



BULLETIN  
OF THE  
BRITISH  
BRYOLOGICAL SOCIETY

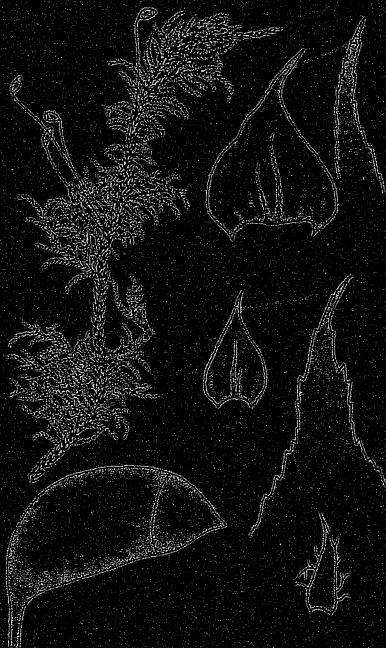
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*Edited by* M.J.M. Yeo

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## BRITISH BRYOLOGICAL SOCIETY

The British Bryological Society exists to promote the study of mosses and liverworts. The Society was constituted in its present form in 1923, replacing the Moss Exchange Club founded in 1896.

Two Field Meetings, each usually of a week's duration, are held every year in districts of bryological interest; in addition, two weekend meetings are held in the autumn, one for the Annual General Meeting, the presentation of papers and fieldwork, and the other for practical instruction in the examination and identification of bryophytes.

Members of the Society are entitled to receive the Society's *Journal* and its *Bulletin* free of charge, to borrow books, periodicals and reprints from the Society's library, to consult or borrow specimens from the Society's herbarium, and to consult the Society's panel of referees for assistance in the identification of specimens.

The subscription, due in advance on 1 January each year, is £20.00 for Ordinary members; £10.00 for Senior members; Junior members and Student members; and £1.00 for Family members (who do not receive the *Journal*).

Applications for membership should be addressed to the Membership Secretary, from whom further particulars may be obtained.

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## ARTICLES FOR *BULLETIN* 77

Items for inclusion in the summer 2001 issue of the *Bulletin* should be sent to me at the address below by **25 May 2001**. Wherever possible, material should be provided as word-processing files, either on disk or by e-mail. **Please note the change of e-mail address.**

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## MEETINGS SECRETARY'S REPORT FOR 1999: CORRIGENDUM

Contrary to what was reported in the Meetings Secretary's report for 1999 (*Bulletin* 75: 11) the organiser of the 1999 summer field meeting in Ireland was not Grace Kelly, the former Hollywood actress and wife of Prince Rainier III of Monaco, but Grace O'Donovan, of University College Dublin. Apologies for any confusion!

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## SUBSCRIPTIONS FOR 2001

Subscriptions were due on 1 January 2001 and confirm entitlement to the *Journal of Bryology* and the *Bulletin* for the current year, as well as for the other services provided by the Society. If you have not already paid your subscription then an early remittance to the Membership Secretary (address below) will help to minimise postage costs.

I would like to thank all of those members who paid promptly last year. However, it was necessary to send first reminders to over 160 people and second reminders to 30. Members will realise that this results in significant costs to the Society and are asked to pay promptly to minimise such avoidable costs.

Current rates are as follows:

Ordinary Members:	£20.00
Family Members:	£1.00
Concessionary Subscription:	£10.00

There are three categories of members who may opt to pay the concessionary subscription:

Senior Members:	Ordinary Members who have been members of the Society for 40 or more years.
Junior Members:	Members who are under the age of 21.
Student Members:	Members who are full-time students, irrespective of age.

Payment may be made:

1. By £ Sterling cheque payable on a London bank.



2. By credit card mandate (**ONLY** Barclaycard, Visa, Access, Mastercard, Eurocard accepted). **The cost to the Society of this method is 3% of the subscription which must be included in the mandate to make a total of £20.60 for ordinary members (£10.30 for concessionary subscriptions).**

An alternative method of payment is available for North American members. For details of this and for standing order mandate forms please contact the Membership Secretary.

Please note that both the collection and conversion of payments involves a cost to the Society and to the member, and this cost should be minimised as far as possible by prompt payment and choice of the most cost-effective system of payment available.

Cash is sent at sender's risk.

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## **PROCEEDINGS OF THE BRITISH BRYOLOGICAL SOCIETY**

Throughout the following accounts of BBS meetings, new vice-county records are indicated by an asterisk (\*). Nomenclature follows Blockeel & Long (1998), *A Check-list and Census Catalogue of British and Irish Bryophytes*.

### **SUMMER FIELD MEETING, DUNGARVAN AND NEW ROSS, IRELAND, 1999**

The 1999 Summer Meeting was held in Ireland from 8 to 20 August. It was based at Dungarvan for the first week and at New Ross for the second week. As most of the people attending the meeting could only join part of it, daily numbers fluctuated. Present at various times were Tom Blockeel, Sinead Callaghan, Conor Clenehan, Maria Cullen, Helena Durwael, Howard Fox, Daniel Kelly, Neil Lockhart, Petra Mair, Margaret O'Brien, Grace O'Donovan, Claire Parkes, Roy Perry, Phil Stanley and Dan Wrench. A few participants took the opportunity to go to Killarney National Park and Dingle for a few days' bryology in oceanic habitats. Results from these excursions to south-west Ireland, and fungal distractions throughout the BBS meeting, are not reported in detail here.

The British Bryological Society has previously held field meetings in south-east Ireland in Clonmel in 1966 (Synnott, 1967) and Arklow in 1975 (Synnott, 1976), when many vice-county records were made. Though fewer, the number of new records and updates made in 1999 was still substantial. Many interesting sites of very high quality and of conservation importance for mosses and liverworts in this region of Ireland were studied.

The first week of the meeting was spent entirely in Co. Waterford (VC H6), except for a small incursion across the boundary with East Cork (VC H5) during one afternoon.

## SUNDAY 8 AUGUST

### Lismore Woods and Owennashad River (S00)

We began in Lismore woods and the first observations were made in the car park, where the humid climate was nicely illustrated by *Microlejeunea ulicina* growing on the wooden picnic tables! *Zygodon rupestris*\* was on a large oak here. The Atlantic flavour of the flora was soon indicated by *Harpalejeunea mollerii* on the trees, *Lophocolea fragrans* on a damp stone, and the notable occurrence of *Telaranea nematodes*\* under rhododendron. (Fortunately, because of their old and undisturbed nature and the lack of heavy grazing pressure, rhododendron has not taken strong hold in these woods.) Other species in the woods included *Anthoceros punctatus* by the main path, *Zygodon conoideus*\* on an oak twig, and *Leucobryum juniperoideum*\* and *Plagiothecium denticulatum*\* on banks. We then went into the oak woods in the valley of the Owennashad River. This stunning area is an oasis for oceanic species, marred slightly by an unsightly dump of rubbish on a steep bank below the road. It was a surprise for many to see *Breutelia chrysocoma* growing happily on a wall-top! *Dumortiera hirsuta* and *Jubula hutchinsiae* were particularly impressive on a dripping rock bank with *Saccogyna viticulosa* and *Trichocolea tomentella*. *Porella pinnata* and *Isothecium holtii* were by the stream, and *Plagiochila killarniensis* and *P. spinulosa* on shaded rocks. *Neckera pumila* grew on trees. Other records included *Nowellia curvifolia*\* and *Riccardia palmata*\* on rotting wood, *Bazzania trilobata*\* in the rocky woodland, and sterile *Diphyscium foliosum*\* in a rocky cleft.

## MONDAY 9 AUGUST

### Mine Head, Ballymacart and Monaneela Lough (X28)

The objective was to record some unknown sites. We started at Mine Head, east of the lighthouse. Some descended the eutrophic ravine to the shore, finding *Tortula viridifolia* on an earthy ledge and *Schistidium maritimum* on rocks, while others ranged over disturbingly steep friable coastal crags. *Scapania compacta* and *Lophozia excisa* were found in a small disused quarry, and *Plagiochila killarniensis*\* and *Frullania microphylla*\* on a crag high on the slopes. For lunch we went on to Ballymacart, a lightly farmed and bushy valley, with tufa seeps into the river. This is a very pleasant area with lots of niches packed together, each with a good range of bryophytes. Young ash trees supported *Cryphaea heteromalla*, *Neckera pumila* and *Cololejeunea minutissima*. *Leiocolea turbinata*\* was on tufa, and colonists of bare soil included *Ephemerum serratum* var. *minutissimum*, *Bryum subapiculatum*\* and *B. klinggraeffii*\*. The most unexpected find was a second Irish station for *Fissidens rivularis*\*, growing on rocks in the stream under the roadbridge. In the late afternoon we went on to Monaneela Lough, passing through conifer clearfell before crossing the rushy bog, alive with wasps, which supported several *Sphagnum* species together with *Odontoschisma sphagni*\*, and both *Warnstorfia fluitans*\* and *W. exannulata*\*.

## TUESDAY 10 AUGUST

### Coumfea and Coumalocha (S20, S21)

We went into the Comeragh mountains and visited Coumfea and Coumalocha, parking in the Nier Valley. Neil Lockhart joined us for the day, and with his help we began the day with an

unsuccessful search for *Hamatocaulis vernicosus*, known to occur here, but we probably joined the R. Nier at too high a point. *Dicranum scottianum* was seen on boulders during the ascent, but most of the bryology began after the tramp upslope at the moraine blocks and the corrie lake at Coumfea. Both *Barbilophozia floerkei*\* and *B. atlantica*\* were found here, the latter in apparently only its second confirmed Irish station. Also on rocks about the lake were *Hedwigia stellata*, *Racomitrium sudeticum*\* and *Jubula hutchinsiae*. The cliff behind the lake was a rewarding place to eat lunch, and though not especially rich in bryophytes produced a little *Gymnomitrium crenulatum*, *Rhabdoweisia crenulata*, and in a gully *Anoetangium aestivum*\*. *Colura calyptrifolia* was an exciting find on the bare rock. One or two bryologists traversed around the next coum recording the very few Atlantic hepatics left (including a little *Bazzania tricenata*). The sheep have almost totally removed the protective heather cover on wet and damp steep slopes, and as a result the Atlantic hepatic mats are drying and dying out in this part of the Comeragh mountain range. The paternoster lake shores were quite engaging, with much *Isoetecium holtii*, and one participant swam in a lake. *Pohlia bulbifera*\* was found on dried-out peat in an overspill pool. On the return downslope more time was spent in an effort to relocate *Hamatocaulis vernicosus*, this time successfully in another known site on the slopes below Sgilloge Lochs.

### Owennashad River (X09)

Roy and Phil later explored the E bank of the Owennashad River just N of Lismore. Here there is a public path in open wet woodland with broadleaved trees and shaded sandstone boulders. *Lophocolea fragrans* was on a decorticated log, and *Hookeria lucens*, *Dumortiera hirsuta* and *Saccogyna viticulosa* were on shaded soil on a bank under rhododendron.

## WEDNESDAY 11 AUGUST

### Various localities in Co. Kerry

Roy and Phil left on this day of the solar eclipse for a few days' bryologising in Co. Kerry (VCs H1 and H2). Here, over the course of three days, they saw many of the exciting bryophytes that this part of Ireland is renowned for, including *Telaranea nematodes*, *Cephalozia hibernica*, *Eremonotus myriocarpus*, *Sematophyllum demissum*, *S. micans* and of course *Dumortiera hirsuta*, with male and female receptacles; they also recorded the adventives *Leptotheca gaudichaudii* Schwaegr. and *Calomnion complanatum* (Hook.f. & Wils.) Lindb. on the trunks of tree ferns, probably introduced from Australasia. The classic site, Torc Waterfall (VC H2, V9784), is within easy reach of Killarney and is now a major tourist attraction with the inevitable car park. However, Roy and Phil saw most of the bryophytes for which it is famous and the bryologically interesting habitats are more-or-less intact. Amongst other localities they visited the broadleaved woodland (oak/holly/birch) at Galway's Bridge (VC H2, V9180) on the N side of the Galway's River and found that the rhododendron had been cut down and removed, leaving a pitiful open community which will take a long time to recuperate. The same was observed in Derrycunihy Wood further west, made famous in the 1930s by Paul Richards. It is to be hoped that the rhododendron will not be allowed to re-invade the sites and their stumps be destroyed, and that the re-establishment of native trees is encouraged.

### Glendine Woods (X08)

Back in Waterford, the main party visited Glendine Woods. We were joined for the first part of this wet day by Margaret O'Brien, the head gardener. We studied the river just above tidal influence in the estuary, in deep shade of the woods. Despite the thick cloud cover and rain, we sensed the much heralded solar eclipse darkening the sky at 11.11 a.m. In spite of the gloom, *Dumortiera hirsuta*, *Lophocolea fragrans*, *Plagiochila spinulosa*, *Porella pinnata*, *Jubula hutchinsiae* and *Lejeunea holii* were found, showing the richness of the riverside banks. However, the owners are distressed by the deteriorating water quality, resulting from an elevated sediment load engineered upstream. The impact is most directly seen by examining the response of a few species of saxicolous fluvial-zone hepatics. The shoots and leaves of *Porella pinnata*, for example, were unusually scrappy; the damage was caused by sediment scouring. Other species noted in the woods included *Porella arboris-vitae*, *Neckera pumila*, *Trichocolea tomentella* and *Cololejeunea minutissima*.

### Tallow Bridge (X09) and R. Bride (W99)

In the afternoon, we studied some very different habitats. A flood meadow east of Tallow Bridge was muddy and produced *Physcomitrium pyriforme*\*, *Aphanorhegma patens*\*, *Bryum klinggraeffii* and *Leptobryum pyriforme*\*. However, we were prevented by deep watery ditches from entering the wet woodland which had been our objective. At Tallow Bridge, wall mortar produced *Gymnostomum viridulum*, and the bridge foundations supported *Fissidens crassipes*\* at water level. We examined the banks of the R. Bride at several points, including a small stretch within East Cork (VC H5). These banks proved to have a very interesting riparian flora, with *Syntrichia latifolia*\* (H5 and H6), *Didymodon nicholsonii*, *Orthotrichum sprucei*\* (H5 and H6), *O. rivulare*\* (H5) and *Leskea polycarpa*\* (H5), all in good quantity. Epiphytes higher up the tree trunks included *Syntrichia papillosa*\* (H6) and *Cryphaea heteromalla*.

## THURSDAY 12 AUGUST

### Coomshingaun (S31)

The day was spent in Coomshingaun, ending at the steep ground and imposing cliffs on the south side of the lough. This area is still of superb quality, as first indicated by the 1966 BBS visit (Synnott, 1967), and the hepatics and mosses were very engaging. For most of us, this was the best locality of the week, and happily the corrie was found to have been less severely damaged by sheep grazing than at Coumfea. We spent all of the morning on the bouldery slopes below the corrie, an area with many springs and rivulets among the rocks. Atlantic species were much in evidence, with *Lepidozia cupressina*, *Plagiochila punctata*, *P. spinulosa*, *Drepanolejeunea hamatifolia*, *Dicranum scottianum* and *Isoetium holii*. Particularly pleasing were the excellent patches of *Lejeunea holii* growing with *Jubula hutchinsiae* on rocks by the rivulets. Some of the boulders were strongly base-enriched and supported *Hedwigia integrifolia*, *Pterogonium gracile*, *Porella obtusata* and *P. arboris-vitae*, as well as commoner calcicoles. *Trichocolea tomentella* was also found.

In the afternoon we proceeded along the rock walls on the south side of the corrie. These were strongly acidic and produced *Grimmia curvata*, *Cynodontium bruntonii* and *Rhabdoweisia crenulata*. Late in the day a few of us reached the gully in the south-western corner of the

corrie, which proved to be very exciting. There were indications of base-enrichment, and we saw *Palustriella commutata* var. *commutata*\* for the first time during the week. There was a fine array of Atlantic liverworts here: *Herbertus aduncus* subsp. *hutchinsiae* (sparsely), *Bazzania tricenata*, *Plagiochila exigua*\*, *Radula voluta*, *R. aquilegia*, *Colura calyptrifolia*, *Aphanolejeunea microscopica*, *Harpalejeunea molleri*, *Drepanolejeunea hamatifolia*, *Jubula hutchinsiae*, *Frullania teneriffae* and *F. fragilifolia*. The mosses included *Anoetangium aestivum*. It was late in the day and we had to leave this excellent place sooner than we wished, sensing that there was much we had not yet seen.

## FRIDAY 13 AUGUST

### Fenor Bog (S50)

A foray into Fenor Bog revealed rather few species between the large fen tussocks, both on trees and at groundwater level. One highlight was the fen specialist *Calliergon giganteum*\*. The concrete well cap on the way in added *Syntrichia papillosa*. However, this is quite a swampy place to get around in, and we probably missed a few species. A few more bryophytes were scraped up in the adjacent conifer stand, including *Orthodontium lineare*\* and *Cololejeunea minutissima*.

### Tramore Burrow (S60) and Bunmahon (X49)

We moved on for lunch, and spent the afternoon on Tramore Burrow, a rather inhospitable saline place for mosses, with *Hennediella heimii*. The sand dunes were mostly very dry, but *Tortella flavovirens* was present. In the evening, the Bunmahon coast and mines were studied, and *Cephaloziella massalongi* was refound by Dan Wrench after an intrepid descent into a deep rocky hole. An old mine adit was stained bright blue by the copper deposits.

## SATURDAY 14 AUGUST

At the end of the first week, we moved on to New Ross and Co. Wexford (VC H12). In the morning we had to bid farewell to Tom Blockeel, and later in the day to Dan Wrench.

### Ballyknockcrumpin and R. Barrow (S73)

On his return north after leaving the rest of the party at New Ross, Tom recorded at two places in the extreme south of Co. Carlow (VC H13). The first site was at Ballyknockcrumpin on the north bank of the Polymount River, which forms the county boundary for a short distance here with Co. Wexford. The stream is bordered by scrubby woodland and is unexceptional, and the discovery of *Lejeunea holtii*\* on a boulder near water level was therefore a big surprise. *Porella pinnata*\* nearby was the only other strongly Atlantic species present. *Amblystegium fluviatile*, *Fontinalis squamosa* and *Fissidens pusillus*\* were in and by the stream, and *Heterocladium heteropterum* var. *flaccidum*\* was on a small boulder in the woodland. The epiphytic flora was rather rich, with *Metzgeria fruticulosa*\*, *Cololejeunea minutissima*\*, *Microlejeunea ulicina*\*, *Orthotrichum pulchellum*\*, *Zygodon conoideus*\*, *Cryphaea heteromalla*, *Neckera pumila*\* and *Hypnum andoi*\*. The second site was on the banks of the River Barrow at St Mullin's. *Tortula marginata*\* and *Eurhynchium crassinervium*\* were on a derelict building and mortared bridge respectively, and *Anomodon viticulosus*\* on the embankment wall by the river. A little to the north, *Orthotrichum cupulatum* var. *riparium*\* was

on sycamore on the river bank. Wet ground by a section of canal had *Jungermannia pumila* (surprisingly on damp humus), *Cololejeunea minutissima* on *Salix*, and *Leptodictyum riparium*\* on a log. The canal path had *Physcomitrium pyriforme* and several ruderals, including *Dicranella staphylina*\*, *Tortula acaulon*\*, *Bryum subapiculatum*\*, *B. klinggraeffii* and *B. violaceum*\*. A copse, mainly planted with conifers, produced *Leucobryum juniperoideum*\* and, on a trackside bank, *Bryum sauteri* and *Fissidens bryoides*\*.

### **New Ross and environs**

Meanwhile, the remainder of the party in New Ross spent the morning looking about Rosbercon on walls in the town, and along the east bank of the Barrow upstream from New Ross. In the late afternoon, they visited Ballyanne wood, a wooded patch just above tidal influence in a creek off the Barrow estuary. This place is still humid, despite having the timber recently cut out of it for firewood, and it has most of the pioneer corticolous hepatics one could expect.

### **SUNDAY 15 AUGUST**

The second week of the meeting was less productive, mainly because of the small number of participants and a drift away to the attractions of Killarney in the latter part of the week. Only a brief account of the itinerary can be given here.

### **Various localities (S93)**

The travellers from Kerry (Roy and Phil) were now back and went on a general tour of Wexford (VC H12) in order to fill in field record cards in areas previously unrecorded: Carrig graveyard S of Enniscorthy, The Soldiers Hole and the Boro River SW of Enniscorthy (which had vast quantities of *Metzgeria fruticulosa*), Bree Hill, and Raheennahoon Hill, the latter two forestry plantations with grassy forest tracks, were all visited.

### **Mount Leinster**

The main party went to Mount Leinster. The bryology here was a bit of a struggle, though the Urrin flushes were wet. The heather turf on the mountain slopes was generally dry and burnt, but once we got to the cloud base above 500 m and on towards the summit, granite blocks were fine for *Racomitrium*, and the wet lips of peat hags were quite rich.

### **MONDAY 16 AUGUST**

### **Great Saltee Island (X99)**

This sunny day was spent by the main party on Great Saltee Island, recorded for its bryophytes by H.W. Lett in 1913. Mosses and hepatics were hard to find, largely because the island is so dry and bracken infested. We followed Lett's advice on where the best damp ground was, and we looked at trees and ruins around the well by the house, along the boulder clay bank on the north coast, and in drainage ditches between fields. A few species were found in short turf near the Prince's Seat. The bryophytes were poor, and we barely found half the species listed by Lett. The rest of the day was spent pursuing seals, gannets and coastal plants.

## **Various localities (S92)**

Roy and Phil recorded bryophytes in S92, visiting a spruce plantation with wet hollows 5 km NW of Barntown and a green lane S of Harristown. Later, the lane to St Munna's Well, W of Browncastle Bridge, was worked. Here, steeply-banked lanes with dripping shale rock cuttings provided a pleasant bryological venue.

