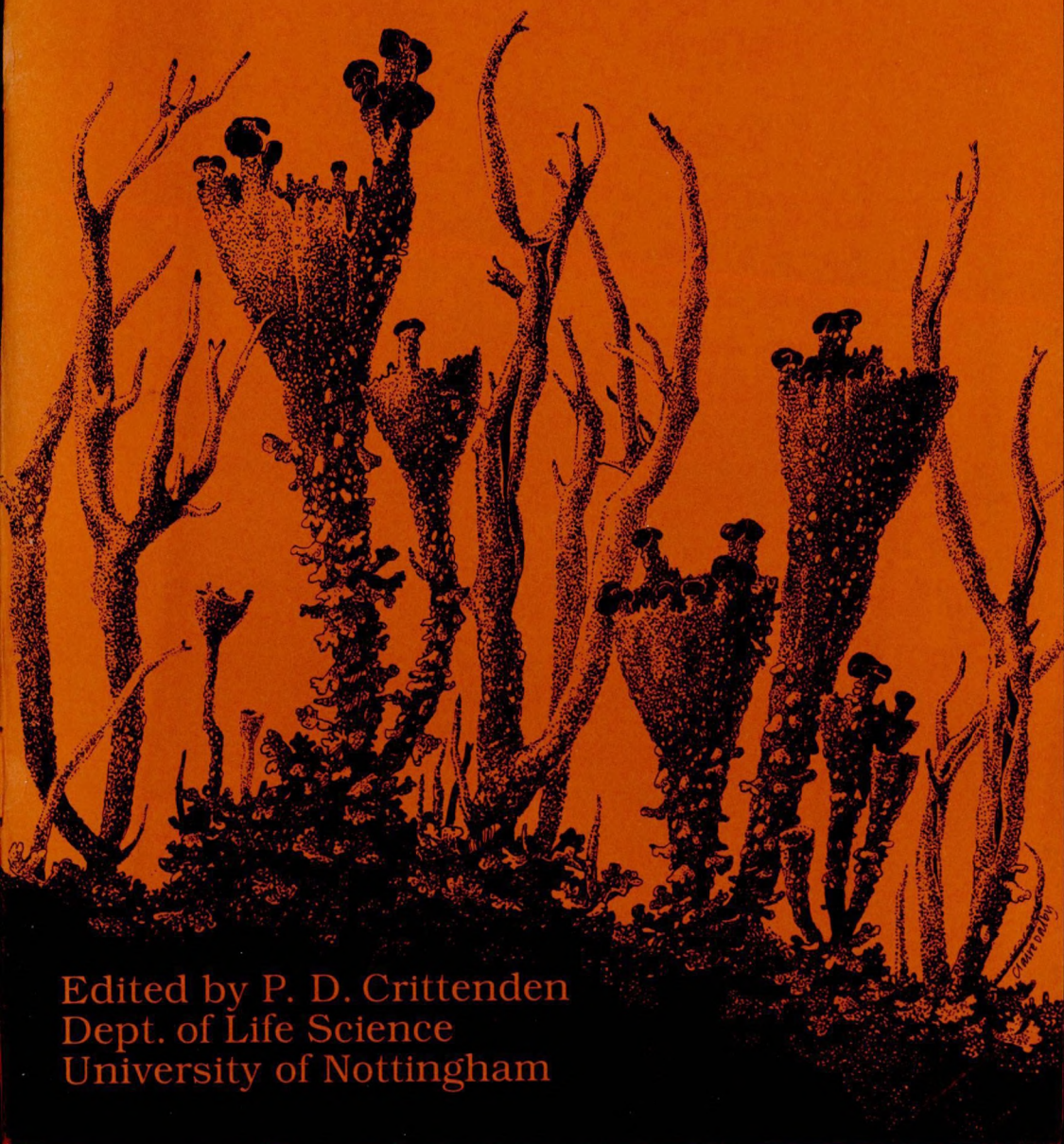


# BRITISH LICHEN SOCIETY BULLETIN

No. 79 Winter 1996



Edited by P. D. Crittenden  
Dept. of Life Science  
University of Nottingham

### Shetland 1961

Herbarium labels show that she made a second visit to Shetland, albeit a brief one, in September 1961. This was noteworthy for her finding *Pertusaria chiodectonoides*, new to Shetland. Twelve of her gatherings come from Dunrossness, all from within 1 to 2 km walking distance (yes, *pace* PWJ, even in wellington boots; surely the best footwear for Shetland) of the Spiggie Hotel (GR HU 377172) where she presumably stayed; this was handy for the Fair Isles boat from Grutness, some 7 km away. A thirteenth collection (of *Lecanora varia*) is labelled as Island of Noss, 1961, but I think this must be a subsequent confusion of that island (where she had been in 1959) with a hill of the same name near Spiggie (which she certainly visited in 1961).

