Michael Proctor gave a presentation on physiological traits of bryophytes that are important in underpinning the ecological behaviour of species, including cell osmotic potentials, desiccation tolerances and photosynthesis-light responses. This continued an unresolved discussion, started at the Silwood Park workshop, on how a mostly amateur group like BRECOG could gather physiological information for common species. Michael emphasised that complex techniques like infra-red gas-analysis and chlorophyll fluorometry (for determining photosynthesis by CO<sub>2</sub> production or light energy transfer) are only likely to be available in a university laboratory; however, simpler methods like measuring cell plasmolysis (to study desiccation damage) or use of cresol red indicator (to study photosynthetic/respiratory carbon dioxide uptake/release) could be used by a keen amateur. One or two people took away tubes and indicator to try this for themselves. In later discussion (at Sunday breakfast) the idea was mooted that it would be possible for undergraduate students to gather some of the more technical data for us during paid summer placements. A useful starting point would be to build a database of the currently available physiological information for British bryophytes.

On Sunday, a slightly reduced party visited Brown Moss nature reserve an area of pools and acid woodland to the north of Shrewsbury (Shropshire, v.-c. 40) with water levels well up as a result of the recent heavy rainfall. Again, mostly working in pairs, participants soon fell into a comfortable working pattern and each sampled several habitats including pool margins, bog, heath, woodland floor, logs, tree trunks of several species and elder branches. Those studying epiphytes generally approved of the suggested means of sampling surface bark (for later pH measurement) using a Surform™ Scraper rather than a knife. This inexpensive tool takes small flakes of bark without digging in deeply and leaving unsightly wounds in the trunk. The bark flakes can be air dried in a paper 'moss' packet and are suitable for steeping in distilled water for pH assessment without any other treatment.



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By the end of this very enjoyable meeting no participant was unaware of the great challenge offered by this very adventurous project. At the same time most spoke enthusiastically about wishing to contribute data from their own regions. We now need to capitalise on this enthusiasm and drum up all the support we can get within the Society. Instructions for participating in the Habitats Survey, soil analysis methods and a suitable recording card are all downloadable from the BBS website. We plan to add further information including a 'Frequently Asked Questions' section in due course. Would-be participants are welcome to contact me directly for advice or help.

I am most grateful to Martin Godfrey for acting as local organiser for the meeting and for safely transporting us in the Centre's minibus. Sue Townsend, of the Field Studies Council, is also to be warmly thanked for making us very comfortable at Preston Montford and helping to make the meeting a success. We are already thinking about the next weekend workshop, in spring 2008, which we would like to hold in either the Lake District or Malham area of the Pennines.

**Jeff Bates**