## **TUESDAY 17 AUGUST**

### **Doo Lough (T12)**

The morning was spent in Doo Lough kettlehole. The vegetation was remarkably intact with limited grazing pressure. The *Sphagnum* carpet (which included *S. capillifolium*, *S. denticulatum*, *S. fimbriatum*, *S. inundatum*, *S. palustre* and *S. papillosum*) was interspersed with *Aulacomnium palustre*, *Polytrichum commune* and *Calliergon stramineum*. *Odontoschisma sphagni* turned up in open areas in the centre, and the tallows supported *Uloa phyllantha* and *Cryphaea heteromalla*. *Weissia brachycarpa* var. *obliqua* was on a bank at a field edge. We met the farmer who owns this bog, and had an interesting discussion on agricultural policy and conservation.

### **The Raven (T12)**

Later we went to The Raven, sand dunes on the east Wexford coast, for lunch, and looked around the dune system afterwards. *Tortella flavovirens* was found, but the dune bryophyte carpet and conifer plantation did not sustain our interest long, and with the failure to locate damp slacks, we moved on.

### **River Sow (T02)**

In the evening, we visited a damp estuarine wood on the River Sow, a creek in the inner Wexford Harbour 1.5 km WNW of Castlebridge. Here there is a deeply shaded broadleaved woodland on the south bank of the river. We were thankful for waterproof boots, because the ground was extremely muddy, but we were rewarded with *Dumortiera hirsuta*, which grew in several places on the muddy river bank not far from *Pellia neesiana*. *Radula complanata* and fruiting *Physcomitrium pyriforme* were other finds.

## **WEDNESDAY 18 AUGUST**

### **Hook Peninsula and Slade Castle (X79)**

A valiant attempt was made to find bryophytes on the Hook Peninsula, where we examined the very exposed coastal walltops near the lighthouse, with no reward. A small group looked at the ruin of St Dubhán's church a little further inland but their only success was interesting a local holiday maker in mosses growing on his cottage wall; he became very enthusiastic when offered a lens to examine moistened *Syntrichia ruralis*. Later, Slade Castle nearby was explored, but unsuccessfully. Part of the afternoon was spent looking at and photographing Cottonweed *Otanthus maritimus* on Lady's Island (T10), now confined to this locality in the British Isles.

### **John F. Kennedy Arboretum (S71)**

Roy and Phil, again sensing a lack of records in another grid square, made for the John F. Kennedy Arboretum south of New Ross where they searched diligently on and among the planted trees. Their complete list of 18 species, a pathetic total, is perhaps indicative of this part of the country, but included *Microlejeunea ulicina* and *Neckera pumila*.

### **THURSDAY 19 AUGUST**

The Irish contingent departed, one group to Killarney, another back to Dublin, leaving Roy and Phil to wind up the meeting on their own, two days before planned.

After the very interesting and successful first week, it was a pity that more could not have been made of the second. Much of it consisted of 'square-bashing', a frequently unrewarding recreation, and on this occasion resulting in poor lists in bryologically-depleted terrain and lots of wasted petrol. Many new vice-county records were missed in the second week, because no-one had brought with them a *Census Catalogue* or a 'wants-list', so relatively common species, such as *Saccogyna viticulosa*, *Sphagnum fimbriatum*, *Syntrichia ruralis* and *Weissia brachycarpa* var. *obliqua*, though recorded by us in VC H12, were not collected. It is to be hoped that the excellent records made in Waterford will encourage more bryologists to visit this part of Ireland.

### **Acknowledgements**

We would like to thank Monsieur and Madame Serge Boissevain for kindly giving the BBS permission to study Glendine woods, Peter Foss of the Irish Peatland Conservation Council for providing a base map for our visit to Fenor Bog, and Jim Hurley, South Wexford Coast Promotions, for mentioning the British Bryological Society visit in the local newspaper, the *Wexford Echo*. We are grateful to Daniel Kelly, Neil Lockhart and Donal Synnott for help with choosing sites for our itinerary, and special thanks are due to Grace O'Donovan for taking on the difficult task of organising the meeting. The guest accommodation was most satisfactory in Dungarvan and New Ross, and we thank all our hosts for catering so effectively for the unusual requirements of bryological tourists.

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HOWARD FOX, TOM BLOCKEEL & ROY PERRY

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### **SPRING FIELD MEETING, BUDE, 2000**

The northernmost part of East Cornwall (VC 2) has been somewhat neglected by bryologists. Most of the previous records result from Jean Paton's county-wide surveys during the 1960s.



It is distant from the homes of resident bryologists and it has not been the focus of any previous BBS meeting. Over the past decade the region has remained poorly covered by the ongoing tetrad survey of Cornish bryophytes that has now achieved good coverage in West Cornwall (VC 1) and patchy coverage in some areas of East Cornwall (VC 2).

The 'north-east corner' differs from most of Cornwall, and resembles large areas of north Devon, in being underlain by Carboniferous rocks, including coal measures ('culm'). These culm rocks form coastal cliffs of shale, slate and sandstone, some of them high, but inland there are only rounded hills and much gently sloping ground which supports poorly drained pasture. However, several days of the meeting were spent further to the south-west, giving opportunities to see the prevalent Devonian slates interrupted by intrusive igneous rocks on the coast around Tintagel and Boscastle, and the rather uniform granitic uplands of Bodmin Moor.

Our base was the Burn Court Hotel in Bude which was large enough to accommodate most participants. The meeting was well attended, with 47 present in all, of which no fewer than 25 remained for fieldwork on the last morning.

In the following account, tetrads are indicated in the standard fashion, i.e. labelled A-N, P-Z within each 10-km square, with A being in the SW corner of the square and Z in the NE corner.

#### **THURSDAY 13 APRIL**

##### **St Gennys (SX19N) to Scrade Water (SX19P)**

A wide range of habitats, including cliffs, coastal heath, streams, sallow carr, deciduous groves and walls near the church, were searched, resulting in a splendid list for the St Gennys tetrad of 106 mosses and 34 liverworts. The most significant finds were from the cliffs: *Coscinodon cribrosus* (the first of a series of new records obtained during the meeting for this scarce moss) and *Weissia brachycarpa* var. *brachycarpa* c.fr. Other species of note included *Brachythecium mildeanum*, *Bryum donianum*, *B. dunense*, *Cephaloziella stellulifera*, *Ephemerum serratum* var. *minutissimum*, *Epipterygium tozeri* c.fr., *Fissidens exilis*, *F. limbatus*, *Frullania fragilifolia*, *Orthotrichum tenellum*, *Pleuridium subulatum*, *Scleropodium tourettii*, *Syntrichia laevipila* (including var. *laevipilaeformis*) and *Tortula viridifolia*.

##### **Penfound Manor (SX29J)**

Late in the day a small group made an unsuccessful attempt to refind *Phaeoceros carolinianus* at its only Cornish locality to the south of Penfound Manor, recording 23 mosses and 12 liverworts mainly from a wet track and a field.

#### **FRIDAY 14 APRIL**

##### **Rocky Valley and Bossiney (SX08U)**

Another dry and bright day led to high hopes as a large party of bryologists followed a small river down to the coast. The first Willow Warbler of the year was singing, along with the Blackcaps and Chiffchaffs that often overwinter in Cornwall.

The variety of habitats, ranging from laneside banks and deciduous woodland to river edges and coastal cliffs, resulted in an impressive bryophyte list by Cornish standards with 103 mosses and 33 liverworts. The best find was of *Fossombronia maritima*\* by Jean Paton. The rare *Dumortiera hirsuta* found on the river bank by Bob Finch was a new record this far downstream. However, a small patch of *Lophocolea bispinosa* near the cliff top was a less welcome discovery as this alien now appears to be spreading so rapidly in East Cornwall that there are fears it will become invasive. Other significant finds were of *Amblystegium serpens* var. *salinum*, *Amphidium mougeotii*, *Anthoceros punctatus*, *Bryum donianum*, *Epipterygium tozeri* c.fr., *Fissidens osmundoides*, *Fossombronia angulosa*, *Frullania fragilifolia*, *F. microphylla* var. *microphylla*, *Gymnostomum aeruginosum*, *Rhabdoweisia fugax*, *Riccia crozalsii*, *Tortula atrovirens*, *Weissia brachycarpa* var. *brachycarpa* and *W. perssonii*.

#### **Tintagel Church to Tintagel Haven (SX08P)**

By afternoon the weather had become cool and windy for the cliff-top walk. Several of the bryophytes found were new records here of uncommon species, notably (more) *Coscinodon cribrosus* found by Cliff Townsend, *Fissidens rivularis* found by Sam Bosanquet, and (more) *Fossombronia maritima*. Other noteworthy finds were of *Amblystegium serpens* var. *salinum*, *Brachythecium mildeanum*, *Bryum donianum*, *B. dunense* c.fr., *B. violaceum*, *Cephaloziella stellulifera*, *Gyroweisia tenuis*, *Microbryum starckeanum*, *Scleropodium tourettii*, *Tortula atrovirens* and *Weissia perssonii*.

#### **SE of Trewarmett (SX08T)**

Several visits to the vicinity of disused quarries here failed to refind a 1960s record of *Philonotis arnellii*. However, recording by Christine Rieser and Frank Lammiman disclosed that *Fossombronia husnotii* was still present. *Lophocolea bispinosa* was discovered on china-clay spoil at the edge of the track into a public car park.

#### **SATURDAY 15 APRIL**

#### **Rusey Cliff (SX19G, SX19H)**

A very large party of about 40 bryologists swarmed down a lane from the roadside car parks and provided saturation cover for searching the rich rocky and heathy slopes of Cornwall's highest cliffs.

Most of the scarcer species recorded here in the past were refound, including *Bryum donianum*, *Campylopus pilifer*, *Coscinodon cribrosus*, *Cynodontium bruntonii*, *Diphyscium foliosum*, *Hedwigia stellata*, *Marsupella funckii*, *Pogonatum nanum* and *Scapania scandica*.

Seán O'Leary made the best find of the day, of a patch of *Tritomaria quinquedentata*\*, a species new to Cornwall. Furthermore, it was growing intermixed with *Plagiochila punctata*, a new record from the coastal cliffs.

#### **The Strangles (SX19H)**

After lunch, forces were divided between the slaty coastal cliffs further north around The Strangles and wooded valleys a short distance inland (see below). The coastal group worked

hard to refind Cornwall's only (1969) record of *Gymnomitrium concinnatum*, but without success. Existing records indicated that several of the scarcer species found at Rusey Cliff extend to The Strangles, and of these *Campylopus pilifer*, *Coscinodon cribrosus* and *Cynodontium bruntonii* were refound. Other finds included *Bryum dunense* c.fr., *Frullania fragilifolia*, *F. microphylla* var. *microphylla*, *Pogonatum nanum*, *Scapania scandica* and *Scleropodium tourettii*.

#### **East of Trevigue (SX19H, SX19M)**

Stream edges and deciduous woodlands inland were searched by another large party, resulting in numerous records from two tetrads. Characteristic species found included *Cirriphyllum piliferum*, *Dichodontium pellucidum*, *Lejeunea cavifolia*, *Lophocolea fragrans*, *Neckera pumila*, *Orthotrichum pulchellum* and *Tetraphis pellucida*.

#### **Dizzard (SX19U)**

Jeff Duckett, Howard Matcham and Ron Porley explored the Bynorth Cliff end of the coastal woodlands at Dizzard. A substantial list of bryophytes recorded there included *Chiloscyphus pallescens*, *Cryphaea heteromalla*, *Entosthodon obtusus*, *Fissidens celticus* and *Zygodon conoideus*.

#### **SUNDAY 16 APRIL**

#### **Morwenstow (SS21C), along coast (SS11X) to Stanbury Mouth (SS11W), and back by way of Stanbury (SS21B)**

A fine sunny day provided ideal conditions for this long coastal walk and return along footpaths inland. The vicinity of Morwenstow produced records of *Amblystegium tenax*, *Bryum donianum*, *Dichodontium pellucidum*, *Fissidens curnovii*, *F. exilis*, *Lejeunea cavifolia*, *Lophocolea fragrans* and *Pellia neesiana*. Coastal slopes from Higher Sharpnose Point southwards held *Cephaloziella stellulifera*, *Coscinodon cribrosus*, *Cynodontium bruntonii*, *Fissidens limbatus*, *Scleropodium tourettii*, *Tortula atrovirens* and *Weissia perssonii*. A flushed area along the Tidna Valley produced a confusing mixture of similar *Weissia* taxa growing in close proximity to each other that was eventually found to include both *W. brachycarpa* var. *brachycarpa* and *W. rutilans*.

The route back inland past Stanbury provided numerous records from yet another tetrad. *Cephaloziella turneri* was found on a laneside bank by Nick Hodgetts, adding to the few records of this very uncommon species from the northern part of VC 2. Other finds in the same area included *Fissidens incurvus*, *F. limbatus*, *Lophocolea fragrans* and *Philonotis arnellii*.

#### **Sandy Mouth (SS20E)**

Late in the afternoon an attempt was made to record bryophytes in this 'unexplored' area. Sandy Mouth seems inappropriately named as it has low cliffs rather than sands, and these are backed by bryologically rather dull farmland. Nevertheless, energetic recording on the cliffs revealed *Acaulon muticum*, *Bryum dunense*, *Tortula atrovirens* and *T. viridifolia*. Just inland, a thorough search around the edges of a field of bean stubble revealed *Ephemerum serratum* var. *minutissimum* along with a few commoner species.

## Lee Wood, Stowe Wood and Stibb Wood (SS21A and SS21F)

Frank Lammiman and Christine Rieser spent the day inland in SS21 covering mainly woodland habitats in two previously unrecorded tetrads. A good range of bryophytes found there included *Cirriphyllum piliferum*, *Ctenidium molluscum*, *Dicranum majus*, *Hookeria lucens*, *Lepidozia reptans*, *Neckera pumila*, *Plagiochila asplenoides* and *Scapania nemorea*.

## MONDAY 17 APRIL

### Rough Tor (SX18K)

Unfortunately, our day reserved for long walks on the exposed hills of Bodmin Moor was cold and windy with heavy showers, often of hail. Nevertheless, there were bright sunny spells between the showers that produced song from newly arrived Wheatears. The coming of spring was also in evidence from flowering Round-leaved Crowfoot *Ranunculus omiophyllus* in flushes.

The granitic tors and boulder-covered slopes high on Rough Tor form some of the richest bryophyte habitats in Cornwall, with several locally rare species. A visit by such a large group of skilled bryologists provided a good opportunity to check on the continued presence of the more important species, and it is pleasing to report that almost all of them were refound (notably *Antitrichia curtipendula*, *Barbilophozia barbata*, *B. floerkei*, *Cynodontium bruntonii*, *Dicranum scottianum*, *Douinia ovata*, *Nardia compressa*, *Plagiochila punctata*, *P. spinulosa*, *Plagiothecium denticulatum* var. *obtusifolium*, *Polytrichum alpinum* and *Ptilidium ciliare*). Only *Grimmia curvata* was not refound, but it might yet be refound lurking in a rocky crevice somewhere on the hill. *Antitrichia curtipendula* appears to be maintaining its status on Rough Tor, with three strong patches.

On the way up the hill Cliff Townsend found a pair of somebody else's spectacles which served well as a replacement for his own that had been lost on a previous day. Indeed, they quickly enabled him to make a new record for Rough Tor of *Lepidozia cupressina*, a rare plant in Cornwall. Other new finds for Rough Tor made by various members of the party were of *Bazzania trilobata*, *Frullania fragilifolia*, *Lejeunea cavifolia* and (on a low wall) *Rhynchostegium murale*.

Although it has been known here for many years, most visitors to Cornwall were surprised to see the 'caliculous' *Tortella tortuosa* (a rarity in the county) forming several large patches on granitic crags and even more surprised to notice that a few capsules were present. Likewise, a small patch of *Orthotrichum pulchellum* c.fr. on an exposed granitic boulder was a surprising find of a plant on the 'wrong' substrate in the 'wrong' habitat.

Besides bryophytes, Fir Clubmoss *Huperzia selago* was refound at one of its few Cornish localities and large quantities of both species of filmy-fern (*Hymenophyllum*) were seen.

### Brown Willy (SX17P, SX17U)

The party divided during the afternoon because the land-owner requested that numbers on Brown Willy should be limited to 20. The heathy slopes and granitic rocks there provided similar environments to those on Rough Tor, and several of the same scarcer bryophytes were

(re-)found, including *Amphidium mougeotii*, *Antitrichia curtispindula*, *Bartramia pomiformis*, *Cynodontium bruntonii*, *Kurzia sylvatica*, *Lepidozia cupressina*, *Plagiochila punctata*, *P. spinulosa*, *Plagiothecium denticulatum* var. *obtusifolium* and *Ptilidium ciliare*. *Antitrichia* seemed to be thriving on Brown Willy, with at least 20 patches, perhaps because the current very heavy grazing by sheep reduces shade from competing vascular plants.

### **Crowdy Reservoir (SX18G, SX18L)**

The other half of the group visited a degraded and severely over-grazed bog to the south of Crowdy Reservoir, and also searched the dam of the reservoir and its vicinity. Although the bog habitat was disappointing, it produced the second record in Cornwall of *Riccardia palmata* found by Jean Paton, along with *Cladopodiella fluitans*, seven species of *Sphagna* and *Warnstorfia exannulata*. Masonry of the reservoir dam added several significant records of mosses uncommon on Bodmin Moor, notably *Didymodon luridus* and *Orthotrichum cupulatum*.

### **Treliske Hospital (SW74X)**

Jonathan Sleath nobly spent much of the day securing treatment for a member who sustained a cut hand on Rough Tor during the morning. After journeying from one casualty department to another ('Bodmin Hospital doesn't do hands') they reached Treliske Hospital west of Truro (in VC 1). The long wait for treatment then allowed Jonathan to do full justice to the bryoflora of the hospital grounds. Since there were no existing records for tetrad SW74X, his 50 mosses and eight liverworts all counted as new data. Among them were *Bryum donianum* and *Riccia glauca*!

## **TUESDAY 18 APRIL**

### **Valency Valley, Peters Wood, Minster Church and Minster Wood (SX19A)**

Light drizzle soon after we started turned into steady rain as the morning progressed. Dippers along the River Valency were unperturbed by the weather, as was Bob Finch, who soon secured his second new locality for *Dumortiera hirsuta* by wading along the rocky river in order to search the base of the banks. Further paddling by Bob, Nick Hodgetts, David Long and Mark Pool resulted in finds of additional patches of *D. hirsuta* extending over several hundreds of metres, and also finds of *Jubula hutchinsiae*, for which this was also a new locality well downstream of the known sites.

Other bryophytes found along the river and in adjoining woodlands included *Amphidium mougeotii*, *Amblystegium fluviatile*, *Fissidens rivularis*, *Heterocladium wulfsbergii*, *Nowellia curvifolia*, *Pellia neesiana*, *Pogonatum nanum*, *Rhynchostegium alopecuroides*, *Scapania nemorea*, *Schistostega pennata* and *Trichostomum tenuirostre*.

Lunch was eaten in steady rain while sitting on walls around the securely locked Minster Church. David Holyoak picked a scrap of *Grimmia* from the church wall that later revealed itself as the second Cornish record of *G. harmanii*. *Didymodon insulanus* was found c.fr. near the church.

### **Boscastle Harbour (SX09V)**

Steady rain continued during the afternoon, when intrepid teams of bryologists scoured both sides of Boscastle Harbour. The northern team mingled with holidaymakers and felt some sympathy for them with their soggy trainers, high-heeled shoes and baby-buggies as they competed with us for the easier paths over the coastal rocks. Unfortunately, the harbour proved to be too wide for the northern and southern teams of bryologists to be within earshot, so that records were kept separately after attempts at semaphore failed. A modest list of bryophytes found included *Amphidium mougeotii*, *Bryum donianum*, *Entosthodon obtusus*, *Eurhynchium crassinervium*, *Hennediella heimii*, *Riccia beyrichiana*, *Tortella nitida* and *Weissia rutilans*. As the rain continued our recording cards became too soft to write on, so eventually we all gave up and returned early to the hotel.

### **Acknowledgements**

Thanks are due to the Burn Court Hotel for their hospitality and for providing such efficient and friendly service combined with excellent value. The National Trust and other land-owners gave permission to visit their land. Jean Paton took the larger share in planning the itinerary and making arrangements for the meeting, so that its smooth running owes much to her diligence and forethought. All members kindly responded patiently to pleas for bryophytes to be recorded by tetrads and my pestering them about determinations. Sixteen members supplied lists of records: John Blackburn, Tom Blockeel, Sam Bosanquet, Bob Finch, Richard Fisk, Mark Hill, Nick Hodgetts, Frank Lammiman, Mark Lawley, David Long, Seán O'Leary, Jean Paton, Ron Porley, Christine Rieser, Jonathan Sleath and Cliff Townsend. An impressive body of sound data resulted, comprising 1512 records in total.

DAVID HOLYOAK

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### **SUMMER FIELD MEETING, WESTMORLAND, 2000**

The 2000 Summer Meeting was based at Castlehead Field Studies Centre in the village of Lindale, near Grange-over-Sands on the north coast of Morecambe Bay in Furness (VC 69b). It was the first BBS field meeting ever to be held in this part of Westmorland. Castlehead Centre is within easy reach of a diversity of habitats: seaside rocks, sand dunes, woods (both on limestone and acidic rocks), peat mosses, open fellsides and rocky ghylls. During the week examples of all these habitats were visited. All localities were in VC 69.