### Shetland problem sites

A few of her 1959 sites have in fact proved either difficult or impossible to identify. "Flemington" proves to be an earlier name for the large house now known as Kergord House (GR HU 3954), and noteworthy for its extensive (by Shetland standards) tree plantations, including numerous exotics. Several Shetland rarities (*Dimerella*, *Normandina*, *Physconia*) occur in the Kergord estate, although she appears not to have seen them. More puzzling is "Crossgerd near Fladdabister". Walter Scott (a resident botanist with vast local knowledge) can say little more than pointing to an area with this name (GR HU 4226) about 6 km south of Fladdabister - though it is unlikely that anyone would link this place to Fladdabister when the settlements of Cunningsburgh and Mail lie much nearer.

Kery Dalby

## GREAT WOOD, KESWICK : EPIPHYTIC LICHEN SURVEY

4-5 February 1996

### Introduction

This survey was made in response to a request from the National Trust to assess the current status of the *Lobaria pulmonariae* in Great Wood, as serious concern has recently been expressed about the condition and viability of this ancient forest lichen community at this important woodland site (Hawksworth, 1995). In an account of a one day visit to the site in 1994, David Hawksworth described a marked decline in the community since 1969 when he witnessed, with Francis Rose and Brian Coppins "the best *Lobaria* communities we had seen anywhere in the British Isles or Brittany" (Rose *et al*, 1970).

Rose *et al* 's critical 1969 survey was the first systematic modern search for lichens at the site, but important early records of members of the *Lobaria*

were made by 19th century botanists. These records when compared with recent surveys, indicate that the woodland's lichen flora was declining well before the modern period (Winch, 1833; Johnson, 1881). These early workers noted a number of macro-lichens at Great Wood belonging to the *Lobarion* which have not been seen there this century; namely *Lobaria scrobiculata*, *Pannaria rubiginosa*, *Degelia plumbea*, *Leptogium burgessii*, *Collema furfuraceum* and *Collema subflaccidum*. With the exception of *L. scrobiculata* and *P. rubiginosa*, which both now appear to be extinct in Lakeland, all of these cyano-lichens still occur in other Borrowdale woodlands, where they are restricted to a small number of ancient trees. (For a more detailed review of historical lichen records at Great Wood and other Borrowdale woodlands see Day (1985)).

In 1969, seventy-seven corticolous lichens were noted at Great Wood in a one-day survey (Rose *et al*, 1970). In 1985, I re-surveyed the woodland over a period of 3 days for English Nature and found all of the taxa listed by Rose *et al* (with the exception of *Buellia disciformis*, but this has been re-discovered during the present survey). By concentrating on a detailed search for easily overlooked crustose micro-species, I was able to add another 63 taxa to Rose's list and Brian and Sandy Coppins added a further 12 during a visit in 1990, thus making a total number for the site of 152 corticolous and lignicolous taxa (Day, 1985). A full list of lichens found since 1969 are listed in the appendix to this report.

During the course of this 1985 survey I noted that the *Lobarion* was still an important and conspicuous element in the site's epi-flora, although the general health of *L. pulmonaria* in particular gave cause for concern: many thalli had abraded cortices with the white of the medulla showing through, particularly on the surface ridges, almost certainly the result of slug damage. Many thalli of this taxon also had black necrotic patches on the cortex and some thalli were dropping off the trees altogether through bark shedding, a problem almost certainly caused by the activities of tree creepers! *Lobaria amplissima* and *L. virens* at this time were in good condition on most trees with *L. amplissima* bearing cephalodia on all three trees on which it occurred; on one it was abundantly fertile with 17 ascocarps on one thallus. A more dramatic decline of *Sticta* spp. was noted and although *S. sylvatica*, *S. fuliginosa* and *S. limbata* survived in 1985, they were present as tiny (c 10 mm) thalli on only two trees.

In 1986, a number of trees in Great Wood were chosen as sites for permanent quadrat frames in an attempt to temporally quantify the decline of the *Lobarion*. These studies were made as part of a national survey of the effects of acidification on lichens (Looney & James, 1989). Over a four year period it was found that low relative growth rates of *Lobaria* spp. at Great Wood were related to declining bark pH, indicating that the epiphytic lichen flora was



possibly being modified by a mechanism such as acid rain (Looney & James, 1989; James & Wolseley, 1992).

