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VEGETATION CHANGES ON CESSATION OF GRAZING. MONITORING BRYOPHYTES
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ITE 15

Progress Report

VEGETATION CHANGES ON CESSATION OF GRAZING

The aim of this project is to assess the changes in two sites in the Lake District when grazing pressures are removed. Several recording methods are being used and the objective is to assess their value in terms of each of use, time taken to perform field work, and the usefulness and detail of the data obtained.

The sites used are in oak woodland in Borrowdale and Grizedale. The Borrowdale site is in heavily sheep-grazed woodland rich in atlantic bryophytes whilst the Grizedale area is dominated by heavily grazed Vaccinium only a few inches high, the main grazing animal being Red deer. Both areas were chosen as those where change was likely to occur over a short timescale.

Borrowdale

The experimental plot has been fenced against sheep and 10 randomly distributed 1 m² quadrats set up inside the enclosure. As there had previously been problems with the unauthorized removal of marker stakes the quadrats have been marked with 8" lengths of 1" x 1" aluminium angle driven vertically into the ground. Two stakes are located at opposite corners of the quadrat on a diagonal and serve to relocate the quadrat frame. The quickest and most practical way of finding these markers has been found to be by means of a metal detector which is very effective providing the vegetation is not wet with dew or rain.

Recording at this site has only been carried out for one year prior to fencing due to the marker loss. Two techniques are being used, photographic recording and frequency counts using a subdivided quadrat.

The photographic records are taken in both monochrome and colour, using a standard 50 mm lens. The camera is mounted on a tripod above the quadrat, aligned using a spirit level and the camera/ground distance is standardised for each quadrat.

The quadrat frame used for the recording has been sub-divided into 25 20 x 20 cm sub-quadrats and within each of these all species of flowering plants, ferns and bryophytes are recorded on a presence/absence basis. It is proposed that any tree seedlings that develop in subsequent years will be individually labelled with numbered tags and height measurements taken.

Grizedale

The area in Grizedale is on Forestry Commission land and has experienced no problems with interference. Two year's records have been obtained prior to fencing.

The plot layout and marking system are the same as described for Borrowdale except that the fence height has to be sufficient to exclude the Red deer which frequent the area.

Recording work is being carried out photographically as at Borrowdale both in monochrome and colour.

The second method of recording used at Grizedale is point quadrats. In order to relocate the sample points accurately, a non-random layout for the point quadrats has been adopted. A metre rule is pinned down along one side of the quadrat and a point quadrat frame with 10 pins is set at right angles to the rule. This is repeated at 2 cm intervals along the rule, yielding a total of 500 points per quadrat. During the descent of the pins all contacts with the vegetation are recorded. Computer programmes have been written which summarise the results in terms of percentage cover, percentage contribution to the sward and percentage bare ground or litter.

It is anticipated that a least three years recording following fencing will be needed at these two sites before an assessment of the techniques used can be made.

A. D. Horrill
19 March 1976.

MONITORING BRYOPHYTES IN BORROWDALE

The main objective of this work is to assess the possibility of developing a quick photographic technique for recording change in bryophyte communities. The area chosen for the work is Johnny's Wood, Borrowdale, a site well known amongst bryologists for the range and diversity of its Atlantic bryophyte Communities. In the first instance saxicolous communities are being recorded, the technique developed so far being as follows:-

The areas recorded are chosen on the grounds of their species content and the availability of a site for mounting the recording camera. Once chosen the site is related to nearby landmarks and marked by a small paint spot; the area used is generally of the order of 30 x 20 cm. The camera is mounted in a small cradle which enables the centre of the lens to be moved 5 cm in a horizontal plane by sliding the camera body from side to side, this cradle fits onto the head of a standard heavy duty tripod.

Once set up the system is focused and so positioned that the marker spot is visible in the corner of the field of view, the lens/subject distance is then recorded for future reference. The first exposure is made, the camera moved along the cradle and the second photograph taken.

Both natural light and electronic flash has been used in preliminary trials; natural light has proved to be far the most satisfactory providing a camera with an adequate range of slow shutter speeds is available. The electronic flash tends to give rather harsh results even using a diffuser.

By mounting the pairs of transparencies under a standard stereoscope a very good impression of depth is obtained even with such small subjects.

Assessment methods in the process of trial include superimposition of standard grids over the transparencies and projection in order to detect changes and the preparation of "vegetation maps" of each area used. At the present time 25 sites are in course of being recorded in Johnny's Wood.

It is anticipated that at least 3-5 years recording will be needed to obtain meaningful results although from a practical point of view the field technique appears quick and yields satisfactory results.