John Blackburn, Mark Lawley, Seán O'Leary, Vincent Jones and Dan Wrench stayed at the Centre, but only the first three stayed for the full week, and are henceforth referred to as the 'main party/contingent/group'. The remaining attendees consisted of visitors and members of the local recording team. Due to the time of year, attendees were decidedly thin on the ground - many people were either on holiday or had already used up their quota of holidays for the year; the meeting also clashed with the BSBI Recorders Meeting at Lancaster. Despite the low attendance those who could make it agreed it was a very enjoyable week.

The following is part of a letter from Seán which sums it all up: '.... thanks for a great

bryological trip - I had a wonderful time with super accommodation, lovely localities, good mossing, unbelievable weather, and scrupulous organisation ....'. We are pleased that everyone enjoyed the meeting so much. The weather was ordered months in advance and duly arrived on time, and broke only on the last day at Barbondale, but after such an enjoyable week it did not dampen anyone's spirits.

Our thanks to everyone who supported the meeting and to those who sent in records. All agreed the meeting was a great success, which resulted in many new records for the BBS Mapping Scheme and the Bryoflora of Westmorland project, which despite the work put into it is still experimental.

## SUNDAY 20 AUGUST

### Glen Mary and Tarn Hows

Having arrived early, and now patiently waiting for the main party to arrive, Robert Blewitt amused himself by examining the walls of Tarn Hows car park, where he found the first good record of the day, *Pterogonium gracile*. Eventually a party of nine assembled in the car park, including Ian Wallace and his wife Mavis, Robert Goodison (who made a day trip all the way from Bradford) and Henry Adams from Kendal, and all now enjoyed an outstanding view of Lakeland. We made our way down Glen Mary, a steep wooded area with Tom Gill running through it, to start bryologising by the road at the bottom of the Glen in order to work our way back up the 600 metres to the tarn. The area is acidic in nature, with oak, birch and sycamore comprising the main tree cover.

As usual, much time was spent at the start recording everything in sight and getting the feel of the area. There were masses of *Rhytidiadelphus loreus* and *Thuidium tamariscinum* on the slopes together with patches of *Leucobryum glaucum* and *Bazzania trilobata*. The rocks had a generous covering of *Andreaea rupestris* var. *rupestris* and *Racomitrium aquaticum*, with *R. aciculare* in the stream. Some oaks were covered with large patches of *Frullania tamarisci* growing with *F. dilatata*, *Lejeunea cavifolia*, *Microlejeunea ulicina* and *Brachythecium populeum*. There was much dead wood about and *Nowellia curvifolia* was soon found in quantity, with *Dicranum tauricum* in small patches, this being only the second record for Furness. A good find after lunch was *Jamesoniella autumnalis* on a log near the stream.

*Hookeria lucens* was found on the shaded banks, along with *Heterocladium heteropterum*. *Scapanias* were well represented with *S. gracilis*, *S. irrigua*, *S. nemorea* and *S. undulata* all found. *Diphyscium foliosum*, *Lophozia sudetica*, *Mylia taylorii* and *Saccogyna viticulosa* were all seen but only in small quantities. A stretch of wall near the top of the Glen repaid the attention given to it, with *Barbilophozia atlantica*, *B. barbata*, *B. floerkei* and *Metzgeria conjugata* being found. We emerged at the top of the Glen, at the end of a splendid day, into bright sunshine.

## MONDAY 21 AUGUST

### Sandscale Haws

In addition to the main contingent we were joined by Henry Adams, Jim Adams and Keith Raistrick. We met in the car park of the National Trust reserve at Roanhead on the Duddon

Estuary at the north end of Barrow in Furness. Sand scale Haws is an extensive area of sand dunes where natterjack toads breed in the dune slacks. There is also a rich vascular plant flora, but bryophytes are very under-recorded.

We had hot sunshine all day which was a blessing for one member who fell flat on his back in a stream within five minutes of starting out. *Syntrichia ruraliformis* is a locally dominant moss which forms extensive patches on the older dunes, as does *Hypnum cupressiforme*. Particularly interesting areas of the dunes are dry hollows where there is a thin layer of sand over the old shingle beach, which can be traced almost 2 km inland. Henry Adams recorded vascular plants here several years ago and also found *Tortella inclinata*; it was our wish to re-find this species today. Henry seemed to remember that the site was at the south end of the reserve, which involved almost a 2 km yomp in baking sun over dunes from the car park at the north end, with 'eyes up' to save time. He was correct and the plant was indeed soon found in some quantity. *T. inclinata* was first found here by Jean Paton in 1965, and it remains to this day the only known site in the county. *T. flavovirens* also grows here; John collected some small samples for verification later at the Centre.

After lunch we walked through a much wetter area of fen where we found *Sphagnum squarrosum* and *Calliergon cordifolium*. Mark Lawley collected *Warnstorfia exannulata*. *Leptodictyum riparium* was found in dune slacks, where *Drepanocladus polygamus* had been recorded on a previous visit by Keith. Several dune slacks contained Wood Small-reed *Calamagrostis epigejos*, sometimes in abundance; Whorl-grass *Catabrosa aquatica* has also been recorded here at Sand scale. Despite recording only 21 species it was a very enjoyable day in a fascinating area.

## TUESDAY 22 AUGUST

### Roudsea Wood and Mosses

Tuesday was another hot sunny day. The previous day's group (except for Henry Adams) were joined by Doreen Howard from Grange, John Walters from Tebay, and Mike Hall from Rigmaden, all members of the local recording team.

Roudsea is unusually varied because it lies on two ridges of contrasting rock type, one limestone and one slate. The ridges are separated by a shallow valley which contains a mire and a small tarn. The wood merges in the east into peat moss, and in the west into saltmarsh and maritime rocks.

We were shown round the reserve by Mark Rawlinds, the assistant Reserve Manager, once members could be dragged away from looking for epiphytes! These included *Orthotrichum* spp, *Ulota crispa*, *U. phyllantha*, *Frullania dilatata* and *Microlejeunea ulicina*. Mark later showed us the rare Large Yellow-sedge *Carex flava* on calcareous peat at its only known site in Britain.

Most of the morning was spent in the wood on the limestone and in an old limestone quarry. In the afternoon we studied the bryophytes in Fish House Moss, finding eight species of *Sphagnum*: *S. capillifolium*, *S. cuspidatum*, *S. fallax*, *S. fimbriatum*, *S. magellanicum*, *S. papillosum*, *S. subnitens* and *S. teres*. There were also good colonies of White Beak-sedge *Rhynchospora alba*. The liverworts included *Cladopodiella fluitans*, *Odontoschisma*



*denudatum* and *O. sphagni*. After looking at the woodland on the slate we finished the day searching the saltmarsh and seaside rocks where *Schistidium maritimum* was recorded. An interesting day in varied habitats yielded well over 80 species.

## WEDNESDAY 23 AUGUST

### Borrowbeck and Ashstead Fell

This was the first time we had been out of Furness and into VC69a - true Westmorland. We met at a lay-by on the A6 about eight miles north of Kendal. The original party was joined by Vincent Jones and John Walters; Peter Harris came with Rod Corner from Penrith, and Henry Adams and Keith Raistrick arrived later.

We were in a completely different habitat from the previous day. Borrowbeck is a wide stream with many large boulders, and above it Ashstead Fell has mires with both acidic and basic flushes, topped with craggy rocks above Combe Hollow. From the main road the Fell is a prominent feature, 470 m high and half-clad in conifers.

The streamside rocks yielded *Anomobryum julaceum*, *Hedwigia stellata*, *Blindia acuta* and *Andreaea rothii* subsp. *falcata*. We looked mainly in the acid flushes as we climbed the fellside, finding *Bryum pseudotriquetrum*, *Calliergon stramineum*, *Amphidium mougeotii*, *Drepanocladus cossonii*, and seven species of *Sphagnum*: *S. capillifolium*, *S. denticulatum*, *S. fallax*, *S. palustre*, *S. russowii*, *S. subnitens* and *S. teres*. On rocks above Combe Hollow, Rod Corner's ever-sharp eye detected *Anthelia julacea*, *Kiaeria blyttii* and *Andreaea alpina* on summit rocks. *Hyprum callichroum* remained undetected, although it was found some years earlier by Derek Ratcliffe in a similar site in the next tetrad north. Lastly, on our return, *Didymodon acutus* was found by the roadside.

Another hot sunny day which was too short for us to make anything like a complete survey of a very interesting area.

## THURSDAY 24 AUGUST

### Eggerslack and Beech Hill Woods

Thursday saw us back in Furness again, and on the limestone. The main party was joined by Henry Adams and John Dunbavin, a Cumbria Wildlife Trust Reserves Officer accompanied by his enormous Alsatian dog who has a liking for sheep but was to be disappointed today.

In the morning we visited Eggerslack Wood in Grange-over-Sands. We parked in Grange and walked 150 metres along Windermere Road to the wood entrance. Most of us were eager to get to the wood, but the garden wall of the last house on the road proved especially interesting to the main group who spent a good 15 minutes 'poking around' (probably because it was limestone). Mark, John Blackburn and Seán found a number of interesting species, including *Porella platyphylla*, and were stopped only in the nick of time from scaling the wall to gain access to a lady's rockery in the front garden of her bungalow.

The wood is predominantly on limestone but there is a finger of Silurian 'Ludlow' running through it on which *Racomitrium aciculare* has been recorded. The upper wood opens out

onto fellside with limestone walls and outcrops. Most of the expected limestone species were found, including *Orthotrichum cupulatum* and *Taxiphyllum wissgrillii*. Mark Lawley's discovery of *Platydictya jungermannioides* was the first record for Furness.

In the afternoon we went to Beech Hill Wood, a Woodland Trust property on the east side of Windermere Lake. Here we were followed for the first hour by a half-starved cat and its kitten. Henry Adams later took them back to the wood entrance where there was a half-used pack of sandwiches on the ground that he attributed to Keith from some previous visit.

The wood is on acid rock, with a small stream running through it giving some boggy areas. One wet area was most interesting with *Hookeria lucens* and *Trichocolea tomentella*. *Nowellia curvifolia* was also found on decorticated trunks in this wetland area and elsewhere in the wood. Whilst neither wood was exceptionally rich they did provide an interesting comparison between acid and limestone flora.

## FRIDAY 25 AUGUST

### Tilberthwaite Ghyll and Wetherlam

The usual party was joined by Peter Harris, Jim Adams, Keith Raistrick, Dan Wrench, Vincent Jones and Robert Goodison (on his second day-trip from Bradford).

At Tilberthwaite Ghyll, north of Coniston, a swift-flowing river has cut a steep ravine, the entrance to which is very impressive, as is the rock scenery of the surrounding fells. The climb up necessitates crossing and re-crossing the river, but luckily for us the water level was very low and, unlike Barbondale, rocks in the stream are not slippery. The walls of the ghyll seem to be mainly of slate but there is a seepage from nearby limestone giving a mixture of calcicole and calcifuge bryophytes. At the top, the ghyll opens out onto bogs at the foot of Wetherlam.

On a previous visit by the local team *Amphidium mougeotii* was found fruiting accompanied by an abundance of *Blindia acuta* on a dripping rock buttress in the ghyll, but today, interestingly, *Entosthodon attenuatus* was found on this same buttress. Other interesting records included *Bryum alpinum*, *Ditrichum gracile*, *Isopterygiopsis pulchella*, *Anoetangium aestivum*, *Mnium stellare*, and *Pellia endiviifolia* with *P. epiphylla* growing very close by.

A reduced party of six (the others took an easier route back to the cars) spent the latter part of the day on Wetherlam bogs, where, much to the detriment of bryophyte recording, Mark spent some time extricating a stuck sheep. The main purpose of the climb out of the ghyll into this area was to refind *Sphagnum affine*, first found here by Henry Adams several years ago, but it was not seen today. However, Robert Blewitt, on another occasion, at a site lower down the ghyll, found what was thought to be *S. austinii* but was later determined by Mark Hill as *S. affine*. Other plants seen included *Cladopodiella fluitans*, *Gymnocolea inflata* and *Kurzia pauciflora*. On rocks in and beside a stream were *Marsupella emarginata*, *Nardia compressa*, *Plagiochila killarniensis* and *P. spinulosa*. Over 100 species were recorded during the day.

SATURDAY 26 AUGUST

### Barbondale

Heavy rain caused a barely perceptible reluctance of the small party to leave the cars at Blindbeck Bridge and follow Aygill Beck upstream as it passed over Silurian strata adjacent to the Dent Fault. Present were John Blackburn, Mark Lawley, Seán O'Leary, Dan Wrench, John Walters, Robert Blewitt, and a little later Henry Adams and Keith Raistrick.

The lower reaches of the beck proved rich in bryophytes and midges. *Plagiochila spinulosa* was present on a rock slab. Henry Adams found *Sphagnum contortum* in a marsh dominated by *Juncus acutiflorus*. *S. girgensohnii* and *S. squarrosum* were also present. After reaching the tetrad boundary the party returned to the car park for lunch on the bank of Barbon Beck, the rain having now ceased.

After lunch the party walked a short distance on the road back to Barbon before investigating the 30-40 ft deep, narrow, north-facing ravine on Barbon Low Fell, where *Plagiochila killarniensis* (first found here by Keith in 1998) was eagerly anticipated and duly demonstrated, together with its unique odour. Other species included *Trichostomum brachydontium*, *Hookeria lucens*, *Pohlia nutans*, *Diphygium foliosum* and *Metzgeria conjugata*. *Bazzania trilobata* was present on a tree branch, but an impressive growth of the lichen *Peltigera horizontalis* on a sloping ash tree was scarcely noticed in the wealth of bryophytes. Wilson's Filmy-fern *Hymenophyllum wilsonii* was also found.

The short walk across open fell back to the cars revealed the magnificent desolate and damp landscape of Barbondale which we had almost to ourselves even on a bank holiday weekend. Before exchanging farewells, members agreed that the Westmorland week had been most enjoyable.

JIM ADAMS, KEITH RAISTRICK, JOHN BLACKBURN & ROBERT BLEWITT

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## AGM AND SYMPOSIUM MEETING, READING, 2000

### DR JEFF BATES (IMPERIAL COLLEGE, ASCOT): INTRODUCTION TO THE AZORES AND ITS BRYOPHYTES

The speaker's experience of the Azores is based upon three visits to Terceira, the third largest of the nine islands in the mid-Atlantic archipelago. The islands are volcanic in origin and relatively young, varying from less than 1 million years (Pico) to about 8 million years (Santa Maria) in age. The larger islands are mountainous and attract constant cap clouds around their peaks. Botanically, they have two attractions: a strong element of endemic species and highly oceanic conditions. Earlier work by Dr Sérgio has shown affinities of the bryophyte flora with various regions, including Europe (especially the Mediterranean), Africa and North America, but also the southern Hemisphere, notably in the genus *Echinodium* (Australasia) and South American species, such as *Jamesoniella rubricaulis*. A number of the special Azorean taxa are shared with other Atlantic islands in the Macaronesian group (e.g. *Andoua berthelottiana*,

*Tetrastichium virens*). The strongly oceanic environment is reflected in the abundance of *Plagiochila killarniensis* (*P. bifaria*), *Myurium hochstetteri*, *Hypnum uncinulatum*, *Cyclodictyon laetevirens*, *Dicranum scottianum*, *Leptoscyphus cuneifolius*, several *Lejeunea* spp. and the ferns *Hymenophyllum tunbrigense* and *Trichomanes speciosum*. The high endemism is at odds with the young geological ages of the islands, and it is likely that Azorean endemics (e.g. *Bazzania azorica*, *Cheilolejeunea cedercreutzii*, *Herbertus azoricus*, *Leptoscyphus azoricus*, *Tylimanthus azoricus*, *Echinodium renauldii*), and perhaps other Macaronesian endemics (e.g. *Aphanolejeunea madeirensis*, *Heteroscyphus denticulatus*, *Alophosia azorica*, *Echinodium prolixum*) were formerly more widespread, but eliminated from less favourable sites during the Pleistocene glaciations.

The archipelago shows a gradient of increasing precipitation from east to west. On the larger islands precipitation increases with altitude and is largely responsible for a marked altitudinal zonation of the vegetation. The coastal strip is warm and dry with a sub-tropical climate. This zone now supports most of the human population. Formerly, the tree heather *Erica scoparia* subsp. *azorica* was dominant here together with native woody species, such as *Myrica faya*, but the Australian tree *Pittosporum undulatum* was introduced and has naturalised everywhere at lower altitudes. Common Mediterranean bryophytes, such as *Philonotis rigida*, *Anthoceros punctatus*, *Gongylanthus ericetorum* and *Targionia hypophylla*, are frequent on banks along rides in coastal *Pittosporum* woodland. Above 500 m the climate deteriorates significantly and the native evergreen forest is dominated by *Laurus azorica* and *Juniperus brevifolia*. In the constantly humid interior of this virtually impenetrable growth are found most of the characteristic Azorean bryophytes, covering bark (e.g. *Echinodium prolixum*, *Plagiochila killarniensis*, *Lepidozia cupressina*, *Myurium hochstetteri*, *Geocalyx graveolens*, and the ferns *Hymenophyllum tunbrigense* and *Elaphoglossum semicylindricum*), soil (*Bazzania azorica*, *Pallavicinia lyellii*), and rock (*Jubula hutchinsiae*). *Drepanolejeunea hamatifolia* and *Colura calyptrifolia* are common epiphylls on *Laurus*. At the higher altitudes, as on the rim of the caldeira of the highest mountain Serra Santa Barbara, *Juniperus* becomes prevalent but this finally succumbs to vigorous hummocks of *Sphagnum subnitens* and *S. palustre* in some parts of the cloud zone. *Leptoscyphus azoricus* and *Herbertus azoricus* are most frequent on *Juniperus* bark at higher altitudes. *Cheilolejeunea cedercreutzii* is quite plentiful in the extensive *Laurus-Juniperus* forest inside Caldeira de Santa Barbara, a veritable bryologist's paradise.

Regrettably, much of the native forest has been cleared to provide pastures (encouraged by EU subsidies) or to give way to forestry. Above and overlapping with the naturalised *Pittosporum* woods of the coastal zone is a belt of *Eucalyptus globulosus* plantation, while at higher altitudes there are shelterbelts and more extensive plantings of *Cryptomeria japonica*. A survey of epiphytes in these exotic forest types has provided some interesting preliminary findings. *Pittosporum* trunks support a sparse community in which *Marchesinia mackaii*, *Frullania microphylla*, *Cololejeunea minutissima* and *Radula carringtonii* are the main species, sometimes accompanied by the tiny *Aphanolejeunea sintinisii*. *Tetrastichium virens* and *Sematophyllum substrumulosum* are often present on moist tree bases. A similar community also occurs on *Eucalyptus*, although *Heteroscyphus denticulatus* is commoner here on moist trunk bases. A more acidophilous flora is present on *Cryptomeria* trunks, usually consisting of *Dicranum scottianum*, *Campylopus* spp, *Hypnum* spp, *Plagiochila killarniensis*, *P. exigua*, and occasionally *Echinodium prolixum*. *Telaranea nematodes* is often the dominant bryophyte at the trunk base. The results indicate that, although every effort should be made to conserve the remaining remnants of the native Azorean evergreen forest,

the introduced trees provide a home for several interesting Azorean bryophytes and some examples are worthy of preservation for their bryological interest.

**DR ROSALINA GABRIEL (UNIVERSITY OF THE AZORES): *ECOPHYSIOLOGY OF BRYOPHYTES IN THE NATIVE LAUREL FOREST OF THE AZORES***

The Azores archipelago, part of the Macaronesia region, is well known for a rich and diverse flora of endemic and relict species. The present investigation was undertaken against the background of massive and rapid decline of the Azorean forest due to human activity.

Seasonal growth rates (elongation) were determined for seven bryophyte species: *Andoa berthelotiana*, *Bazzania azorica*, *Echinodium prolixum*, *Fissidens serrulatus*, *Frullania tamarisci*, *Lepidozia cupressina* and *Myurium hochstetteri*. The majority have highly oceanic distributions and some are endemic, but *F. tamarisci* was included due to its ubiquitous distribution. The monthly growth rates were measured over one year in three examples of natural forest growth, and correlations with climate and microclimate were investigated. All species showed similar growth patterns, with the majority of growth occurring during late summer and early autumn. Growth of all species was strongly related to temperature, particularly with microclimatic values. The seven species measured in the field, plus *Porella canariensis*, were investigated in laboratory conditions, characterising their physiological attributes, and monitoring growth under controlled situations of light and water availability. All species showed low compensation and low saturation points. The liverworts *B. azorica* and *L. cupressina* were shown to be very sensitive to experimental conditions, seldom exhibiting positive growth. The concentration of photosynthetic pigments generally revealed a decrease in total chlorophyll and an increase in the concentration of carotenoids under high light conditions, while water deficit promoted a decrease in chlorophyll. *B. azorica* and *L. cupressina* were transplanted outside the forest, and both species were greatly affected by the transplant. The results suggest that *B. azorica* is more sensitive to photooxidation, showing the highest concentrations of lipid peroxides and the lowest concentrations of photosynthetic pigments; both species were extremely sensitive to low relative humidity levels.

**JENNY DUCKWORTH (PLANTLIFE, LONDON): *TAKING BRYOPHYTES BACK FROM THE BRINK***

Plantlife - the Wild Plant Conservation Charity - is Britain's only national membership charity dedicated to conserving all forms of plant life in their natural habitats. Plantlife act as lead partner for 17 bryophytes listed as priority species in the UK Biodiversity Action Plan, and manages recovery projects based in England for these species through its 'Back from the Brink' programme. 'Back from the Brink' aims to reverse the declines suffered by threatened wild plants, and involves a combination of laboratory and field research with liaison, lobbying and hands-on management.