In 1992 I noticed that three mature wych elm southwest of the car park were showing signs of Dutch elm disease. Two of these supported remarkable colonies of *Lobaria virens*, *Leptogium lichenoides*, *Gyalecta truncigena*, *G. flotowii*, *Acrocordia gemmata*, *Biatora epixanthoides* and *Opegrapha herbarum*. The *L. virens* ascended to c 35 metres into the canopy of the elms in a luxuriant closed matt of contiguous thalli that left little room for other epiphytes. Two young diseased elms nearby supported small colonies of *L. pulmonaria*. By 1994 all the elms were shedding large sheets of bark and it was obvious that the *Lobaria* communities on these trees were doomed. At this time, the National Trust had no choice but to fell the diseased trees on public safety grounds because of their close proximity to a footpath. As a result of the demise of these trees there has been a loss of a small number of lichens which, at this site, are specific to *Ulmus*, such as *Biatora epixanthoides*, *Gyalecta flotowii* and *Opegrapha herbarum* (Watson *et al*, 1988).

### Lichen translocations

In 1994 I was approached by the Trust to carry out transplants of lichen material from the moribund elm trees to other suitable phorophytes. Material of *L. virens* and *L. pulmonaria* was translocated to 2 *Quercus petraea* and 4 *Fraxinus excelsior* individuals in other parts of the site by attaching lobe fragments c 20 mm diam. under small squares of translucent nylon net, which were stapled to the bark.

At the time of this report, 16 out of the original 19 transplants have attached themselves securely to the substratum and the nylon covers have been removed. All surviving transplants show varying but positive rates of growth. Two transplants of *L. virens* have more or less doubled in size and have produced apothecia (all original transplants consisted of sterile marginal lobes only). The 3 failed transplants were on the 2 oak trees; lichen material transplanted to ash has had a 100% success rate. Now that these transplants have become securely attached, it will be possible to monitor their growth rates both photographically and by annually tracing the margins of the thalli.

Due to the high success rate of these translocations it is suggested that a number of others be attempted onto suitable host trees. A reasonable amount of healthy *L. virens* that could be used for this purpose still survives on the stump of one of the felled elms and an unfelled but doomed elm supports viable *L. pulmonaria* that would make excellent translocation material when broken up into fragments. A number of well-illuminated young ash trees in the vicinity of the lost elm grove could be used to host additional transplants of this

material in order to further increase the chances of the survival of *Lobaria* spp. at Great Wood into the next millenium. Several oak trees which support *Pachyphiale carneola* are also likely to be good host trees as the presence of this sensitive crustose taxon indicates the optimum bark conditions for the survival of *Lobarion* macro-lichens.

### Aims of the Survey

The aims of the survey were:

1. To locate and map all trees in Great Wood that support the *Lobarion pulmonariae*.
2. To critically assess the current status of this community in the woodland.
3. To suggest any remedial action that might improve the chances of the community surviving into the future.

Because of the limited time available, it was decided to search only for trees which support macro-species of the *Lobarion pulmonariae* alliance rather than to conduct an exhaustive survey of all phorophytes and lignum for all lichen epiphytes; this was done thoroughly in 1985 (Day 1985) and a species list appears below. Trees bearing epiphytic macro-lichens of the *Lobarion* were tagged with Latschbacher tree labels and their positions marked on an ordnance survey map. Such trees were found only in the lower parts of the woodland below 120 m above sea level. Thirty three trees were labelled (27 oak, 2 elm and 4 ash); *Lobaria Pulmonaria* and *L. virens* were each found on 19 and 7 trees respectively. The only *Sticta* species located during this survey was *S. fuliginosa* on the bole of a pollarded *Fraxinus*, just outside the boundary of the National Trust-owned woodland in a paddock on Calfclose Bay.