David Holyoak has been working on *Petalophyllum ralfsii* on behalf of Plantlife since 1997. He has carried out a survey of all current and historic sites in England, which included the discovery of a new site in Northumberland. At each site, population size has been estimated, and detailed descriptions provided of the site conditions, the habitats in which *Petalophyllum* occurs, and associated species, all of which provide further insights into the species' ecology. In addition, liaison has been ongoing with site managers and land-owners in order to secure sympathetic management for the species. A three-year population study has been carried out

at one site - Upton Towans in Cornwall - which has provided a new insight into the life cycle of *Petalophyllum*, namely that at least some plants remain concealed beneath the ground during all months of the year. This means that it is possible that population estimates for *P. ralfsii* may be on the conservative side. Fred Rumsey (The Natural History Museum, London) has carried out research on the population genetics of *P. ralfsii* using allozyme analysis, which has demonstrated that there is no significant genetic variation either between or within populations throughout the British range of the species.

*Lejeunea mandonii* has an extremely limited GB distribution, being confined to just a few sites in western Scotland and on the Lizard peninsula in Cornwall. It occurs in very small patches - in England the total area covered by the plant is less than one square metre. David Holyoak has been monitoring each English population since 1997 in order to gain an insight into the species' dynamics. This has demonstrated that the populations appear to vary considerably from year to year, but the exact cause has not been established as yet. Securing favourable management for *L. mandonii* through liaison with site managers and land-owners is also important. This species seems to be exacting in its shade requirements - it cannot thrive in open sunlight, but dense canopies or adjacent scrub cast too much shade. A particular threat at its one open, coastal site is that of fire. There was a major heathland fire in the vicinity last year which fortunately missed the site, but it remains threatened since it is surrounded by dry and highly flammable gorse; the cutting of a firebreak is a priority.

Work is being commenced this year (2000) on seven other bryophyte species (*Cryphaea lamyana*, *Riccia huebeneriana*, *Bryum warneum*, *Fissidens exiguus*, *Ephemerum stellatum*, *Sphagnum balticum* and *Tortula cernua*), and there are plans to work on additional species during 2001. The initial stages of work on each species follow a similar basic pattern: a) collating all records, including an examination of herbarium material if necessary; b) carrying out a survey of current and historic sites, recording information on population size, habitat and threats; and c) producing a report including background information on the species and providing recommendations for future work. For example, Tom Blockeel is starting work in autumn 2000 on *Tortula cernua* - a species of Magnesian limestone spoil - which will involve a survey of recent and historic sites in Yorkshire, Nottinghamshire and Cheshire.

*Sphagnum balticum*, a species of oligotrophic bogs, has an extremely limited distribution in Britain, with one confirmed extant site in Scotland and two recent sites in England. Earlier this year, Johnny Turner confirmed that the species is no longer present at Thorne Moors. A detailed search of the other English site, Muckle Moss in Northumberland, involving a group of experts, is planned for October 2000 (I can since report that the species was refound during this search - see p. 53 of this *Bulletin*).

This is inevitably just a brief summary of some of the work going on, but hopefully it illustrates that Plantlife are now very much involved in bryophyte conservation and looking forward to taking more species on the road to recovery. However, this work is not undertaken by Plantlife in isolation, but in partnership with Government agencies from throughout the UK, those who manage the sites on the ground, and the many individuals in the bryological community who make a valuable contribution to the work.

For copies of reports on the species mentioned above please contact Jenny Duckworth at: Plantlife, 21 Elizabeth Street, London, SW1W 9RP; e-mail: [jenny.duckworth@plantlife.org.uk](mailto:jenny.duckworth@plantlife.org.uk).

**GORDON ROTHERO (DUNOON): WORK TOWARDS BRYOPHYTE  
CONSERVATION IN SCOTLAND**

A programme of work for the conservation of bryophytes north of the border was started in 1993 with survey work on lower plants commissioned by Scottish Natural Heritage (SNH) and organised at the Royal Botanic Gardens in Edinburgh by Brian Coppins and David Long. This was initially aimed at the Scottish species on the list of bryophytes that had just been added to Schedule 8 of the 1981 Wildlife and Countryside Act. Schedule 8 designation has probably had little impact in terms of practical measures to 'save' bryophytes but it has worked wonders in raising their profile within the conservation agencies. I carried out a good deal of the fieldwork for this programme, working my way up a steep learning curve, so that some species were rather better dealt with than others. The information collected went towards the production of 'species dossiers'; these have a Part 1 which deals with the generalities of the species and a Part 2 which has details on localities, populations and site visits. This programme of work was expanded in the following years to include a number of Red Data list species.

Several bryophyte species are listed on Annex II of the EC Habitats Directive, and Species Action Plans have been prepared for priority species under the UK Biodiversity Action Plan. In order to support the conservation of these species, projects on three taxa (*Buxbaumia viridis*, *Petalophyllum ralfsii* and *Jamesoniella undulifolia*) were carried out. Obtaining baseline data on the distribution and population size of these species, each occurring at a single site in Scotland, posed different problems in each case.

*Petalophyllum ralfsii* is locally abundant at its Wester Ross site and a count of thalli is not feasible. All areas of damp sand supporting *Petalophyllum* were flagged and photographed, and in each case rough estimates of the number of thalli were made (giving a total population in excess of 25,000 thalli). This method should enable gross changes in the population to be monitored, which is probably all that can be achieved with what is basically a weed species.

Most stands of *Jamesoniella undulifolia* occur on *Sphagnum* hummocks, so the best plan at its Argyll site seemed to be to mark its presence or absence on the numerous hummocks on the site. A grid was marked out and the co-ordinates of each hummock and the presence or absence of *J. undulifolia* was noted, along with a simple measure of abundance. This worked well, with *J. undulifolia* found on some 93 hummocks. The down-side of the method was that it left the site looking like a battlefield and any re-survey (due in 2001) will need to be selective to reduce this collateral damage.

*Buxbaumia viridis* is different again, being very specific in habitat but also very sparse and difficult to spot despite its relatively large size. Flagging and photographing each stand is the obvious technique and this works well despite the low light levels in the ravine in northern Scotland where it occurs. I visited the site every two months to get some idea of the phenology of the plant. This revealed a major problem for the species in that, in my survey, 62% of all capsules observed fail to survive to dehiscence with circumstantial evidence pointing to slugs as the culprits.

The increased profile of lower plants has meant that non-governmental organisations such as the Royal Society for the Protection of Birds (RSPB) and the National Trust for Scotland (NTS) have taken more of an interest in the species which occur on the large tracts of ground

that they manage. Recently, RSPB have funded a survey of the large population of *Andreaea frigida* on their reserve in the Loch Avon basin in the Cairngorms (see p. 58 of this *Bulletin*), and also more general surveys of other sites which have good populations of species such as *Anastrophyllum saxicola*, *Cynodontium tenellum*, *Dicranum bergeri*, *Plagiochila atlantica* and *Orthotrichum speciosum*.

The NTS has funded work to enable their site managers to become familiar with two species for which they have special responsibility: *Bryoerythrophyllum caledonicum* and *Orthotrichum obtusifolium*. Within the NTS reserve on Ben Lawers there is a large project on Meall nan Tarmachan to exclude grazing animals over all of Creag an Lochain and an area to the south of this, primarily to promote the development of willow scrub. NTS funded me to set up plots to monitor what happens to stands of some bryophyte species in places where the cessation of grazing may alter the habitat. The target species here included *Hypnum bambergeri*, *H. vaucheri*, *Racomitrium himalayanum* and *Timmia norvegica*.

However, the majority of work is still funded by SNH, with a survey programme managed by Stephen Ward in Edinburgh. They are paying me to provide baseline data on 27 species of bryophyte over the next two years (hard work I know, but someone has got to do it). These priority species range from relatively well-known rarities, such as *Acrobolbus wilsonii* and *Lejeunea mandonii*, to the more obscure *Bryum uliginosum* and *Orthotrichum gymnostomum*. The results so far have been mixed. *Acrobolbus wilsonii* seems secure, with some 27 widespread sites but is relatively frequent at only one locality. The situation with *Lejeunea mandonii* seems somewhat bizarre; despite much searching I could find it on only one tree in each of three ravines in Moidart and Skye. *Bryum uliginosum* and *Orthotrichum gymnostomum* remain inscrutable, although the search for the latter on aspens on Speyside revealed not only some superb woodland but also three new sites for *Orthotrichum obtusifolium* at Insh.

In general, conservation organisations north of the border have adopted a rather broader brush approach than those in England where the amount of money spent on just two species is probably more than that for the whole programme in Scotland. Though the work has revealed some specific problems, most populations of rare bryophytes seem relatively secure, provided that there is no marked change in habitat. It would seem sensible to try to establish *ex situ* cultures of species such as *Orthodontium gracile* and *Orthotrichum obtusifolium*, and to try to elucidate further the ecology of *Buxbaumia viridis*. However, it will come as no surprise if I suggest that the salvation of many of our rare species lies in the conservation of habitat rather than in measures targeted at individual species.

#### **TOM BLOCKEEL (SHEFFIELD): WINTER ON A GREEK ISLAND - THE BRYOPHYTES OF EVVIA**

The author spent a week bryologising on the Greek island of Evvia from 26 February to 4 March 2000. Evvia is a long narrow island situated close to the eastern coast of Greece and connected to it by a bridge. From north to south it is more than 150 km long. The geology is varied, and includes exposures of serpentinite/peridotite, schist and limestone. An earlier paper by Fröhlich (1961) includes reports of *Dumortiera hirsuta* and *Scapania gracilis*, but these could not be confirmed during the author's visit.

The central part of Evvia is mountainous, the summit of Mt Dirfis exceeding 1700 m. The



higher ground is snow-covered in winter. The author's visit coincided with a spell of cold weather, during which snow fell at low altitudes. This impeded bryological investigations in the mountains. The villages of Steni in the central mountains and Limni on the NW coast were used as bases for exploration.

### Coastal habitats

Outcrops of serpentinite/peridotite occur on the coast near Limni. Rocky banks and gullies in this area contained a limited bryophyte flora, which included *Gongylanthus ericetorum*, *Tortula atrovirens*, *T. canescens* and an as yet unidentified *Entosthodon*. An *Ophioglossum* (presumably *O. lusitanicum*) also occurred in this area.

Near the Galataki Monastery, some gravelly flats with an open growth of *Pinus halepensis* and various shrubs had a more diverse flora, including *Corsinia coriandrina*, *Oxymitra incrassata*, *Fossombronina echinata*, *Petalophyllum ralfsii*, *Cheilothela chloropus*, *Didymodon tophaceus* and *Funaria convexa*.

### North-western hills

North of Limni is a range of hills which rise to nearly 1000 m. Some deep valleys and ravines dissect these hills. At lower levels, there is *Pinus halepensis* woodland with xerophytic bryophytes including *Pleurochaete squarrosa*, *Bryum canariense*, *Homalothecium aureum* and *Scorpiurium circinatum*. Locally, there is an abundance of *Southbya tophacea* and *Eucladium verticillatum* on wet rocks. Ephemeral species observed on disturbed ground included *Sphaerocarpos texanus*, *Pleuridium acuminatum*, *Acaulon mediterraneum* and *Entosthodon fascicularis*.

A small copse of deciduous oaks in the foothills near Akhladi contained a number of familiar British bryophytes: *Riccardia chamedryfolia*, *Lejeunea cavifolia*, *Didymodon sinuosus*, *Eurhynchium praelongum* and *E. pumilum*.

With increasing altitude, *Pinus halepensis* gives way to the Greek Fir *Abies cephalonica*. At the Drimona cataracts calcareous rocks supported *Seligeria acutifolia*, *Fabronia pusilla*, *Anomodon viticulosus* and *Eurhynchium striatulum*, and on open slopes *Mannia androgyna*, *Targionia hypophylla* and *Tortula wilsonii*. Rocks in the stream had *Didymodon luridus*, *Dialytrichia mucronata*, *Bryum gemmiparum* and *Orthotrichum cupulatum*. The epiphytic flora was rich, particularly in sheltered spots, and included *Frullania dilatata*, *Neckera pumila*, *N. complanata*, *Leptodon smithii*, *Habrodon perpusillus* and *Pterigynandrum filiforme*.

### Central mountains

The central mountains include large areas of schist and some limestone.

A deep valley near Pagondas in the foothills contained *Pinus halepensis* woodland, with *Platanus orientalis* bordering the streams. *Cheilothela chloropus* was on the ground, and *Fossombronina husnotii*, *Grimmia laevigata* and *Bartramia stricta* on and about lightly shaded rocks. Craggs of more exposed rock supported *Tortula cuneifolia*, *T. wilsonii*, *T. atrovirens* and *Grimmia tergestina*.

The slopes of Mt Dirfis are clothed with beautiful forests of *Abies cephalonica* and *Castanea sativa*, mixed with *Platanus orientalis*. Signs of early spring included beds of the pink primrose *Primula vulgaris* subsp. *sibthorpii* and the Greek hellebore *Helleborus cyclophyllus*.

Stream banks in the valleys on schist supported a rich flora which included *Leiocolea turbinata*, *Jungermannia atrovirens*, *Marsupella emarginata*, *Scapania compacta*, *Radula lindenbergiana*, *Lejeunea cavifolia*, *Pogonatum aloides*, *Bartramia pomiformis*, *Pterogonium gracile*, *Isoetecium alopecuroides* and *Eurhynchium pumilum*. One deep and rocky ravine had an interesting mixture of southern species (*Cephaloziella turneri*, *Gongylanthus ericetorum*, *Homalia lusitanica*) and others more familiar in northern Europe (*Porella arboris-vitae*, *Frullania tamarisci*, *Bartramia pomiformis*). *Dicranum tauricum* was found on old logs in some of the ravines. Mineral soil on banks had *Pleuridium acuminatum*, *Pohlia annotina*, and by forest roads *Tortula cuneifolia*, *T. canescens*, *T. wilsonii* and *Epipterygium tozeri*.

At higher altitudes (700-1000 m), where not still covered by snow, the more open forest and rocks produced *Porella cordaeana*, *Polytrichum piliferum*, *Grimmia laevigata* and *Plagiomnium cuspidatum*. Deeper forest had *Polytrichum formosum*, *Plagiomnium affine* and *Scleropodium tourettii* in the ground flora, and the epiphytes *Frullania dilatata*, *Orthotrichum* spp, *Zygodon rupestris*, *Neckera pumila*, *Leucodon sciuroides*, *Pterigynandrum filiforme* and *Homalothecium sericeum*. Of special interest was a large population of *Zygodon forsteri* growing in knotholes of *Abies cephalonica*, and more abundantly in the interior of old water-filled stumps where the heart-wood had rotted away.

#### Reference

Fröhlich J. 1961. Bryophyten. In: Rechinger KH, Die Flora von Euboea. *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 80: 455-459.

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#### FIELD EXCURSION TO GREENHAM COMMON, 10 SEPTEMBER 2000

On the Sunday of the AGM weekend, a large group descended on this ex-military airbase, just to the south of Newbury. It is a Site of Special Scientific Interest (SSSI), designated in part for the large expanse (the most extensive in Berkshire) of *Calluna vulgaris* - *Ulex minor* heathland. After lunch, the uncharacteristically hot weather was seen as a good excuse to forsake the open heath for the relatively invigorating coolness of the wet alder gullies on the southern periphery of the site. The alder gullies have formed on clay pockets, with seepage zones and springs, and support *Sphagnum* carpets.

The heathland vegetation was maintained by decades of mowing when the military were managing the airbase, and hence scrub was kept at bay and the sub-shrub communities remained short with much open ground. As a result, this is probably the best heathland site for bryophytes in Berkshire. Prior to the BBS excursion, the total number of bryophytes recorded on the SSSI stood at 134 (although it is difficult to be certain whether some older records are located within the SSSI boundary).

Typical heathland plants seen were *Polytrichum* spp, *Ceratodon purpureus*, *Dicranum scoparium*, much *Archidium alternifolium*, some *Lophozia bicrenata*, *Scapania compacta* and

*Hypnum lacunosum* var. *tectorum*. There is a curious mixture of calcicoles growing alongside the more normal calcifuge species of heathland; this is due to the large areas of concrete runways and taxiways having an effect on the adjacent heathland soils, and one finds *Archidium alternifolium* and *Polytrichum piliferum* intermixed with *Encalypta streptocarpa*, *Aloina aloides* and *Trichostomum crispulum*, the latter species now possibly gone from the chalk of the Berkshire Downs. Many people saw a strong population of *Philonotis fontana* around the margins of a wet depression; it was only recently discovered in small quantity on the dry heathland, and is probably the only extant site for it in Berkshire, so it was gratifying to find it in greater quantity. *Climacium dendroides* (a very rare plant in Berkshire) was also seen in a damp heathy depression.

Greenham is a stone's throw from Ron Porley's English Nature Office, and he has made many records, some new to the vice-county, from the heathland areas over the years. However, we managed to add 15 species previously unrecorded from the site, including *Lophocolea semiteres* (David Long) and *Schistidium crassipilum* (Nick Hodgetts), both new to VC 22. David's discovery of *Lophocolea semiteres* on a sandy bank under birch is a further indication of the spread of this plant in Britain, although there is no way of knowing how long it has been at Greenham. The bank is probably no older than 50 years, and it should be possible to estimate its age more accurately by some research into land changes when in military ownership. There was some interesting discussion going back and forth between Herman Stieperaere and others as to whether it was indeed this species or *L. heterophylla*. Confirmation had to wait for microscopic study.

The best find of the day has to be *Thuidium abietinum* subsp. *hystricosum*, detected by Mark Pool, Ray Tangney and Neil Bell in an area of stony grassland. This probably represents its only extant site in VC 22; it was reported from Cookham Down pit (date unknown) but could not be re-found by Jeff Bates and Seán O'Leary in 1994 (Bates, 1995), and has not been seen on Combe Hill since it was recorded there by E.W. Jones in 1947. Another very good find, *Rhytidiadelphus loreus*, was made by Angie Newton and Neil Bell in birch-oak woodland which fringes the heath. This moss of humid habitats is very sensitive to atmospheric pollution and has declined in many areas; it is very rare in Berkshire, known from just four 5-km squares (Bates, 1995), although it may well be a recent colonist following the amelioration of pollution levels. Amongst the other new site records were *Ephemerum serratum* var. *minutissimum*, *Didymodon tophaceus* (both in the heathland), *Plagiothecium latebricola* (alder gullies), *Orthotrichum pulchellum*, *Cryphaea heteromalla* and *Leskea polycarpa* (in the marginal wooded areas). Five Sphagna were seen in the wet alder gully areas: *S. flexuosum*, *S. squarrosum*, *S. capillifolium*, *S. palustre* and *S. subnitens*.

Many thanks go to Mark Hampton, Greenham Common Ranger, for navigating us around this deceptively large site.

## Reference

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RON PORLEY

## REPORTS OF LOCAL MEETINGS

### THE BORDER BRYOLOGISTS, 2000

Like so many human interests, natural history's popularity ebbs and flows according to circumstance. But some branches of the subject have an enduring attraction for many naturalists, while others - such as bryology - remain sequestered backwaters of enquiry, destined, it seems, never to enter the mainstream of public interest. One feels that assessing the aesthetic beauty of *Bryum bicolor*'s bulbils or the delicate foliage of *Lophocolea bidentata* is unlikely to catch on big-time and become must-see viewing on television, for mosses and liverworts do not have pretty petals or plumage, and lack the lives of ceaseless sex and violence so vital for retaining viewers' attention. Likewise, most naturalists who stray from couch to countryside begin by studying vertebrates, showy insects, or in-your-face flowers and ferns.

The *hoi polloi* may remain forever obsessed by blooms, birds and butterflies, but we more sophisticated types soon progress beyond this intellectual infantilism to look for less conspicuous species, wherefore one may be sure of meeting a more refined class of naturalist on bryological outings. It is indeed the quiet other-worldliness of bryology which attracts the discerning *cognoscenti* of the countryside - a confidence that mosses and liverworts will neither be sullied on screen nor succumb to common denominators of taste and mass moss-appeal.

Comfortable, then, with our non-conformity, thirteen Border Bryologists met in February at the north end of Wenlock Edge in Shropshire, half a mile south of Much Wenlock, to explore Silurian limestone and calcareous soils. Our trysting-place turned out to be a classier kind of car park, with cushions of *Trichostomum crispulum* on rock and soil. *T. brachydontium* grew nearby, alongside the shiny, beautifully russet-brown leaves of *Rhynchostegium murale*. Crossing an old by-way, further up the slope we entered a close-cropped pasture which had formerly been quarried. Here the shallow soil over outcrops of limestone proved ideal for *Tortula lanceola*, *Encalypta streptocarpa*, *Fissidens incurvus*, *Campyliadelphus chrysophyllus*, and the uncommon winter-ephemerals *Weissia longifolia* var. *longifolia* and *Ephemerum recurvifolium*. These last two mosses were entering Salopian lists for the first time. Nearby woodland also showed calcareous influence, with *Didymodon sinuosus*, *Aloina aloides*, *Campylophyllum calcareum*, *Leiocolea badensis* and *L. turbinata*.

Our March meeting coincided with idyllic warm sunshine for the annual cross-border raid into north Radnorshire to pillage Celtic cryptogams at Maelinydd Common. A pair of newlywed Stonechats sunbathed on a gorse bush and Buzzards drew circles in the sky, while we contemplated falcate pleurocarps in the common's wet flushes. This was indeed a day for 'Dreps' - *Sanionia uncinata*, *Warnstorfia exannulata* and *Hamatocaulis vernicosus*, with *Scorpidium scorpioides*, *Ctenidium molluscum*, *Palustriella commutata* var. *falcata* and 'Hyps' to hand nearby for ease of comparison. *Calliergon* species were prominently represented too, with the red-brown tint of *C. sarmentosum* contrasting with pale green *C. stramineum*. *C. giganteum*, nerved and with auricles, nestled near *Calliergonella cuspidata*, which lacks both these corporeal accoutrements, and we compared *Thuidium delicatulum* with the more two-dimensional shoots of *T. tamariscinum*. *Fissidens osmundoides* and *Polytrichum strictum* relished the dampness, with smaller plants on the tops and sides of hummocks and runnels: *Entosthodon obtusus*, *Riccardia multifida* and *Cephalozia connivens*.

To end the day we moved a few hundred yards west to the Camddwr stream, finding *Pohlia wahlenbergii*, *Archidium alternifolium* and *Didymodon spadiceus* on damp soil-banks by the stream. *Schistidium crassipilum* and *Orthotrichum cupulatum* var. *cupulatum* grew on the concrete of the bridge, with *O. lyellii* on an ash tree nearby.

On a cold morning in April we met at Rushall, near Much Marcle in south-east Herefordshire, hoping that old walls at the Tudor mansion of Chandos might yield a crop of calcicoles, but recent remortaring had put paid to these. Grubbing about in soil nearby brought *Leptobryum pyriforme*, *Dicranella staphylinia*, *Bryum bicolor* and *B. violaceum* to notice. Behind the buildings on an old apple tree at the entrance to an orchard we came across *Syntrichia papillosa*, which had to be moistened before assuming recognisable form and revealing its gemmae. After lunch we found *Weissia rutilans*, *Ephemerum serratum* var. *minutissimum* and *Ditrichum heteromallum* on anthills in the orchard, and outcrops of rock on Marcle Hill provided *Encalypta streptocarpa*, *Trichostomum brachydontium* and *Bryoerythrophyllum recurvirostrum*.

After a few days playing with the big boys at the BBS spring meeting in Bude, we gathered again on a delightfully warm, sunny day in May at Holywell Dingle south of Kington in north-west Herefordshire. Pied Flycatchers and Redstarts competed for the air-waves with Chiffchaffs, Willow and Wood Warblers. So much for a quiet day in the dingle. Jonathan Sleath pointed out *Bryum radiculosum* on mortar by an old cottage, then *Plagiothecium curvifolium* just inside the wood. *Metzgeria fruticulosa* thrived in the moist conditions, while *Fissidens gracilifolius*, *Dicranella schreberiana* and *Mnium stellare* waited for us on the streambank, with *Amblystegium fluviatile* and *Rhynchostegiella teneriffae* on stones by the stream. A bank of tufa sprouted *Palustriella commutata* and *Eucladium verticillatum*, and a colony of Herb Paris *Paris quadrifolia* was at the peak of its beauty.

We chose Cleeton St Mary on the east side of Titterstone Clee Hill in south Shropshire for our June meeting, in a determined and successful attempt to avoid the arctic conditions which had troubled us there the previous year. We did further justice to the rich bryodiversity of the flushes and sheepwalks, recording *Andreaea rupestris*, *Fissidens osmundoides*, *Racomitrium fasciculare*, *R. heterostichum* s.s., *R. lanuginosum*, *Sphagnum denticulatum*, *S. inundatum*, *S. capillifolium*, *S. fimbriatum*, *S. palustre*, *S. fallax*, *S. squarrosum*, *S. subnitens*, *Campylium stellatum* var. *stellatum*, *Heterocladium heteropterum*, *Hyocomium armoricum*, *Dicranum bonjeanii*, *Leucobryum glaucum*, *Cephalozia connivens*, *Pellia neesiana*, *Riccardia multifida*, *Drepanocladus aduncus* and *Sanionia uncinata*. Jonathan Sleath found *Drepanocladus cossonii* - a 'debracketing' for Shropshire - before moving into overdrive on screes higher up the hill and adding *Gymnomitrium obtusum* to the county's bryoflora, with *Andreaea rothii* subsp. *rothii* as another 'debracketing'. *Lophozia excisa* and *Barbilophozia floerkei* grew nearby.

June also saw bryological reconnaissance at Fealar in east Perthshire, at the end of a 12 mile dirt track after leaving the main road near Kindrogan Field Centre. Islands of upland basic rock and flushes amongst more acidic terrain at Fealar promised endless botanical entertainment, while hospitality at the Lodge - one of the highest permanently inhabited dwellings in the land - was top-of-the-range too, with four-course cooked breakfasts to set us up each day, and lavish evening meals after cocktails in the lounge.

Fully laden thus, if the explorer manages to achieve lift-off with a short stroll down the track,

he will soon spy a flush sporting *Meesia uliginosa* and *Catoscopium nigrum*. Plunging into the wooded gorge below he comes upon *Distichium capillaceum*, *Seligeria pusilla*, *Ptilium crista-castrensis*, *Apometzgeria pubescens*, *Lophozia longidens*, *L. incisa*, *Cololejeunea calcarea*, *Anastrophyllum minutum*, *Porella cordaeana* and *Tritomaria exsectiformis* alongside commoner cohabitants.

Further down the track again, a brief sortie up the Allt á Ghlinne Bhig produced *Grimmia torquata*, *Bartramia ithyphylla*, *Leptobryum pyriforme* in its natural habitat on soil over rock, *Hyocomium armoricum* (surprisingly, new to VC 89), *Ulota drummondii* on a rowan tree, *Schistidium crassipilum*, *Calypogeia sphagnicola*, and *Tritomaria polita* on a rock by the stream with *T. quinquedentata* close by.

Next day we explored the upper reaches of Ghlinne Bhig and acidic ground on Beinn Iutharn Mhor, the highest hill on Fealar's estate. Calcareous flushes in the valley carried *Amblyodon dealbatus*, *Schistidium crassipilum*, *Leiocolea alpestris* and *L. bantriensis*, and the bright green of *Calypogeia neesiana* at one spot made a fine contrast with the more anaemic hue of its congeners. *Conostomum tetragonum*, *Tetraplodon mnioides* and *Gymnomitrium concinnum* brightened the ascent of acidic screes on the north-east flank of Beinn Iutharn Mhor, with *Dicranum fuscescens*, *Diplophyllum taxifolium* and *Marsupella sphacelata* on the summit plateau. A rivulet down the west side of the hill provided congenial conditions for *Pohlia ludwigii* and *Plagiothecium denticulatum* var. *obtusifolium*, and back in Ghlinne Bhig below *Jungermannia exsertifolia* subsp. *cordifolia* grew by a stream, with *Schistidium crassipilum* on basic rock.

Next day we stopped first at a calcareous flush on the east flank of Meall na Spionnaig, where *Dirichum gracile*, *Meesia uliginosa*, *Anomobryum julaceum*, *Orthothecium rufescens* and *Tritomaria polita* created a mood for more. Moving on, and leaving the track further south, after passing Dwarf Birch *Betula nana* and a flush wherein grows False Sedge *Kobresia simpliciuscula*, we arrived at the top of calcareous cliffs immediately east of Loch Loch. *Bryum elegans*, *Encalyptia rhaptocarpa*, *E. streptocarpa*, *Grimmia torquata*, *G. hartmanii*, *Schistidium crassipilum*, *Conostomum tetragonum*, *Distichium capillaceum*, *Seligeria pusilla*, *Myurella julacea*, *Pseudoleskeella catenulata* (a moss whose mats can be measured by the metre on these cliffs), *Entodon concinnus* and *Orthothecium intricatum* enlivened the mossy scene, while that incorrigible calcifuge *Rhabdoweisia fugax* had found an acidic abode. Although the cliffs are relatively dry, the liverworts *Cololejeunea calcarea* and *Gymnomitrium concinnum* found circumstances to their liking. Vascular plants are choice here too, and our visit coincided with the peak of flowering of Yellow Milk-vetch *Oxytropis campestris* (whose flowers are really a delicate creamy colour), and the lovely azure blue of Rock Speedwell *Veronica fruticans* with its unblinking red eye. Flowerless but refulgent, the fresh green fronds of Holly-fern *Polystichum lonchitis* adorned the declivities as we contemplated the grey screes and forbidding bulk of Beinn a Ghlo across the loch.

On the following day a mosaic of basic and acidic ground on Carn an t-Sionnaich gave us *Sphagnum fuscum*, *Conostomum tetragonum*, *Dicranoweisia crispula*, *Kiaeria blyttii*, *Splachnum ampullaceum*, *Plagiothecium denticulatum* var. *obtusifolium*, *Barbilophozia atlantica*, *Marsupella sprucei*, *Diplophyllum taxifolium*, *Anastreptia orcadensis*, *Gymnomitrium concinnum*, *Calypogeia sphagnicola*, *Anthelia julacea* and *Lophozia bicrenata*. Dropping down to explore base-rich flushes in Gleann Mor, *Isopterygiopsis pulchella*, *Campyliadelphus chrysophyllus*, *Meesia uliginosa*, *Leiocolea bantriensis*,

*Tritomaria polita* and *Harpanthus flotovianus* cheered us home for cocktails.

Our last day's sortie began at the lower end of Fealar Gorge, where *Bartramia ithyphylla*, *Gyroweisia tenuis*, *Orthothecium rufescens*, *Anoetangium aestivum*, *Didymodon spadiceus*, *Isopterygiopsis pulchella*, *Scapania aequiloba*, *S. aspera*, *Leiocolea alpestris*, *L. bantriensis*, *Tritomaria exsectiformis*, *T. quinquedentata*, *Anastrophyllum minutum*, *Blepharostoma trichophyllum*, *Blasia pusilla* and *Cololejeunea calcarea* were waiting for us on calcareous rocks. After lunch we moved along to the gorge of the Allt á Ghlinne Mhoir, our descent to the stream upsetting a family of Peregrines who screamed blue murder at us from the sky. They had been committing it in the flesh pretty regularly too, for the feathered remains of dead grouse lay on nearly every boulder. *Hygrohypnum eugyrium*, *Hygrobrella laxifolia* and *Scapania subalpina* were growing in the gorge, and went on our lists for the first time.

These finds at Fealar had come from merely skim-sampling sites for an hour or so each day, and one's thoughts ever stray to what and how much we passed by unawares, which might have (and may yet) come to notice with prolonged searching by more pairs of eyes.

With appetites whetted for further Scottish adventures, we set off northwards again in August, to Ardtornish in Morvern on the west coast, capital of the Bryophyte Belt where sooner or later every bryologist cuts his teeth. But the high rainfall and humidity which suit the cream of cryptogams are less popular with those who hunt them, and unfortunately either rain fell or midges ate us during much of the week.

We did enjoy some sunshine on our first day, though, and we began by exploring the Allt na Sochaich behind the House, where *Hylocomium umbratum* grows on soil under trees, and *Scapania subalpina* on rock by the stream. Beckoned by the rump of Glais Bheinn, rocks and crevices held *Grimmia torquata*, *Racomitrium ellipticum*, *Schistidium strictum* and *Ditrichum zonatum* var. *zonatum*, and a Hen Harrier cut short its lunch to swing away over a peat hag. Contouring round, the dark, crumbling basaltic cliffs of Table of Lorn held the rare *Schistidium pruinatum*, its markedly papillose leaves distinguishing it from other *S. apocarpum* segregates.

Pouring rain all next day hampered exploration of the Fossil Burn south of the jetty on the east side of Loch Aline in the morning (*Harpalejeunea molleri* and *Marchesinia mackaii*), and Munghasdail Burn by the road to Drimnin in the afternoon, where boulders and trees supported *Radula aquilegia*, *Frullania fragilifolia*, *Plagiochila killarniensis*, *Harpalejeunea molleri* and *Cololejeunea minutissima*. On bedraggled retreat to a hot bath, a brief inspection of the Black Glen (Gleann Dubh) at the head of Loch Aline produced *Bazzania trilobata*, *Plagiochila punctata*, *Anastrophyllum minutum*, *Frullania teneriffae* on a birch tree, and *Riccardia palmata* on a rotting log, with the mosses *Tetradontium brownianum*, *Grimmia hartmanii* and *Eurhynchium pumilum* on a rock. The *Eurhynchium* is quite common in southern woods, but becomes more notable this far north, where its requirements constrain it to sheltered spots like the Black Glen.

Next day we looked over base-rich rocks on Beinn Iadain, and though geographically disorientated in the mist, ecologically we knew we were in the right place when we started finding plants such as *Grimmia torquata* and *Bryoerythrophyllum ferruginascens*. *Arctoa fulvella* looked very *Dicranum*-like, *Ditrichum zonatum* var. *zonatum* appeared again, and Donald Kennedy, the local warden for the Scottish Wildlife Trust, kindly pointed out the

hill's vascular specialities: Arctic Sandwort *Arenaria norvegica* and Hairy Stonecrop *Sedum villosum*. We passed a little patch of *Antitrichia curtipendula* on our way down the north-western spur.

For our final day at Ardtornish we explored base-rich ground on the north flank of Beinn Chlaonleud overlooking the upper reaches of Gleann Dubh, where *Bazzania tricenata* and *Aphanolejeunea microscopica* suggest that a more prolonged search on a less midgy day might pay dividends. A short stop in woodland in Glean Geal on the homeward drive gave us *Leucobryum juniperoideum* and *Plagiochila killarniensis*.

We punctuated our pilgrimage eastwards from Ardtornish to Perthshire with a pit-stop at the bryologists' shrine of Coire Gabhail in Glen Coe, also known as the Lost Valley. Perhaps a better name still would be Liverwort Larder, for here hepatics drape themselves over every one of Nature's shelves, bough and boulder alike. A felicitous combination of oceanic climate and precipitous, base-rich cliffs brooding over this sun-starved, north-facing declivity renders it Utopia for liverworts, and although the rarest species eluded us during our short exploration, *Cephalozia catenulata* on a fallen rowan and *Leptoscyphus cuneifolius* on a birch tree headed a cryptogamic cast of *Herbertus aduncus* subsp. *hutchinsiae*, *Douinia ovata*, *Scapania subalpina*, *Nardia geoscyphus* and *Riccardia palmata*.

Back in the eastern Highlands, we chose the Cairnwell for our last foray of the year in Scotland. Mild still air made the day ideal for this well-known hill above the ski-runs north of Spittal of Glenshee. As at Fealar, a combination of high ground and calcareous substrate promised excitement and proved rewarding, yielding *Rhytidium rugosum* and *Grimmia funalis*, with Rock Sedge *Carex rupestris* and Mountain Sandwort *Minuartia rubella* nearby. *Oncophorus virens* and *Harpanthus flotovianus* turned up in flushes to the north of the ridge, together with some decidedly odd-looking *Dichodontium pellucidum* looking nothing like the plants which grow by lowland water-courses. Indeed, one marvels (living as we do in an age of 'splitters') that *D. pellucidum* has not been carved up into more species.

After all this Scottish excitement, we settled back into our local routine in October at Cramer Gutter, a reserve of the Shropshire Wildlife Trust near Cleobury Mortimer. This mire is one of Shropshire's most botanically interesting sites. We ate our sandwiches next to *Cladopodiella francisci* growing on peat exposed near the path. This recent addition to Salopia's flora came a long way if it spread here from either of its nearest known out-of-county sites in south Wales and Yorkshire. But *C. francisci* is very small and may have lived quietly at Cramer for a long time without anyone realising. Gemmae sit on the ends of its shoots, and it has a stiffer habit than its congener *C. fluitans*, which straggles in profusion through the bog-mosses nearby in a manner more reminiscent of *Odontoschisma sphagni* than its closer relative. *O. sphagni* lives there too, along with the gemmiferous *O. denudatum*. *Mylia anomala* (also with gemmae), *Cephalozia connivens* and *Kurzia pauciflora* completed a list of liverworts notable for a largely low-lying county so close to the kingdom's industrial heartland. Outside the reserve, on Catherton Common to the south of the stream, *Scorpidium scorpioides* and *Campylium stellatum* in flushes attested the influence of basic minerals, and *Tortella tortuosa* grew in the crevice of a boulder.

With a dire weather-warning ringing in our ears, a remarkably brave team of ten turned out in early November at Hunthouse Wood, a reserve of the Worcestershire Wildlife Trust in the north of the county near Mamble, between Cleobury Mortimer and Bewdley. The wooded



dingle's diverse bryoflora relished the damp, sheltered atmosphere and ground, and ideally suited our educational agenda, with many of the common species of English broadleaved woodland on show. We also managed to add a few species to the reserve's list, including the epiphytes *Bryum subelegans*, *Zygodon conoideus*, *Frullania dilatata* and *Metzgeria fruticulosa*, while a steep rocky bank offered sufficiently base-rich conditions for *Leiocolea turbinata*.

We ended the year with our third indoor workshop at Ludlow Museum for those seeking the help we all need at the outset of our bryological careers in order to feel confidently at home in the diminutive world of mosses and liverworts. Indeed, we arrange all our local meetings - both indoor and out - for naturalists keen to embark on field bryology. And we hope that the British Bryological Society will also play its part in encouraging beginners, as well as acting as a coterie for those who have already passed the nappy-stage in bryology. We don't expect the Society to advertise on commercial television networks during prime-time viewing hours, but we do want an up-to-date, easy-to-use guide for identifying British mosses and liverworts using a lens in the field, with life-like illustrations of habit and notes on where to find each species. Crazy dreams linger on ....

MARK LAWLEY

## **SOUTH-EAST GROUP**

### **Dungeness (VC 15), 8 October 2000**

Way back in the late 1960s and early 1970s there were SE Group meetings before the SE Group was invented. The usual format was to meet at Dorking Station, where car drivers collected Ted Wallace and Jack Gardiner, and then to revisit Ted's old haunts. 'I expect it will have changed a lot since I was last there'. 'And when was that Ted?' '1938, or was it 1937?' Afterwards, a supper of macaroni cheese and whisky was always on offer at Jack's house at Lancaster Gate.

A specimen of *Antitrichia curtispindula* in my herbarium (coll. J.C. Gardiner, E.C. Wallace & B. O'Shea; growing on prostrate *Prunus spinosa* in the shingle at Denge Beach) records such an outing to have taken place in June 1971, and shows that Dungeness had in fact not changed that much in Ted's bryological lifetime. Thus 30 years on was just about a decent interval of time to merit a repeat visit to Dungeness. Blessed with a rare fine day in an otherwise almost continuously pluvial autumn, the usual Group members (Jan Hendey, Silvia Priestley, Roy Hurr, Howard Matcham and Malcolm Watling) were joined by Jenny Duckworth, Plantlife's Lower Plant Officer, and David Holyoak, who was keen to refind *Bryum warneum*, previously collected at Dungeness by Cliff Townsend in 1981.

In the morning we explored the area of artificial pools in the RSPB reserve, where our enthusiasm for crawling and our small magnifying equipment were regarded with much incredulity by passing ornithologists. Disturbed ground by the lakes was singularly dull, apart from large quantities of *Aloina aloides*, but damp areas in *Salix* carr yielded *Plagiomnium affine* and *Climacium dendroides*, both uncommon in Kent. Stands of dead and dying elders proved more interesting, the assemblage of epiphytes including *Cololejeunea minutissima*, *Cryphaea heteromalla*, *Syntrichia laevipila* var. *laevipila* and var. *laevipilaeformis* (new VC record), *Zygodon conoideus*, *Z. viridissimus* and *Grimmia pulvinata*, but oddly no *Syntrichia*

*papillosa* or any *Ulotas*. Just as we were about to re-enter the car park for lunch we spotted an area of untouched undulating shingle with *Prunus spinosa* and *Silene nutans* growing in the depressions. Closer inspection revealed *Antitrichia curtispindula* growing on the *Prunus* in association with *Ceratodon purpureus* and *Frullania tamarisci*.

Thwarted by a high fence (which wasn't there in 1971) in attempting to find more *Antitrichia* in the Denge Beach area, the bryumvirate spent the afternoon exploring old sand and gravel workings north of the road. Around the pools were literally tens of square metres of *Pellia endiviifolia* which will be a remarkable sight early next spring when the setae elongate. Growing through the Pellietum were *Bryum argenteum*, *B. bicolor*, *B. subapiculatum*, *B. gemmiferum* c.fr., *B. pallescens* c.fr. (new VC record), *B. dunense* (new VC record) and *B. warneum* c.fr. Overall the day produced a total of 76 taxa.

David Holyoak plans to return to the area to gather detailed information on the ecology of *Bryum warneum* and to investigate further other Brya with immature capsules which at the time of writing defy determination. It will also be of interest to find out whether *B. warneum* and *B. pallescens*, now in axenic cultures (J.G. Duckett), produce protonemal gemmae.

JEFF DUCKETT

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## FUTURE MEETINGS OF THE SOCIETY

Members are reminded to read the BBS Safety Code, which is published in *Bulletin* 43 and is available from local secretaries for inspection during BBS meetings. Please inform local secretaries well in advance if you intend to join a meeting, even if you are not staying at the headquarters accommodation.

### SPRING FIELD MEETING 2001, Isle of Wight, 4-11 April

Local Secretary: Mrs Lorna Snow, Ein Shemer, Upper Hyde Farm Road, Shanklin, PO37 7PS; tel: 01983 863704; e-mail: snow@shemer.freemove.co.uk. Rod Stern and Howard Matcham will be assisting as field leaders.

Headquarters: Channel View Hotel, Hope Road, Shanklin, PO37 6EH; tel: 01983 862309; fax: 01983 868400.

Due to the general shortage of single rooms, the numbers booked into the Channel View Hotel will be limited to 20. There is plenty of alternative hotel or B&B accommodation within a short distance. Details can be obtained from the local secretary. Members should make their own arrangements and advise Lorna Snow where they are staying, for how long, and whether they have a car. Privately booked ferry charges are high. Most hotels can arrange a ferry-inclusive package which reduces the cost. If members can share a car this also helps.