### Conclusion

Minor alterations in the status of the *Lobarion pulmonariae* in Great Wood have occurred since 1969, but they are fortunately not as drastic as the changes suggested by Hawksworth (1994). *Lobaria amplissima* still occurs on the same 3 trees on which it was first seen in 1969 (F Rose, pers. comm.). Hawksworth also mentions his failure to locate a number of trees, "close to the edge of Derwentwater itself" at Calfclose Bay, that once bore such luxuriant communities of *L. pulmonaria* that material was removed for transplant experiments in other parts of the country (Hawksworth, 1995). He concludes that the presence of tree stumps in this vicinity indicates that the trees in question may have been felled. The author has been regularly visiting the site since 1978 and cannot recollect any trees on the shore of Calfclose Bay that supported luxuriant *L. pulmonaria*, but there are a good number just inland which still have excellent stands of this lichen. Rose (pers. comm.) also agrees that all the *L. pulmonaria*-bearing trees located in 1969 and 1971 (Rose *et al*,

1970; Rose, 1971) were slightly inland from the shore of Calfclose Bay.

I have worked closely with the National Trust biologist and forester at the site over the past 12 years and have always been consulted over any felling of trees in the woodland. There are no records of trees bearing important lichen communities being felled either in the Calfclose Bay area in the past 20 years or at any other location at the site, other than the diseased *Ulmus* grove mentioned above. National Trust staff have been aware of the lichenological importance of this woodland since Rose's early reports to English Nature in the 1970s (eg Rose, 1971), and have managed the conservation of the site with care and sensitivity. David Hawksworth, on what was a very short site visit, unfortunately must have missed many of the good trees.

There has been a definite loss of some important *Lobarion* community taxa from the site since 1985, but most of these were becoming marginalised at that time and have never been abundant at the site in modern times. The following were not found during the present survey: *Pannaria conoplea*, *Parmeliella triptophylla*, *Nephroma laevigatum*, *Sticta sylvatica* and *S. limbata*.

### Epiphytic lichens in Great Wood, Borrowdale 1969 - 1996

(Asterisks denote taxa not seen since 1985)

*Acrocordia gemmata*  
*Anisomeridium bifforme*  
*A. nyssaegenum*  
*Arthonia didyma*  
*A. elegans*  
*A. punctiformis*  
*A. radiata*  
*A. spadicea*  
*A. vinosa*  
*Arthopyrenia antecellans*  
*A. lapponina*  
*A. punctiformis*  
*A. ranunculospora*  
*Arthothelium ruanum*  
*Bacidia absistens*  
*B. arnoldiana*  
*B. biatorina*\*  
*B. incompta*  
*B. rubella*\*  
*B. sabuletorum*  
*B. vezdae*  
*Biatora epixanthoides*\*  
*B. sphaeroides*  
*Bryoria fuscescens*  
*B. subcana*

*Buellia disciformis*  
*B. griseovirens*  
*Calicium glaucellum*  
*C. viride*  
*Candelariella xanthostigma*  
*Catillaria pulvereae*  
*Catinarina atropurpurea*  
*Celothelium ischnobelum*  
*Cetraria chlorophylla*  
*Cetrelia olivetorum*\*  
*Chrysothrix candelaris*  
*Cladonia caespiticia*\*  
*C. chlorophaea*  
*C. coccifera* agg.  
*C. coniocraea*  
*C. digitata*  
*C. fimbriata*  
*C. macilenta*  
*C. polydactyla*  
*C. squamosa*  
*Cliostomum griffithii*  
*Dimerella lutea*\*  
*D. pineti*  
*Enterographa zonata*  
*Eopyprenula avellunae*\*

*E. grandicula*  
*Evernia prunastri*  
*Fuscidea lightfootii*  
*Graphis elegans*  
*G. scripta*  
*Gyalecta flotowii\**  
*G. truncigena*  
*Gyalideopsis anastomosans\**  
*Hypocenomyce scalaris*  
*Hypogymnia physodes*  
*H. tubulosa*  
*Lecanactis abietina*  
*Lecanora chlorotera*  
*L. conizaeoides*  
*L. expallens*  
*L. intumescens\**  
*L. jamesii\**  
*L. saligna\**  
*L. quercicola\**  
*Lecidella elaeochroma*  
*Lepraria incana*  
*Leproloma membranaceum*  
*Leptogium lichenoides\** (seen on  
 bryophytes on a wall, but not  
 as an epiphyte)  
*L. teretiusculum\**  
*Leptorhaphis epidermidis*  
*Lobaria amplissima*  
*L. pulmonaria*  
*L. virens*  
*Loxospora elatina*  
*Micarea bauschiana*  
*M. lignaria*  
*M. melaena*  
*M. prasina*  
*Mycoblastus sanguinarius*  
*Mycoporum quercus*  
*Nephroma laevigatum\**  
*Normandina pulchella*  
*Ochrolechia androgyna*  
*O. inversa*  
*O. subviridis\**  
*O. turneri*  
*Opegrapha atra*  
*O. herbarum*  
*O. niveoatra*  
*O. ochrocheila\**  
*O. rufescens*  
*O. sorediifera*  
*O. varia*  
*O. vermicellifera*  
*O. vulgata*  
*Pachyphiale carneola*  
*Pannaria conoplea\**