There will be an informal get-together in the HQ hotel at about 8.45 p.m. on Wednesday 4 April. Dr Colin Pope, the Isle of Wight Ecology Officer, will give a short illustrated introduction to the ecology of the Island. The Island (VC 10) is compact, and no two places

are much more than 20 miles apart. It is a microcosm of southern England, with ancient woodlands, chalk grasslands, wetlands, estuaries and cliffs all in close proximity. The maritime nature is felt right across the Island and a strong south-westerly influence is apparent in the distribution of many species. Air pollution levels are low. Visits will be made to rich ancient woodland sites, exposed coastal cliffs with springs and greensand outcrops, relict wetland sites, and medieval churchyards. We shall be hoping to find *Acaulon triquetrum* at St Catherine's Point, *Conardia compacta* in the Landslip, and *Leptodontium gemmascens*, among others. There are quite a number of species that were found in 1964 and have not been seen since. *Blasia pusilla*, *Lophocolea fragrans*, *Fissidens celticus* and *Philonotis marchica* also occur in the area. Recording will be on a 1-km square or site basis, and the records will be incorporated in the update of the Isle of Wight Flora at present being undertaken.

If any member would like to concentrate on a particular species or type of site, please let Lorna Snow have details, and endeavours will be made to arrange suitable site permissions, etc.

Members should assemble at Channel View Hotel at 09.15 each morning ready to depart at 09.30.

The Island is covered by OS Maps Outdoor Leisure No 29, and the smaller scale Landranger No 196. Details of the programme will be sent later to those attending.

### **SUMMER FIELD MEETING 2001, FIRST WEEK, Lanarkshire and Renfrewshire, 28 July - 3 August**

Local secretary: Keith Watson, Flat 1/2, 31 Kelvindale Gardens, Glasgow, G20 8DW; tel: 0141 945 5721 (home), 0141 287 2658 (work); e-mail: keith.watson@cls.glasgow.gov.uk.

#### **Provisional itinerary**

VC 77 (Lanarkshire); accommodation: New Lanark area

28 July: Southern Uplands (hill country to ca 700 m)

29 July: Clyde Valley Woodlands (ancient woodlands)

30 July: bogs and bings (raised bogs and mine wastes)

Glasgow (VC 77 mostly); accommodation to be arranged

31 July: Glasgow area (Possil Marsh, Garscadden Wood and urban)

VC 76 (Renfrewshire); accommodation to be arranged

1 August: Misty Law and Calder Glen (Clyde Muirshiel Regional Park woods and hill country)

2 August: Loch Thom and Lunderston Bay (coastal woodlands and open habitats)

The Lanarkshire habitats cover high country where some subalpine species may still linger; there are also some extensive blanket bogs with species such as *Hypnum imponens*, *Bryum weigelii*, *Sphagnum fuscum* and *S. affine*. Clyde Valley woodlands (oak and elm types) are very rich in bryophytes and should be rewarding.

The bogs and bings day covers the plateau area to the east of Glasgow, with good raised bogs,

local rock outcrops and a number of mine waste 'bings' which often have a rich moss flora; species may include *Sphagnum pulchrum*, *S. affine* and *Buxbaumia aphylla*.

Glasgow provides an opportunity to visit a few interesting sites in an urban context, including the nature reserve of Possil Marsh with a number of old records (including *Sphagnum riparium*); ancient woodlands and mires at Garscadden may be of interest; urban areas could also be checked.

The first of the two days in Renfrewshire will focus on upland semi-natural habitats on Misty Law (ca 550 m) and associated valley woodlands and flushes. The final day will visit the wetter west, where the uplands meet the coast, with some wooded glens (old record for *Hamatocaulis vernicosus*).

Potential attendees should note that several of the excursions involve walking in upland country and also some steep valleys. The weather in Scotland is often wet at the time of year (but good day length). The trips will involve a fair bit of travelling, so car sharing is sensible, especially if attendees wish to visit a number of local sites.

Provisional enquiries are welcomed, with firm bookings made as early as possible.

#### **SUMMER FIELD MEETING 2001, SECOND WEEK, Skye, 4-11 August**

Local secretary: Nick Hodgetts, Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough, PE1 1JY; tel: 01733 866805 (work), 01476 407142 (home); e-mail: [nick.hodgetts@jncc.gov.uk](mailto:nick.hodgetts@jncc.gov.uk).

There will be two headquarters hotels for this week's meeting. The reasons for this are threefold. Firstly, the owner of my original choice (a reasonably centrally placed hotel) is selling up and no longer taking bookings. Secondly, most suitably placed hotels on Skye are very expensive. Thirdly, one can waste a lot of time driving around on Skye, which is a large island, so having two bases at opposite ends of the island seems to make sense.

The first four nights (Saturday 4 August - Tuesday 7 August) will be based at the Toravaig Hotel (formerly the Hairy Coo Backpackers Hotel). This offers comfortable and inexpensive, if fairly basic, bed & breakfast accommodation on the Sleat Peninsula (bar meals are available in the evening but there is no restaurant as such), and is an ideal base from which to explore the Atlantic oakwoods of the area, the Torrin limestone and the southern mountains. We should see many of the typical oceanic woodland species and no doubt the area can still throw up some surprises. The beautiful *Campylopus shawii* is a particular speciality of the area. It is hoped to arrange a boat excursion to Soay, which is bryologically little-known except for a small number of anonymous records from the 1930s and 1940s and records from a day-trip by Prof. Birks in 1987.

For the second part of the week (the nights of Wednesday 8 August - Friday 10 August) we will be moving north to Carbost, where our headquarters will be the Taigh Ailean Hotel (pronounced 'Tee Allan'), not very far from the famous Talisker distillery. This hotel offers much more reasonable rates than the majority of the hotels on the island but is small, accommodating only 13 people at a time, so book early if you wish to stay here. This is a good base for Trotternish, Mcleod's Tables and numerous coastal ravines and cliffs.

*Bryoerythrophyllum caledonicum*, *Didymodon icmadophilus*, *Eurhynchium pulchellum* and many other interesting species grow on the Trotternish ridge, and *Myurium hochstetteri* occurs on some coastal ledges.

If you would rather stay elsewhere, or if the headquarters hotels become booked up, there are numerous bed & breakfast establishments all over the island, details of which are available from the local secretary or in many guidebooks and websites. Please contact me as soon as possible if you would like to attend all or part of this meeting, especially if you want to stay at either or both of the headquarters hotels, as I will be handling the bookings. If you are joining the meeting but staying elsewhere, I would also appreciate you contacting me so that I can ascertain numbers for excursions.

### **ANNUAL GENERAL MEETING AND SYMPOSIUM 2001, National Museum & Gallery, Cardiff, 7-9 September**

Local secretary: Mr A.R. Perry, 35 Cardiff Road, Dinas Powys, Vale of Glamorgan, CF64 4DH; tel/fax: 029 2051 3382; e-mail: alanrperry@aol.com.

The meeting will focus on taxonomy of bryophytes, particularly in relation to British species, but also, it is hoped, with an additional tropical content. It is intended that foreign guest speakers who have conducted recent work on genera with a special bearing on species in the British Isles be invited to talk to us. The meeting promises to be a good start to the new millennium, with an evening reception in the Museum, and an opportunity for members and guests to examine the holdings of BBSUK and NMW (Head of Cryptogams: Dr Ray Tangney). Posters on bryophyte taxonomy are invited. Some fieldwork will be arranged for the Sunday. Details for registration, travel, accommodation and submission of posters will be in the summer *Bulletin*, but may be obtained from the Local Secretary before that.

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## **LOCAL MEETINGS PROGRAMME, 2001**

### **NORTH WESTERN NATURALISTS' UNION AND BRITISH BRYOLOGICAL SOCIETY**

All outings are on Saturdays and commence at the meeting place at 10.30 a.m. Please ensure that you contact the leader or one of the local secretaries\* before joining an outing, to ensure that there are no changes in venue or timing. Come provided with adequate clothing and a packed lunch.

17 March: DEEP DALE, NR TADDINGTON. Meet in the car park at SK171702. Mr Tom Blockeel & Mr Joe Costley.

28 April: RUSHES CLOUGH RESERVOIR. Meet at SD968095. Dr Martha Newton.

26 May: LUMB SPOUT, NR TRAWDEN. Meet at SD916380. Messrs Norman & Alan Bamforth.

16 June: BICKERTON HILLS. Meet in the NT car park at SJ494525. Mr Mike Walton.

23 July: THE QUINTA & SWETTENHAM MEADOWS. Meet at the Swettenham Arms, SJ800672. Mr Tony Smith.

- 18 August: THURSTASTON COMMON. Meet west of the Cottage Loaf Restaurant at SJ247845. Mr Len Johnson.
- 15 September: BONSALL MINES & BONSALL WOOD. Meet at SK265572. Dr Martha Newton.
- 13 October: PADLEY GORGE. Meet at Grindleford Station, SK250788. Miss Joan Egan.
- 10 November: BIRKDALE. Meet in the car park at Ainsdale Boating Lake, SD301128. Mr Daniel Wrench.
- 1 December: TRENT & MERSEY CANALS. Meet in front of the Big Lock PH, SJ702668. Mr Mike Walton.

\* Mr E.P. McCann (North Western Naturalists' Union); tel: 0161 962 1226  
 Mr A.V. Smith (British Bryological Society); tel: 01663 744499

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### OTHER BRYOLOGICAL MEETINGS, 2001

- 16-18 March: INTRODUCTION TO MOSSES AND LIVERWORTS. Tutor: Dr Martha Newton, Rhyd-y-creuau, The Drapers' Field Centre, Betws-y-coed, Conwy, LL24 0HB. Especially for beginners, but others welcome too. Details from the Warden, Mr J. Ellis.
- 24-25 March: MOSSES, LIVERWORTS AND FERNS. Tutor: Dr Ken Adams, Epping Forest Field Centre, High Beach, Loughton, Essex, IG10 4AF. Basic classification, identification, structure and function, including use of the microscope; offering guidance at all levels. Details from the courses co-ordinator, Mr A. May.
- 18-20 May: *SPHAGNUM* WEEKEND. Tutor: Dr Martha Newton, Rhyd-y-creuau, The Drapers' Field Centre, Betws-y-coed, Conwy, LL24 0HB. A chance to learn how to recognise most of the British species in the field, and to study them alongside keys. Details from the Warden, Mr J. Ellis.
- 23-30 May: MOSSES AND LIVERWORTS. Tutor: Dr Martha Newton, Orierton Field Centre, Pembroke, Pembrokeshire, SA71 5EZ. Offering individual guidance in identification and ecology at all levels. Details from the Warden, Dr R.G. Crump.
- 7-14 July: MOSSES AND LIVERWORTS. Tutor: Dr Martha Newton, Kindrogan Field Centre, Enochdhu, Blairgowrie, Perthshire, PH10 7PG. Offering individual guidance in identification and ecology at all levels. Details from the Warden, Mr N. Morgan.
- 14-18 July: *SPHAGNUM* MOSSES. Tutor: Dr Martha Newton, Kindrogan Field Centre, Enochdhu, Blairgowrie, Perthshire, PH10 7PG. Three days to practise field identification of most species of this ecologically important genus. Details from the Warden, Mr N. Morgan.
- 20-23 July: WOODLAND MOSSES AND LIVERWORTS. Tutor: Dr Martha Newton, Malham Tarn Field Centre, Settle, North Yorkshire, BD24 9PU. A chance to compare the species of a wide variety of natural and semi-natural woodlands. Details from the Warden, Mr C. Jones.
- 23-27 July: MOSSES AND LIVERWORTS OF WETLAND HABITATS. Tutor: Dr Martha Newton, Malham Tarn Field Centre, Settle, North Yorkshire, BD24 9PU. An opportunity to examine many of the significant ecological indicator species of these valuable and intriguing habitats. Details from the Warden, Mr C. Jones.
- 27 July - 3 August: MOSSES AND LIVERWORTS. Tutor: Dr Martha Newton, Preston

Montford Field Centre, Montford Bridge, Shrewsbury, Shropshire, SY4 1DX. Offering individual guidance in identification and ecology at all levels. Details from the Warden, Ms S. Townsend.

11-18 August: MOSSES AND LIVERWORTS. Tutor: Dr Martha Newton, Blencathra Field Centre, Threlkeld, Keswick, Cumbria, CA12 4SG. Offering individual guidance in identification and ecology at all levels. Details from the Warden, Dr R. Lucas.

31 August - 7 September: UNDERSTANDING CONSERVATION THROUGH BRYOPHYTES. Tutor: Dr Martha Newton, Rhyd-y-creuau, The Drapers' Field Centre, Betws-y-coed, Conwy, LL24 0HB. For everyone with a professional or amateur interest in bryophytes and conservation. Details from the Warden, Mr J. Ellis.

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## COUNCIL NEWSLETTER NUMBER 17

Amongst the new officers on Council in 2000 were a new President, General Secretary and Treasurer, and it is appropriate to begin this newsletter by thanking the previous holders of those offices for the work that they have undertaken for the Society in the preceding years.

This has been a particularly busy year for the present Council and a considerable amount has been achieved to build upon the past and to help the Society to develop for the future. This brief newsletter outlines several of the most important initiatives. The minutes of the AGM, which will be published in the next *Bulletin*, will include the President's Report containing further details of the activities of Council during 2000.

### **Investment strategy**

Council has approved an investment strategy which was developed and proposed by the Treasurer, on the basis of a five-year forecast of income and expenditure. The strategy is intended to ensure that the Society has sufficient funds readily available to meet its objectives whilst ensuring that any balances that are not required for immediate use maintain, and preferably increase, their value. To achieve this, the Society has reduced the funds that it holds in its National Westminster account to the practical minimum, and has closed its National Savings and Girobank accounts. The bulk of the funds have been placed into a combination of interest-bearing deposit account, fixed interest income fund, and equity-based capital growth fund with the Charities Official Investment Fund. Details of the spread of investments and their performance will be contained in the Treasurer's annual report.

### **Review of committees and working groups**

Council has initiated a review of its committees and working groups to ensure that their objectives meet the present needs of the Society, and to ensure that their membership is subject to regular re-appointment so that appropriate changes can take place to allow for fresh inputs to the committees. The first review, at the suggestion of the Recording Secretary, has resulted in the merger of the Recording Committee and the Conservation Committee to form a new, joint committee (see p. 43 of this *Bulletin*).

### ***Census Catalogue data***

The raw data from the *Census Catalogue* are now available on the Society's web site. This will enable members who wish to do so, to download the data and, for example, to prepare vice-county listings to help them in their recording activities. Following a decision to register the domain name, the web site can now be found at <http://www.britishbryologicalsociety.org.uk>.

### ***Journal of Bryology***

The new publishing agreement with Maney is working well and Council has now agreed with the Editor formal arrangements for funding the editorial office of the *Journal*.

### **The BBS herbarium and Dr Harold Whitehouse's slides and bryological archives**

Council has agreed that the herbarium should be transferred to the ownership of the National Museums and Galleries of Wales (NMGW), who have curated it for many years on behalf of the Society, so that the finance that is necessary to protect its long-term future can be made available by NMGW. Council has also agreed that a collection of Dr Harold Whitehouse's slides and his bryological archives, which have been gifted to the Society by Dr Whitehouse's daughters, should be transferred to the ownership of NMGW to ensure their long-term future. The agreements with NMGW will safeguard the Society's interests in the collections, and provide for members to have access to them. At the time of writing, some points of detail remain to be resolved and, when the agreements are signed, the arrangements for members to have access (which, in the case of the herbarium, will not differ significantly from present arrangements) will be published in the earliest available issue of the *Bulletin*.

MIKE WALTON

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## **RECENT DEATHS**

It is with regret that we announce the deaths of:

Dr T. Arts, a member of the Society since 1987, who, having taken early retirement to spend more time on bryology, was working on a moss flora of Réunion at the time of his death.

Mr B.S. Brookes, a member since 1962, who will be remembered by many members as a former warden of Kindrogan Field Studies Centre where he led field courses on a variety of subjects, including bryology.

Mr A.C. Crundwell, an Honorary Member of the Society who first joined in 1945, one of the leaders of British bryology in the 1960s and subsequent decades who will be particularly remembered for his pioneering work on the tuber-bearing species of *Bryum* and his numerous taxonomic papers.



## **ELECTION OF OFFICERS AND ELECTED MEMBERS OF COUNCIL**

Mr D.G. Long (Vice-President) will become President in 2002. The terms of eight other Officers, the General Secretary, the Treasurer, the Conservation Officer, the Curator, the Librarian, the Membership Secretary, the Recorder for Hepatics, and the Recording Secretary, expire at the end of 2001. The present incumbents are all eligible for re-election. Three Elected Members of Council will retire at the end of 2001, and neither Dr R.A. Finch nor Mr M. Lawley nor Mr H.W. Matcham is eligible for re-election in this capacity until two years have elapsed. Members are invited to submit nominations for Officers and Elected Members, sending them to the General Secretary of the BBS, Mr M.A. Walton, Ivy House, Wheelock Street, Middlewich, Cheshire, CW10 9AB, to arrive no later than **11 August 2001**. A nomination must not be made without the consent of the person whom it is wished to nominate. If elections are needed, they will be held at the AGM in Cardiff, on 8 September 2001.

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## **THE BRYOLOGICAL FUND**

This fund is run by the British Bryological Society following a major bequest from the late Trudy Side and more recently other donations. Its objective is to promote bryological activities at home or abroad, including fieldwork, attending meetings, and publishing the results of research. The Bequest Committee cordially invites your application. Applications are especially welcome from amateurs and those under 25 years of age, but awards will be considered for any bryological activity which does not form part of a professional employment. The application should say how the award would be used, and include a budget setting out the financial support needed and proposed expenditure in as much detail as possible. Please enclose a note on your botanical background.

Send your application to the Bequest Committee through the Treasurer (address below) who will be pleased to give further information or advice if needed.

*Mr J. Blackburn, 6 Bylands Grove, Fairfield, Stockton-on-Tees, Cleveland, TS19 7BG.*

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## **CONSERVATION AND RECORDING COMMITTEE**

At its meeting on 8 September 2000, Council approved the merger of the Conservation Committee and the Recording Committee to form a new, joint Conservation and Recording Committee. The terms of reference and the membership of the new committee are as follows:

### **Terms of reference**

The Committee is responsible for recommending policies to the Council for the conservation of bryophytes and their habitats and the recording activities of the Society, and for supporting the Conservation Officer and the Recording Secretary in their work.

Its particular activities will include:

1. Recommending measures to ensure that bryophytes and their habitats are given proper consideration by government agencies, local authorities and non-governmental organisations concerned with conservation.
2. Identifying and disseminating information on localities and habitats that are important for bryophytes.
3. Encouraging a positive attitude to conservation of bryophytes and their habitats among the general public and especially among land-owners and land managers.
4. Advising and assisting in the UK Biodiversity Action Plans, local biodiversity initiatives, and other measures to protect bryophytes and their habitats.
5. Seeking to ensure that the activities of the BBS and its members are in accordance with the *Code of Conduct for the conservation and enjoyment of wild plants* and encouraging a positive contribution to bryophyte conservation from the BBS and its members.
6. Co-ordinating and reviewing the Society's recording activities to ensure that they contribute to the Society's objectives and, where appropriate, to the work of other national and local conservation and recording bodies.
7. Undertaking a regular review of the storage arrangements for the records that are accumulated by the Society and making recommendations to ensure that they are preserved in a format which is both permanent and accessible.
8. Advising on the preparation and periodic revision of a British Bryophyte Red Data Book.

### Membership

The Committee shall comprise the Conservation Officer, the Recording Secretary, the Recorder for Hepatics, the Recorder for Mosses, and six members who shall be appointed by Council for a period of four years. Exceptionally, three of the appointed members shall be appointed for a period of six years from January 2001 so that, from 2005, three appointed members are subject to re-appointment every two years. Members who are subject to re-appointment may serve for consecutive terms without any restriction on their total length of service but, at the time that appointments are made, the Council must consider all suitable candidates.

Membership of the Committee should, so far as practicable, seek to include both amateur and professional bryologists who are actively involved in conservation and recording of bryophytes. It should also a) seek to represent England, Scotland, Wales and Ireland; b) seek to represent bodies such as the Joint Nature Conservation Committee, the country agencies, the Biological Records Centre and the proposed National Biodiversity Network; and c) ensure adequate representation of non-governmental organisations active in the conservation of bryophytes and other plants.

The Committee shall have powers to co-opt additional members to ensure close liaison with the work of other organisations or agencies or where particular expertise is needed for a specific subject that is under consideration. The status of co-opted members shall be reviewed at least every two years but, if the reasons for their initial co-option still obtain, they may be reappointed.

## RECORDING MATTERS 19

There are a few updates to the Regional Recorders vice-county list:

**39:** Martin Godfrey, 6 Darnford Close, Parkside, Stafford, ST16 1LR.

**40:** Mark Lawley, 12A Castlevue Terrace, Ludlow, SY8 2NG.

**78:** David Long, Royal Botanic Garden, Inverleith Row, Edinburgh, EH3 5LR.

**94, 95:** Andy Amphlett, 72 Strathspey Drive, Grantown on Spey, Moray, PH26 3EY.

I hope all find their Regional Recorder role interesting, and I look forward to receiving stacks of completed record cards before too long!

### National Biodiversity Network (NBN)

I reported briefly on the progress of the NBN Gateway project in *Bulletin 75*, explaining that the bryophyte database was one of the first to be trialed. Now it is up and running and is quite impressive! You can access it on <http://www.SearchNBN.net>. For security reasons there are various levels of access. Everybody, including the public, can access species information and distribution maps, but site-based details, which are accessed via an interactive map, are potentially sensitive and are therefore restricted to certain users. Regional Recorders will be given the option of access to this information, and will require a password. Instructions are given on the web page when you attempt to enter the restricted zone. Chris Preston has kindly agreed to take on the role of administrator, essentially to facilitate members' access to the Gateway. Therefore, if you are a Regional Recorder, and would like access, contact Chris (e-mail: [cdpr@ceh.ac.uk](mailto:cdpr@ceh.ac.uk)). I envisage that all BBS members will eventually have access, but contact me first (by e-mail) to avoid deluging Chris. We don't have a clear idea of how many BBS members may be excluded by the rapidly moving technology, and this could be a serious issue that the BBS will need to consider. That apart, there has been a lot of effort put into making the NBN project work, and it is revolutionising the relationship between the BBS and the Biological Records Centre. I am in contact with the project managers and we are looking at ways of further enhancing the service to members of the BBS.

### BBS arable bryophyte survey

It would appear that our arable bryophyte flora is in decline, and indeed a few species (*Didymodon tomaculosus*, *Ephemerum stellatum* and *Weissia multicapsularis*) are listed on the UK Biodiversity Action Plan as requiring urgent action (usually involving survey to establish the current status of the plant). During research for a paper I presented at the Arable Plant Conference held at Cambridge in July 2000, it became apparent that there remain many gaps in our knowledge. A few members are actively recording arable fields in connection with local floras, but national coverage is very patchy indeed. Against this background I tabled a proposal at the Spring Council meeting, and also to the new combined Conservation and Recording Committee, suggesting a BBS arable bryophyte survey, with the intention of initiating the work in the autumn of 2001 and continuing for three years. Council gave the proposal their full support and gave me the go-ahead to organise it. The new Cryptogam Biodiversity Officer at the British Museum (Natural History), Gill Stevens, will probably be involved in a liaison role with members who express an interest; without such help I would probably buckle under the workload!

We have explored three options for the arable bryophyte survey:

1. We are fortunate that in the mid-1970's Trudy Side undertook an arable bryophyte survey of some 30 fields in Kent, and published a paper in the *Transactions of the Kent Field Club* (1977, 6: 63-70). The field notes, which are hopefully accompanied by maps and grid references, were deposited with Maidstone Museum. Potentially, this gives us an excellent opportunity of repeating the work, and thus generating some hard data on what is happening to the arable bryoflora in Kent. Of course, many of the fields may no longer be extant, but that too is valuable information in itself. This would make a neat project, and I have raised it with Malcolm Watling of the South East Group, as this would best be tackled by local members. The one big uncertainty at the moment is whether Maidstone Museum can trace the archival material. Malcolm is currently trying to resolve this.
2. BBS members could contribute to a nation-wide survey of arable fields. I don't want to be too prescriptive about this, as long as we look at a large enough sample of fields with a good geographical coverage, and record what is out there. Within a county or region we may find that arable fields supporting a typical assemblage of arable bryophytes are very elusive, but if, for example, we have to visit 20 arable fields before finding anything of interest this would be telling us something! We have very little information on the value of various crops and virtually nothing on organic systems. To provide one example, Richard Fisk and I visited an asparagus field in Suffolk which supported *Sphaerocarpos michelii* and a range of other typical arable species; this is just the sort of information we need, particularly in the statutory conservation agencies, to influence agri-environment schemes and agricultural policy. The intention is to produce a customised recording card to ensure appropriate information is gathered, such as management, crop type, soil type and so on. This is not a rigorously designed, statistically robust survey, but should provide qualitative data on what occurs under various crop regimes in different parts of the country. It is envisaged, however, that if fields are accurately mapped (very important!), such work can be repeated in the future to track trends.
3. In order to generate data that could be interpreted statistically, a sample transect across England has been suggested, rather like Jeff Bate's epiphyte survey of 1997. However, arable fields have such a scattered distribution that there is a high chance that very little information would result from such an approach, and it would only be indicative of a small part of Britain. Crop types and agricultural practices vary across the country, and it would be difficult to decide where a transect should be. There are also problems with deployment of volunteers in areas of the country where bryologists are thin on the ground.

The general consensus is that options 1 and 2 provide the best approach, and therefore they will be run in parallel over three years, beginning in autumn 2001. Depending on the success of the present project, more detailed work may follow. This is an excellent opportunity for the BBS to contribute to a better understanding of our arable bryoflora which will have significant implications for conservation. Over the next few months I will work up the survey methods and keep all informed. At this stage, however, I would like to gauge the level of interest. **Would you like to do some survey of arable fields within your patch** - as much or as little as you want? I would be particularly keen to hear from you if you are aware of any

organic arable fields, or 'minor' crops, or the increasingly rare stubble fields. **Please let me know, by e-mail, phone or post whether you would like to participate in this exciting project.** Any general comments on the proposed arable bryophyte survey are also welcomed.

### **Sampling arable bryophytes**

Still very much on the subject of arable bryophytes, Richard Fisk would like to share with members his method of sampling arable fields.

#### **Materials:**

- Collecting tin (tobacco tin 11 cm x 8 cm x 2.5 cm or similar)
- Plastic sieve (15 cm diameter with mesh of 1-1.5 mm, e.g. a flour sieve)
- Plastic container (e.g. 2 litre ice cream container)
- Jam jar or similar with screw-top lid

At the collecting site fill tin with sample of bryophytes. Avoid too much soil and discard large tufts of *Barbula unguiculata* and *Tortula acaulon* - select more interesting tufts of *Bryum* and *Dicranella*.

As soon as convenient on returning home, empty soil sample into sieve and suspend in container filled with water. Leave to soak for a short while so that soil softens (this can take up to two hours if soil is hard or of sticky clay). Then gently break up soil by squeezing between fingers, and soil particles will fall through the sieve. This will need to be repeated two or three times with clean water (this step can be carried out under running water but it is a bit messy).

When sample is reasonably clean, squeeze out excess water and transfer to jam jar filled two-thirds with water, screw on lid firmly and shake for a minute. Tip sample into sieve, refill jam jar and repeat until water remains fairly clear. It will probably be cloudy but not muddy.

You will now have a wad of bryophyte material about the size of a walnut. Take a small piece (about 5-8 mm diameter) from this, place in petri dish of water, and agitate to disperse individual plants and examine under stereo binocular dissecting microscope. Repeat until all of sample is examined. Plants will be thoroughly mixed by this method and most species present will be seen in the first sample, but it is worth examining all of the wad because single stems of some species, such as *Ephemerum serratum*, may be found which were not observed in the field.

Ron Porley, English Nature, Foxhold House, Crookham Common, Thatcham, Berkshire, RG19 8EL; e-mail: [ron.porley@english-nature.org.uk](mailto:ron.porley@english-nature.org.uk).

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## **THE ERIC WATSON PRIZE**

The Department of Botany at the University of Reading is planning to institute a prize in honour of Dr Eric Vernon Watson, a member of the Department from 1946 until his retirement, as Senior Lecturer, in 1979. Dr Watson died in October 1999, and his obituary will appear in *Journal of Bryology* volume 23, part 1, 2001.

Dr Watson was highly respected in the bryological community in Britain and internationally. He was an Honorary Member of the British Bryological Society, having served as Bibliographer and as a Referee for many years, and as President in 1964-65.

While also a keen ornithologist and accomplished watercolourist, Eric Watson had a particularly profound interest in mosses and liverworts. This was demonstrated by his floristic and ecological studies, for example on bryophyte succession on the Isle of May, and by his two books *British Mosses and Liverworts* (first published in 1955) and *The Structure and Life of Bryophytes* (first published in 1964). The former, in particular, has provided an invaluable introduction to the intricacies of bryophyte identification for a whole succession of younger botanists.

Eric was particularly gifted and enthusiastic as a teacher, inspiring generations of students through his comprehensive knowledge of plants, from tiny mosses to giant conifers. He was always loved and respected by his students, whether in the classroom at Reading or on a mountain in Wales during one of the many memorable field courses that he led with the late Professor Tom Harris.

Thus it seems to us particularly appropriate that the University of Reading should offer a prize in Dr Watson's honour, to be awarded periodically in recognition of outstanding undergraduate achievement in plant science. We are therefore appealing to both the University and to the botanical community for donations to enable us to endow such an award, and we shall be extremely grateful to any colleagues who care to contribute. Cheques should be made payable to 'The Eric Watson Prize Fund' and sent to me at the address below.

*Royce Longton, Department of Botany, The University of Reading, Reading, RG6 6AS, UK.*

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### **ADDITIONS TO THE BBS LIBRARY**

Professor Zennoski Iwatsuki has generously contributed the following books for the BBS library as a token of his thanks for his election as an Honorary Member of the Society at the last AGM:

*Field Books 14* (Ferns and Mosses). Copiously illustrated with colour photographs, with text in Japanese but names of the ferns and bryophytes in Latin.

*Colored Illustrations of Bryophytes of Japan*. Coloured illustrations and black and white line drawings; Japanese text and Latin names.

*Catalog of the Mosses of Japan*. A listing with an introduction in English.

*World of Plants* Nos 136 (Mosses) and 137 (Mosses and Liverworts). Two parts of a series of journals with coloured photographs, Japanese text and Latin names.

The books are available on loan in the normal way from the Librarian, and the Society extends its thanks to Professor Iwatsuki for his gift.

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## NEW KEY TO EUROPEAN LIVERWORTS NOW AVAILABLE

R. Schumacker & J. Váňa. *Identification keys to the liverworts and hornworts of Europe and Macaronesia*. 160 pp. Privately published.

This publication is a complete identification key for the liverworts of Europe and the Macaronesian Islands (Azores, Canaries and Madeira). There are introductory sections concerning:

- an overview of the important morphological and biological features of liverworts and hornworts;
- a conspectus of liverwort and hornwort classification;
- advice (and warnings) on general methodology.

The keys themselves are divided into three parts: a) a key to orders, b) keys from orders to genera, and c) keys from genera to species. The first two keys may lead directly to isolated taxa (genera or species). The key from genera to species forms the most substantial part of the whole work (87 pages). It is organised by genus, and in addition to the keys, it includes lists of the species together with synonyms and an outline of the European distribution (by slightly modified *Flora Europaea* regions). Generally accepted infraspecific taxa are included. There are numerous references to the relevant literature and miscellaneous taxonomic notes. A few line drawings are included to illustrate critical features, but these are fewer than the authors had wished (because of financial constraints). The four pages of literature references will be invaluable to those who wish to dig deeper.

Members of the BBS, particularly those who visit continental Europe and the Atlantic islands, will find this publication extremely useful. It is the first such key to be written in English. It is published in two formats:

- paperback with spiral binding;
- CD-ROM (pdf format; a copy of Acrobat Reader 4.0 is included on the CD).

The cost is the same for the printed and CD-ROM versions. The following prices include postage and packing:

EU countries, incl. UK	25 Euro; BEF1000
Rest of Europe	26 Euro
Rest of world	27 Euro

Copies may be ordered from: R. Schumacker, 620 Becco, B-4910 Theux, Belgium; fax: 00 32 87 376930; e-mail: [rschumacker@ulg.ac.be](mailto:rschumacker@ulg.ac.be). Remember to state which format you require. Payment must be sent with your order, payable to R. Schumacker. From the UK you should send Belgian Francs BEF (options include international bank draft, or cash under recorded delivery). UK members who wish to pay in £ sterling (about £15, depending on exchange rates at the time) may contact Tom Blockeel, 9 Ashfurlong Close, Dore, Sheffield S17 3NN; e-mail: [Tblockeel@aol.com](mailto:Tblockeel@aol.com).

## BBS LIBRARY SALES AND SERVICE, 2001

### FOR LOAN (UK Members only)

Members wishing to borrow books or papers are advised to consider whether a photocopy of the appropriate pages would suffice instead of the original in those cases where copyright has expired. Charge 10p per exposure. Limit 50.

- a) Approximately 250 bryological books and journals and several thousand offprints of individual papers. A catalogue of the books and journals is available, price £1.00.
- b) Transparency collection, list available (s.a.e.). 630 slides in the collection. Loan charge (to cover breakage of mounts) 50p plus return postage. Only 50 slides may be borrowed at a time to minimise loss or damage.
- c) Microscope stage-micrometer slide for calibration of eyepiece graticules. 10  $\mu$ m divisions. Loan deposit £45.00.

### FOR SALE

#### Bulletins and journals

British Bryological Society *Bulletins*: back numbers from no 23 @ £1.00 each.

#### *Transactions of the British Bryological Society/Journal of Bryology:*

Vol. 1: parts 1-4	£2.40 each; part 5 out of print
Vol. 2: parts 1-4	£3.00 each
Vol. 3: parts 1-5	£2.40 each; £12.00 per volume
Vol. 4: parts 1,3-5	£2.40 each; part 2 out of print
Vol. 5: parts 1,3	£3.00 each; parts 2 & 4 out of print
Vol. 6: parts 1-2	£6.00 each; £12.00 per volume - ends series of <i>Transactions</i>
Vol. 7: parts 1-4	£5.00 each; £20.00 per volume - renamed <i>Journal of Bryology</i>
Vol. 8: parts 2,3	£5.00 each; parts 1 & 4 out of print
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Vol. 12: parts 1-3	£11.50 each; part 4 out of print
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Vol. 18: parts 1-4	£42.25 each; £169.00 per volume
Vol. 19: parts 1-4	£47.25 each; £189.00 per volume
Vol. 20: parts 1-2	£49.50 each; £99.00 per volume (only 2 parts)

As from *J. Bryol.* Vol. 21 inclusive, back issues will only be available from our publisher, Maney Publishing, Hudson Road, Leeds, LS9 7DL, UK.



## BBS Special Volumes

Volume 1. Longton RE, Perry AR. 1985. <i>Proceedings of Jubilee Meeting 1983</i> , 89 pp.	£6.00
Volume 2. Newton ME. 1989. <i>A practical guide to bryophyte chromosomes</i> , 19 pp.	£2.50
Volume 3. O'Shea BJ. 1989. <i>A guide to collecting bryophytes in the Tropics</i> , 28 pp.	£3.50
Volume 4. Edwards SR. 1992. <i>Mosses in English literature</i> , 44 pp.	£2.50
Volume 5. Edwards SR. 1999. <i>English names for British bryophytes</i> , 2nd edition.	£3.50

## Census Catalogues

Duncan JB. 1926. <i>Census catalogue of British mosses</i> , 2nd edition.	20p
Sherrin WR. 1946. <i>Census catalogue of British Sphagna</i> .	20p
Warburg EF. 1963. <i>Census catalogue of British mosses</i> , 3rd edition.	20p
Paton JA. 1966. <i>Census catalogue of British hepatics</i> , 4th edition.	20p
Corley MFV, Hill MO. 1981. <i>Distribution of bryophytes in the British Isles: a census catalogue of their occurrence in vice-counties</i> .	£5.00
Blockeel TL, Long DG. 1998. <i>A check-list and census catalogue of British and Irish bryophytes</i> .	£7.50

## Other items

Adams KJ. <i>Microscope techniques for the bryologist. Part 1. A beginner's guide</i> .	£1.00
Evans DE, Perry AR. 1987. Moss Wall Chart.	£2.80
Grolle R, Long DG. 2000. <i>An annotated check-list of the Hepaticae and Anthocerotae of Europe and Macaronesia</i> .	£3.00
Newton ME <i>et al.</i> , eds. 1988. <i>Bryology: modern research and the ways forward</i> .	£5.50
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Perry AR. 1992. <i>Mosses and liverworts of woodland</i> , 41 pp.	£4.00
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Kenneth J. Adams, 63 Wroths Path, Baldwins Hill, Loughton, Essex, IG10 1SH, UK.

## OFFER OF ILLUSTRATIONS FROM PATON'S LIVERWORT FLORA

Full-size photocopies of the figures in my liverwort book were made prior to sending the original illustrations away for processing, and they are now due for shredding. If you would like to have any of them, send me a list in order of preference (some figures have already been booked), giving the name and number of the figure, and state whether it is one or more that you would like to have. The figures are 22 cm wide and the maximum length is 34 cm, all on A3 sheets. These photocopies are free but there will be a charge for postage and packing. Offers are restricted to residents in the British Isles. Please send your list to me at the address below by **29 March 2001**.

*Jean Paton, Fair Rising, Wagg Lane, Probus, Truro, Cornwall, TR2 4JU.*

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## SANDROCK IN THE WEALD

Enclosed with this issue of the *BBS Bulletin* is a copy of the leaflet *Sandrock in the Weald of Kent, Sussex and Surrey*. This provides background information on the Wealden sandrocks, and explains their importance as a locality for rare plants, including bryophytes such as *Orthodontium gracile* and *Pallavicinia lyellii*. The BBS, together with several other organisations, provided financial support for the production of the leaflet.

If members have any comments on the leaflet, please send them to Andy Jackson (Royal Botanic Gardens, Wakehurst Place, Ardingly, nr Haywards Heath, West Sussex, RH17 6TN). Andy would also be glad to receive any recent records (post-1990) of rare bryophytes from the Weald.

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## BRYOPHYTES, BIODIVERSITY AND YOU!

In response to the Convention on Biological Diversity, signed at Rio de Janeiro in 1992, the UK Government launched the UK Biodiversity Action Plan (BAP) in 1994. This timely and innovative programme sets out priorities for nature conservation in the UK, listing those plants, animals and habitats most in need of our help. For some of these species and habitats, detailed Action Plans have been prepared, containing national targets for increasing their population or extent, and setting out the actions required to achieve these objectives. These Species and Habitat Action Plans form the basis of the process by which the UK can assess its conservation efforts.

To contribute to this process, in September 2000 The Natural History Museum, London (NHM), and English Nature (EN) joined forces to take action for national biodiversity. Two posts have been funded by EN, based at the NHM, and are focussing on two of the less conspicuous and thus 'neglected' groups of British biodiversity: cryptogamic plants and invertebrates. I will be concentrating on the lower plants and my colleague Emily Funnell will

be aiming her efforts at bugs! The NHM has been chosen as a strategic partner to EN because of its unrivalled collections and scientific expertise in both invertebrates and cryptogamic plants. I am working closely with several staff in the Botany Department, and in particular with Dr Fred Rumsey (bryophytes), Dr William Purvis (lichens), Dr Dave John (algae) and Dr Johannes Vogel (pteridophytes).

My job will be to co-ordinate, support and encourage the survey and monitoring of UK BAP priority cryptogamic plants. This is being done in association with a wide range of organisations, groups and individuals in order to target and prioritise actions that will enhance the conservation status of these species and their habitats. There are 64 bryophytes that have Species Action Plans or statements, and as UK Biodiversity Co-ordinator for cryptogamic plants I am hoping to win the support and involvement of the British Bryological Society and its members to get conservation action on a considerable number of these off the ground. There is a great deal of work already underway around the UK, but I hope to encourage a lot more action.

The first tentative steps and collaborations have been made, and some initial priority actions decided upon. After long deliberation with Fred and Ron Porley at EN, several species and habitats have been selected for work in the coming year. These include a pilot survey of arable bryophytes, repeating Trudy Side's study in Kent, more than 20 years on (see p. 45 of this *Bulletin*), and field meetings to refind long-lost rarities, such as *Tetradontium repandum*, and scarce but perhaps overlooked plants, such as *Atrichum angustatum*. We are also planning to turn attention to the epiphytes of neutral bark, such as *Orthotrichum pallens*, *O. speciosum* and *O. obtusifolium* (I'll be wearing my lichenological hat there too!).

I'm also looking forward to meeting many of you at the spring meeting on the Isle of Wight, where along with improving my bryological knowledge, we would like to get a team looking for the BAP priority species *Acaulon triquetrum* and *Leptodontium gemmascens*, both of which have been recorded on the Isle of Wight in the past.

I would welcome any suggestions or ideas from you, the people already involved with bryophyte biodiversity in the UK. Even more importantly, I'd love to hear from those of you who can't wait to get involved! All suggestions, ideas and pet species gratefully received.

Gill Stevens, UK Biodiversity Programme, The Natural History Museum, Cromwell Road, South Kensington, London, SW7 5BD; tel: 020 7942 5894; fax: 020 7942 5841; e-mail: G.Stevens@nhm.ac.uk.

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## MUCKING IN AT MUCKLE MOSS

An overcast Northumbrian morning in October 2000 saw the first, of what is hoped will be many, targeted surveys of our rarest bryophyte species. A group of eight specialists had convened under the direction of Plantlife, who are acting as Lead Partner under the UK Biodiversity Action Plan (BAP) process for a range of cryptogamic plants. The target of this hunt was to be *Sphagnum balticum*, currently known elsewhere at one Scottish site (where one of our party, Sandy Payne, had recently been involved in monitoring it), and last seen on

the splendid valley mire of Muckle Moss SSSI during a BBS visit over a decade before. Initial searches by Johnny Turner (Plantlife's project officer) had proved unsuccessful, although on cue he finally succeeded on a quick reconnoitre the day before the party arrived! The group made for his site, where Mark Hill soon confirmed the species' presence. The prominent horizontal stem leaves of *S. balticum* are easily seen on the exposed stem, distinguishing it from *S. fallax* where the stem is more densely covered by the pendent branches. *S. balticum* was present in small quantity and as scattered individuals among a mass of similarly coloured *S. fallax* in a restricted area on the centre of the mire. Of the other notable Sphagna for which the site is known, Fred Rumsey refound *S. majus*, at this its only English locality, but we could not refind *S. riparium*, seen earlier in the year by Johnny Turner.

In all it was a very successful and enjoyable day: rare Sphagna were refound and their extent mapped, and public awareness of bryophytes was raised as local newspapers picked up on the event. A similar day is now being planned to find a smaller needle in a bigger haystack - *Tetradontium repandum* at Ingleby Greenhow in Yorkshire, further details of which will appear in due course.