*Parmelia caperata*  
*P. crinita*  
*P. exasperata\**  
*P. glabratula*  
*P. laevigata\**  
*P. perlata*  
*P. reddenda\**  
*P. revoluta*  
*P. saxatilis*  
*P. subaurifera*  
*P. subrudecta*  
*P. sulcata*  
*Parmeliella triptophylla\**  
*Peltigera collina\**  
*P. horizontalis*  
*P. hymenina*  
*P. membranacea*  
*P. praetextata*  
*Pertusaria albescens*  
*P. amara*  
*P. hemisphaerica*  
*P. hymenea*  
*P. leioplaca*  
*P. pertusa*  
*P. pupillaris*  
*Phlyctis argena*  
*Phyllopsora rosei\**  
*Placynthiella icmalea*  
*Platismatia glauca*  
*Porina aenea*  
*P. coralloidea\**  
*P. leptalea*  
*Pseudevernia furfuracea*  
*Pyrrhospora quernea*  
*Ramalina farinacea*  
*Schismatomma decolorans*  
*S. quercicola*  
*Scoliciosporum chlorococcum*  
*Sphaerophorus globosus*  
*Stenocybe pullatula*  
*S. septata*  
*Sticta fuliginosa*  
*S. limbata\**  
*S. sylvatica\**  
*Thelopsis rubella*  
*Thelotrema lepadinum*  
*Tomasellia gelatinosa*  
*Trapelia corticola*  
*Trapeliopsis pseudogranulosa*  
*Usnea subfloridana*

## References

- Day, I P (1985). *Impoverishment of epiphytic lichens in Lake District woodlands*. Report to the Nature Conservancy Council.
- Hawksworth, D L (1995). Great Wood and environs twenty-five years on. *British Lichen Society Bulletin* 77: 25-27
- James, P W & Wolseley, P (1992). Acidification and the *Lobarion*: a case for biological monitoring. *British Lichen Society Bulletin* 71: 4-12
- Johnson, W (1881). The lichens of Cumberland. *Transactions of the Cumberland Association for the Advancement of Science* 6: 129-157.
- Looney, J H H & James, P W (1989). *The Effects of Acidification on Lichens*. Report to the Nature Conservancy Council.
- Rose, F, Hawksworth, D L & Coppins, B J (1970). A lichenological excursion through the North of England. *Naturalist (Hull)* 95: 49-55.
- Rose, F (1971). *A survey of the woodlands of the Lake District*. Manuscript Report to the Nature Conservancy.
- Watson, M F, Hawksworth, D L and Rose, F (1988). Lichens on elms in the British Isles and the effect of Dutch Elm Disease on their status. *Lichenologist* 20: 327-352
- Winch, N J (1833). *Remarks on the flora of Cumberland*. Newcastle: Mercury Press.

Ivan Day

*Postscript*: I am pleased that Ivan Day has been able to examine Great Wood in more detail, and that he found that most of the species recorded in the past are still present. It is evident that: (a) the decline which has taken place in the *Lobarion* in this site is **quantitative** rather than **qualitative**, and that it is now a matter of searching for "the best trees" rather than being unable to escape good ones (!); (b) there may have been a loss of up to 27 species in the period of recording (the species asterisked in his list); (c) there had been a decline in the *Lobarion* before 1985, when Ivan's study noted that some of the *Lobaria* thalli were showing signs of damage; and (d) the decline accelerated with the death of many of the elms into 1994. It would be of interest to see the results of resurveys at the three other sites I mentioned. I should add that the specimens of *Lobaria pulmonaria* I collected at Calfclose Bay were on **different** trees from those used as a transplant source by Francis Rose (see my 1971 paper; trees directly by the River Dove were used to mirror the situation by the edge of Derwentwater) and may never have been notified as of lichenological interest. On a positive note, I was gratified to learn that the transplants mentioned in my report were still doing well in 1996, and that cooperation with the National Trust was ongoing. Careful positive management, combining transplants and including interplanting with trees that can provide new substrata (as also used at Buckland-in-the-Moor in Devon) is clearly going to be the key to conserving *Lobarion* in the longterm in many parts of England.

David Hawksworth