FRED RUMSEY

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## ***LEIOCOLEA RUTHEANA* VAR. *RUTHEANA* NEW TO SCOTLAND**

R.W.M. CORNER

*36 Wordsworth Street, Penrith, Cumbria*

On 30 July 1998, while examining a calcareous mire near Alemoor Loch in Selkirkshire (VC 79) in the Scottish Borders, I collected a pleurocarpous moss which I hoped might be *Hamatocaulis vernicosus*. Later inspection showed it to be *D. cossonii* together with a few stems of a hepatic which I first thought was *Leiocolea bantriensis*. However, these plants had large underleaves and were more yellow in colour than is usual in *L. bantriensis*, and I felt they could be *L. rutheana*. I had previously seen this species a few years before in a basic mire in East Greenland associated with *Meesia tristicha* and *Paludella squarrosa*. I revisited the Alemoor site a week later and found the hepatic scattered over about four square metres of the mire. Material was sent to David Long who confirmed the plant as *L. rutheana* var. *rutheana*. Hodgetts (1993) mentioned that 'it is interesting that this liverwort [*L. rutheana*] has not been recorded in Scotland, as it would certainly be expected to occur on the basis of its European distribution'. It is therefore of interest to report it from Scotland for the first time.

The mire in which *L. rutheana* was found lies at an altitude of 250 m at the base of a low hill on the edge of a wet alluvial depression through which the Ale Water runs. The river has been canalised in the past and the mire adjacent to the river at the north side is dominated by *Carex acutiformis*. The east side of the mire is very wet with a well-developed 'brown moss' community; *Potamogeton polygonifolius* and *Carex diandra* are common. On the south side towards the base of the hill *Carex lasiocarpa* becomes dominant, and where conditions are

drier *Eriophorum latifolium* inflorescences are conspicuous later in the year. The *Leiocolea* was present within the area of *E. latifolium* and was associated with the following bryophytes: *Calliergonella cuspidata*, *Campylium stellatum*, *Ctenidium molluscum*, *Drepanocladus cossonii* and *Fissidens adianthoides*. Higher plants in the immediate vicinity were *Carex hostiana*, *C. panicea*, *C. pulicaris*, *C. rostrata*, *Equisetum palustre*, *Euphrasia scottica*, *Menyanthes trifoliata*, *Potentilla erecta*, *Vaccinium oxycoccos* and *Valeriana dioica*. *Salix repens*, a rare plant in Selkirkshire, was very local nearby, and of especial interest was *Carex appropinquata*, which formed several tussocks in a neighbouring old shallow ditch. *Tomentypnum nitens* was scattered and rare in the mire. On 7 May 1999 David Long visited the site with me and the *Leiocolea* was refound. The following additional bryophytes were noted: *Hylocomium brevirostre*, *Moerckia hibernica*, *Palustriella commutata* var. *falcata*, *Plagiomnium elatum*, *Rhizomnium punctatum*, *Riccardia multifida*, *Sphagnum inundatum* and *S. subsecundum*.

This area of Roxburghshire (VC 80) and Selkirkshire (VC 79) contains rich calcareous mires which hold a number of nationally scarce higher plants and bryophytes, including several boreal species. *Juncus alpinoarticulatus* is a characteristic species in almost all of these mires, *Carex appropinquata* occurs nowhere else in Scotland, and *Hierochloa odorata* and *Calamagrostis stricta* occur very locally; *Corallorrhiza trifida* is local in *Salix* carr. There are some impressive colonies of *Cinclidium stygium* and *Tomentypnum nitens*; *Rhizomnium pseudopunctatum* and *Campyliadelphus elodes* are relatively common but *Moerckia hibernica* is more local. *Pseudobryum cinclidioides* is locally abundant at several less basic sites, and recently *Hamatocaulis vernicosus*, another species of less calcareous conditions, has been found to be more frequent than previously thought.

*L. ruheana* has been known for many years from several localities in Norfolk (Long, 1991). A northern extension of range was made by Jean Paton in 1982 when she found *L. ruheana* in north Westmorland (VC 69) (Long, 1994) where it was still extant in 1997 (F. Rose, pers. comm.). In April 1995 I collected *L. ruheana* from strongly calcareous flushes at 350 m altitude at a new site on the eastern edge of the Lake District in VC 69 where *Tomentypnum nitens* is locally abundant. Frequent attempts to refind the *Leiocolea* at this locality have failed and heavy grazing may have removed it. In Ireland, *L. ruheana* has recently been discovered in County Mayo (Lockhart, 1989).

The ecological requirements of *L. ruheana* are similar to *Helodium blandowii*, *Meesia triquetra* and *Paludella squarrosa*, which have all become extinct in Great Britain in recent times (Long, 1991). The recent discovery of *P. squarrosa* in County Mayo, where *L. ruheana* was an associated species (Lockhart, 1999) is therefore particularly noteworthy. *Paludella* peat is found abundantly in several Border mires where stratigraphy has been carried out, and occurs at a depth of only 25-50 cm below the surface vegetation at one site (Tratt, 1997; Webb & Moore, 1982). No living material has been seen. Although many species are common to the Scottish and Irish localities, *Schoenus nigricans*, so common in the Irish sites, is completely absent from the Border mires and *Myrica gale* is only known from one area of flushed *Callunetum*. It is of note, however, that *Eriophorum latifolium* is common to almost all the sites. A search has been made for the *Leiocolea* in another Border mire which has an abundance of *Eriophorum latifolium*, and although *Cinclidium stygium* and *Moerckia hibernica* occurred, all the *Leiocolea* checked was *L. bantriensis*.

The future of *L. ruheana* var. *ruheana* in Britain is uncertain. It has not been seen in Norfolk

since 1974 despite recent searches, although *L. rutheana* var. *laxa* still occurs at one site (F. Rose, pers. comm.). Var. *rutheana* is so scarce at the new British sites in Scotland and northern England that it must be regarded as very vulnerable. The Irish sites, if adequately protected, would appear to offer the best hope for its survival.

### Acknowledgements

I wish to thank David Long for checking the material of *L. rutheana* and for help in the field, and Francis Rose for details of Norfolk and Westmorland sites.

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## A HYBRID SPOROPHYTE ON *RHYTIDIADELPHUS SUBPINNATUS*

D.T. HOLYOAK

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*Rhytidiadelphus subpinnatus* has been found at only two British localities since 1950, one each in Merioneth and West Lancashire (Hodgetts, 1994; Blockeel & Long, 1998). On 24 October 1998 it was refound at the well-known Merioneth (VC 48) locality, growing on soil on a bank above the Torrent Walk near Dolgellau (SH7518). A single sporophyte was noticed and collected as part of a small voucher specimen (Holyoak 98-391). The sporophyte has a strong red seta 11 mm long with a disproportionately small green capsule about 1.0 mm long that shrivelled on drying. Thus although the single sporophyte was somewhat immature, it appears to be considerably smaller than those that occasionally occur on the commoner British species of *Rhytidiadelphus*, and perhaps not fertile.

Later I realised that occurrence of capsules on British *R. subpinnatus* is noteworthy, since like all British *Rhytidiadelphus* species it is dioicous. It therefore seemed highly unlikely that both sexes of this rarity should occur together at Torrent Walk. Although Smith (1978) gives 'Fr very rare', this may have been based on ambiguous comments in Dixon (1954, p. 557) that

should be attributed to *R. squarrosus*; Hodgetts (1994) noted that sporophytes are unknown in Britain. Although *R. subpinnatus* had been recorded at Torrent Walk at intervals from 1876, when it was originally found by J. Whitehead, up to 1986, sporophytes had not previously been reported there (M.J.M. Yeo, *in litt.*).

On 20 March 1999 Torrent Walk was revisited in order to check whether both sexes of *R. subpinnatus* occur together. Detailed notes allowed the exact spot where the sporophyte was found on 24 October 1998 to be relocated. Careful study in the field using a x10 hand-lens confirmed that all *R. subpinnatus* present there was female. Larger amounts of *R. loreus* of both sexes grew intermixed with the *R. subpinnatus*, above it, and on both sides, and well-formed capsules of that species were present 0.7 m away. A few female stems of *R. squarrosus* also occurred further along the same bank, but the closest of these were 1.5 m from the location where the sporophyte was found on *R. subpinnatus*.

Since the only male plants of *Rhytidiadelphus* on this bank were of *R. loreus*, it seems clear that the sporophyte found on a female plant of *R. subpinnatus* must have had *R. loreus* as its male parent.

Among mosses, interspecific (and often intergeneric) hybrid sporophytes are well known in various Ditrichaceae (Andrews & Hermann, 1959; Rushing & Snider, 1985), Pottiaceae (e.g. Khanna, 1960; Anderson & Lemmon, 1972) and Funariaceae (e.g. Pettet, 1964), sometimes linking species that respectively have long and short setae so that the hybrid products are conspicuously intermediate. Interspecific hybridisation has also been deduced in Dicranaceae (Corley, 1969), Mniaceae (Wyatt *et al.*, 1988) and Orthotrichaceae (Hedderson, 1986), among other moss families. However, although Hylander (1999) inferred hybridisation from gametophytic characters in populations of *Dichelyma* (Fontinalaceae), the literature does not appear to contain any previous records of interspecific hybrid sporophytes for pleurocarpous mosses.

It seems that possible occurrence of hybrid sporophytes should be considered whenever capsules are encountered on moss species that rarely bear capsules, especially with those that are dioicous and found growing with congeneric species.

### Acknowledgements

Thanks are due to the late Dr Harold Whitehouse for helpful comments and to Marcus Yeo for information.

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## SURVEY OF *ANDREAEA FRIGIDA* IN THE CAIRNGORM MOUNTAINS, SCOTLAND

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### Background

*Andreaea frigida*, a European endemic, is one of 10 *Andreaea* species recorded from the British Isles (Blockeel & Long, 1998). It is a UK Biodiversity Action Plan priority species for which a Species Action Plan has been produced (UK Biodiversity Group, 1999), and is classified as *Vulnerable* in Great Britain (Church *et al.*, in press) and *Rare* in Europe (ECCB, 1995). In Great Britain it has been recorded recently only from the Cairngorms, but there are two confirmed herbarium specimens from northern England: Upper Teesdale (1854) and Scafell (1952).

In 1999 and 2000 surveys were undertaken of all known populations in the Cairngorms, supplemented by searches of some additional potential sites within the core range in 1999 (Rothero & Amphlett, 1999; Rothero 2000).



## Methods

Given the linear nature of the habitat of *A. frigida* (margins of burns and lochs), and the large size of many of the populations, systematic sampling along a transect provided a rapid and repeatable survey method. Sample sites at 50 m intervals were paced out and at each site a 10 m stretch of the burn/loch margin was searched for *A. frigida*. Stands were assessed using a simple scoring system:

### *Abundance score*

- |   |   |
|---|---|
| 0 | absent  |
| 1 | few (1-10) scattered cushions   |
| 2 | frequent (11-50) scattered cushions or occasional (1-2) large spreading patches |
| 3 | many (>50) cushions or frequent spreading patches                               |

### *Stand type*

- |   |                                |
|---|--------------------------------|
| a | cushions                       |
| b | spreading patches              |
| c | cushions and spreading patches |

## Results

*A. frigida* was recorded from 14 1-km squares. Large populations were found along burns in An Garbh Choire (Braeriach), along the shore of Loch Etchachan and its feeder and outflow burns, in Garbh Uisge Mor / Garbh Uisge Beag (NE of Ben Macdui), and at the SW end of Loch Avon. Smaller populations were found in three additional burns above the head of Loch Avon. In total, 295 sample sites were searched, along 11.2 km of burns and 3.55 km of loch margins. *A. frigida* was recorded at 73% of sample sites. Approximately 71% of the population was found along burns, the remainder on loch-shore boulders.

The sample data can be used to estimate the total population size of *A. frigida* in the Cairngorms. Approximately half of the population occurs in stands of abundance class 3 (an open-ended category), making accurate estimation difficult. However, using the mid-point values of abundance classes 1 and 2, and the minimum value (50) for abundance class 3, provides a minimum population estimate of *ca* 31,000 cushions. A comprehensive count along *ca* 300 m of the Garbh Uisge burn in 1999, where the species was at or close to its greatest abundance, recorded 3532 cushions. Using this result to calibrate the results from the sample survey for the same site indicates that a value of 150 cushions would be an appropriate upper limit for abundance class 3. Using this value gives an upper population estimate of *ca* 56,000 cushions. The total population of *A. frigida* within the surveyed sites is therefore estimated to be *ca* 31,000-56,000 cushions.

## Discussion

All surveyed populations are on granite boulders or bedrock, in burns or on loch shores, between 660 and 1200 m altitude. *A. frigida* appears to need a stable, rocky substrate, freedom from competition, and periodic, but not prolonged, inundation. Along burns it is most frequent in areas where there are small falls and cascades and it appears to be absent from those sections where the substrate is mobile or where scouring is intense. In the Cairngorms it seems to be restricted to sites which derive much of their water from areas of

late snow-lie and this suggests that water temperature could be an important limiting factor. All stands of *A. frigida* examined closely were fertile, often abundantly so. However, the scarcity of isolated stands in the area suggests that transport by water of fragments of the plant may be an important form of dispersal. Very little is known of the ecology of the two English sites but it must differ considerably from that of the Cairngorms' populations.

### Identification

Although *A. frigida* was not recognised as a distinct species until relatively recently (Murray, 1988), it can, with experience, be identified with confidence in the field. Well-grown cushions have a distinctive dull red/maroon colour when wet and a coarse texture. The leaves tend to be slightly falcate, and with careful use of a hand lens the leaf can be seen to taper gradually to a blunt apex in which the lamina is distinct. It is almost invariably accompanied by *Andreaea nivalis* and *A. alpina*.

### Future surveys

It seems likely that there are further populations of *A. frigida* in the Cairngorms and perhaps elsewhere in Scotland where areas of late-lying snow feed substantial burns. The records from northern England make it conceivable that the species may be even more widespread in upland regions of Britain. In order to help clarify its distribution we wish to encourage interested bryologists to search for *A. frigida* at potential locations in 2001. A list of target sites will be drawn up prior to the 2001 field season, and RSPB, as joint lead partners for the *A. frigida* Species Action Plan, will be able to make a contribution towards fieldwork expenses (travel and accommodation). In the first instance interested bryologists should contact Andy Amphlett.

### Acknowledgements

The 1999 survey was funded by the RSPB with support from the Scottish Mountaineering Trust. The 2000 survey was commissioned for Scottish Natural Heritage by Stephen Ward, who also commented on an earlier draft of this article.

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## TROPICAL BRYOLOGY GROUP: PROGRESS IN 2000

### Membership and Newsletter

There is no need to have been to the tropics to become a member of the Tropical Bryology Group (TBG): membership is open to all members of the BBS. All you need is to want to extend your knowledge into this area - just let me know, and I will add you to the circulation list for the Newsletter, which is produced once a year, usually in August. Participation in TBG activities also doesn't necessarily mean participating in collecting expeditions, and there are several UK-based TBG members who are participating in both the Malawi and Uganda work without having ever been to the tropics.

### Malawi bryophyte list increased by 130 taxa

As we slowly work through critical groups of Malawi bryophytes in our papers in *Journal of Bryology*, we have also been looking at less critical taxa, and we have now gathered all of these together into a paper (number 13 in the series) that has been accepted for publication in *Tropical Bryology* (O'Shea *et al.*, in press). As a result, the original checklist total (O'Shea, 1993) has increased from 303 to 433. Details are as follows:

	Mosses	Liverworts	Total
Checklist (1993)	197	106	303
Additions	65	65	130
Total	262	171	433

More work is still required, and we hope to publish more papers during 2001, but some groups are unlikely to be dealt with adequately without major revisions, which await the attentions of others. Whilst we are approaching the end of what we can achieve with the Malawi collections, we have built a tremendous amount of expertise that is now being transferred to many other projects.

### Uganda - 133 taxa new to the checklist

The Uganda publications continue, and the fourth is now in press (Wigginton *et al.*, in press). Considering that most collections have not yet been looked at, the results are very positive, and we have already added 62 mosses and 71 hepatics to the Uganda list. The major taxonomic work on the collections will take place for the *Mosses and Liverworts of Uganda* book (ed. Jeff Bates), which is scheduled to be completed towards the end of 2002.

### E.W. Jones Flora of West African hepatics

The saga of this Flora continues. The text is well advanced, but there has been practically no progress for a year. New drawings of 20 species were prepared by an artist from the National Botanic Garden at Meise, Belgium, and most of the remaining 210 species have been illustrated by E.W. Jones, C. Vanden Berghen and others, but these do not match the quality and style of the new plates, and means have not been found to prepare new plates of these species.

Offers of publication have been received, and getting the book published isn't the problem - rather the insistence that the extra plates be produced. The issue is not just finding an artist/artists, but also the amount of support that this task requires, providing specimens, and giving advice on which characters need illustrating. One option is to publish it as it is on the BBS web-site, pending its publication as a book, but other options are still being pursued.

### Internet

The TBG section of the BBS website is regularly updated, but no progress has been made on setting up an African moss database on-line, mainly through lack of time.

### Guide to bryophytes of sub-Saharan Africa (GBA)

This multi-authored project to produce an illustrated guide to the families and genera of African bryophytes is making good progress, with all but one participant a BBS member. At the end of 2000, the liverworts are almost complete, the mosses some way behind, and the introductory chapters not yet started. Progress is posted on the Tropical Bryology Research/GBA website (<http://www.oshea.demon.co.uk/tbr.htm>). We had hoped to try out the Guide in workshops in Africa, but funding wasn't forthcoming. However, we still hope to be able to provide free copies to a number of African institutions following publication. We expect to deliver the final document to the publisher (Missouri Botanic Garden) during 2001.

### Alan Crundwell

Alan Crundwell's death will be a great loss to the BBS as a whole, but for the TBG he was one of the very few people left in the UK who had collected and studied tropical taxa, and he was a great support to us. He was part way through looking at Malawi Bryaceae, Dicranaceae and Ditrichaceae when he died, and his identifications will appear during 2001 in the next Malawi paper.

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## CHANGES TO THE MEMBERSHIP LIST, JANUARY 2001

### HONORARY MEMBERS

The following were elected as Honorary Members at the Annual General Meeting of the Society on 9 September 2000:

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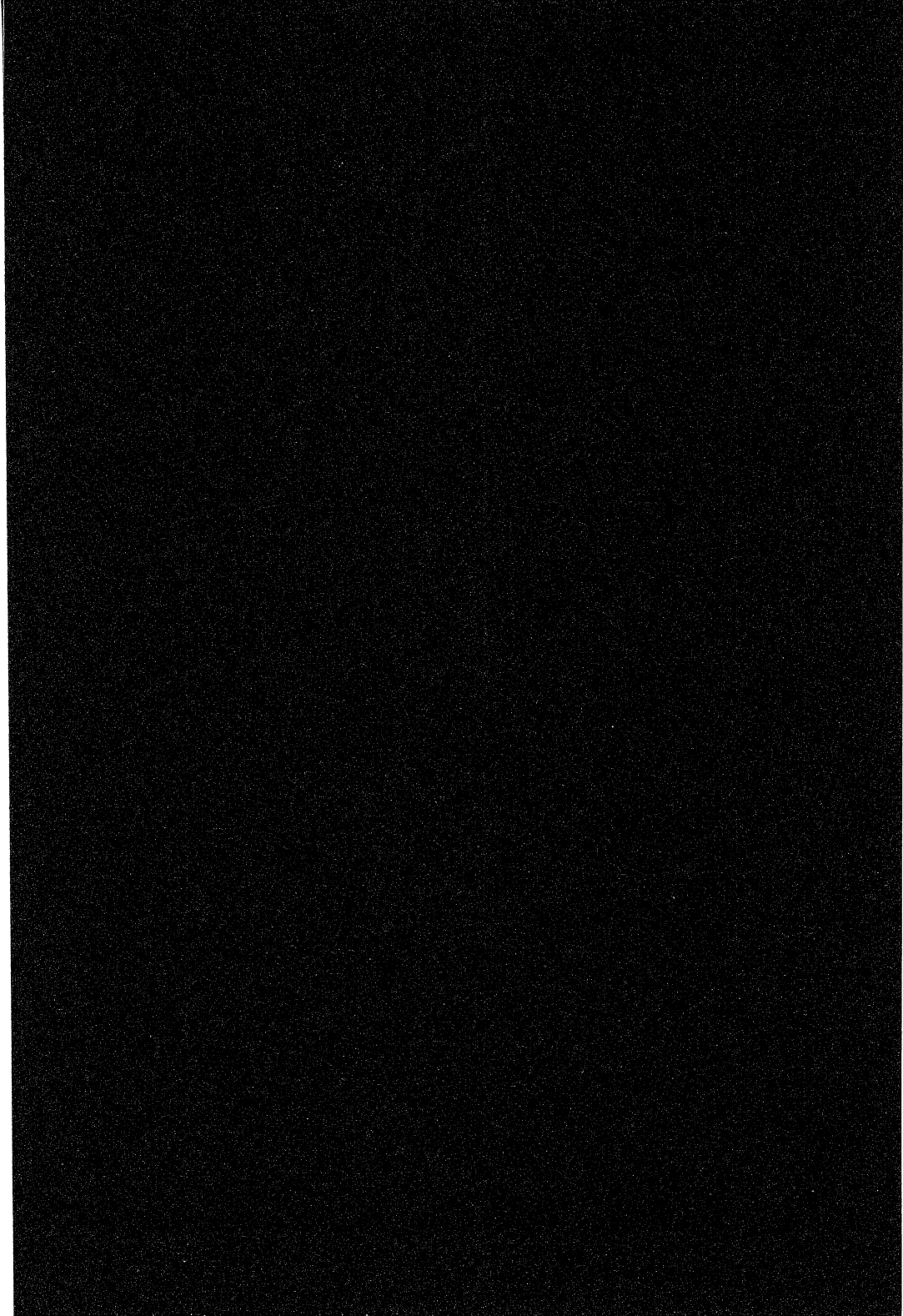
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