

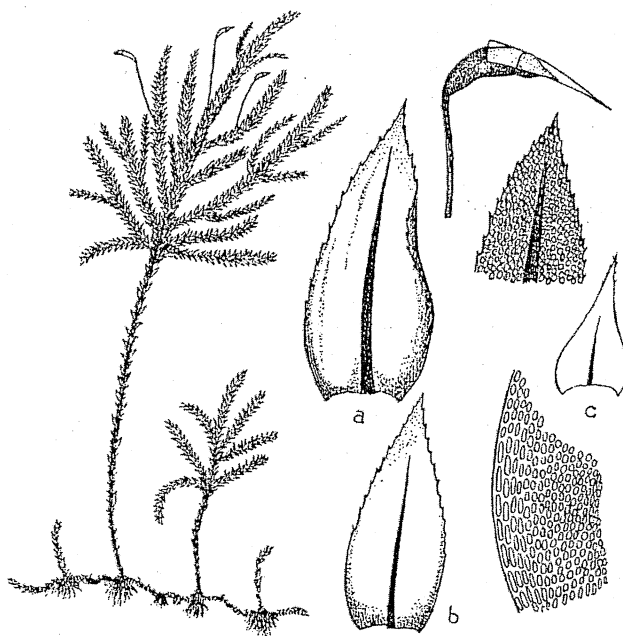


BULLETIN OF THE BRITISH BRYOLOGICAL SOCIETY

NUMBER 81

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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.

Council for the year 2003

PRESIDENT: Dr D.G. LONG, The Herbarium, Royal Botanic Garden, Inverleith Row, Edinburgh, EH3 5LR.

PAST-PRESIDENT: Mr T.L. BLOCKEEL, 9 Ashfurlong Close, Dore, Sheffield, S17 3NN.

VICE-PRESIDENT: vacant.

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TREASURER: Dr D.S. RYCROFT, Department of Chemistry, Joseph Black Building, University of Glasgow, Glasgow, G12 8QQ.

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READING CIRCLE SECRETARY: Mr R.J. FISK, 1 Paradise Row, Ringsfield, Beccles, Suffolk, NR34 8LQ.

RECORDERS: Mr G.P. ROTHERO, Stronlonag, Glenmassan, By Dunoon, Argyll, PA23 8RA (Mosses); Mr T.H. BLACKSTOCK, Countryside Council for Wales, Plas Penrhos, Ffordd Penrhos, Bangor, Gwynedd, LL57 2LQ (Hepatics).

RECORDING SECRETARY: Mr R.D. PORLEY, English Nature, Foxhold House, Crookham Common, Thatcham, Berkshire, RG19 8EL.

WEB SITE EDITOR: Dr A.E. NEWTON, Department of Botany, The Natural History Museum, Cromwell Road, London, SW7 5BD.

ELECTED MEMBERS: Mr S.D.S. BOSANQUET, Prof J.G. DUCKETT, Mr J. GRAHAM, Mr J.B. MOTT, Mr J.M. TURNER.

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British Bryological Society web address:
<http://www.britishbryologicalsociety.org.uk>

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CONTENTS

Accounts for 2002	2
Reports of Officers for 2002	4
Articles for <i>Bulletin</i> 82	13
Reports of Local Meetings	14
Minutes of the Annual General Meeting, Edinburgh, 2002	18
Minutes of the Special General Meeting, Dickleburgh, 2003	24
Future Meetings of the Society	24
Election of Officers and Elected Members of Council	27
<i>Mosses and Liverworts of Town and Garden</i>	27
British Bryological Society: Amendments to the Society's Rules	28
Rules of the British Bryological Society	28
BBS Library Sales and Service, 2003	32
Referees (July 2003).....	34
Rare and Interesting Bryophytes in Britain and Ireland: a New Feature for the <i>Bulletin</i>	35
BBS Travelogue	35
BBS Photographic Archive	36
BBS Web Site Rebuilt.....	36
BBS Survey of the Bryophytes of Arable Land (SBAL): First Year Report	37
New Vice-County Records and Amendments to the <i>Census Catalogue</i> Hepaticae. By T.H. Blackstock	39
Musci. By G.P. Rothero	46
Further Observations on <i>Drepanocladus aduncus</i> in Britain. By Mark O. Hill	64
Changes to the Membership List, May 2003	65

BRITISH BRYOLOGICAL SOCIETY

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 DECEMBER 2002

	2002 £	2001 £
GENERAL FUND		
INCOME		
Interest	1,378	1,628
Subscriptions	10,501	11,536
Income tax repayment plus interest (under Gift Aid)	2,288	-
Sales of publications, etc.		
<i>Journal of Bryology</i>	11,827	9,970
<i>Census Catalogue</i>	172	255
Other publications	307	300
Lenses and forceps	414	437
Reading Circle	158	119
Postage and sundries	634	203
AGM and other meetings	<u>2,708</u>	<u>2,556</u>
	<u>30,387</u>	<u>27,004</u>
EXPENDITURE		
Printing and distribution		
<i>Journal of Bryology</i>	16,103	14,497
<i>Bulletin</i>	2,483	2,181
Purchases for resale (publications, lenses, forceps)	489	970
Library purchases	155	138
AGM and other meetings	3,458	3,183
Officers' expenses	470	614
Reading Circle	118	109
Insurance	453	324
Return of overpaid subscriptions	-	40
Bank charges and sundries	<u>344</u>	<u>140</u>
	<u>24,073</u>	<u>22,196</u>
SURPLUS FOR YEAR	6,314	4,808
Unrealised (loss) on investments	(3,807)	(2,678)
NET SURPLUS FOR YEAR	<u>2,507</u>	<u>2,130</u>
BEQUEST AND DONATION FUND		
Bequests and donations (net)	954	442
Interest	1,487	1,549
Awards	(1,066)	(2,250)
SURPLUS/(DEFICIT) FOR YEAR	<u>1,375</u>	<u>(259)</u>
Unrealised (loss) on investments	(2,666)	(2,417)
NET (DEFICIT) FOR YEAR	<u>(1,291)</u>	<u>(2,676)</u>

BRITISH BRYOLOGICAL SOCIETY

STATEMENT OF AFFAIRS AT 31 DECEMBER 2002

	2002 £	2001 £
GENERAL FUND		
Balance at 1 January	51,275	49,145
Surplus for year	<u>2,507</u>	<u>2,130</u>
Balance at 31 December	<u>53,782</u>	<u>51,275</u>
BEQUEST AND DONATION FUND		
Balance at 1 January	42,371	45,047
(Deficit) for year	<u>(1,291)</u>	<u>(2,676)</u>
Balance at 31 December	<u>41,080</u>	<u>42,371</u>
	<u>94,862</u>	<u>93,646</u>
REPRESENTED BY:		
Cash at National Westminster Bank	1,573	1,039
COIF Deposit Fund	44,813	39,514
COIF Investment Fund at market value	32,964	39,407
COIF Fixed Interest Fund at market value	<u>20,647</u>	<u>19,723</u>
	99,997	99,683
Plus payments in advance	<u>982</u>	<u>616</u>
	100,979	100,299
Less current liabilities		
Cheques not yet presented	224	-
Publication cost of <i>Journal of Bryology</i> (net)	<u>5,893</u>	<u>6,653</u>
NET ASSETS	<u>94,862</u>	<u>93,646</u>

D.S. Rycroft
Treasurer

(signed) D.S. Rycroft

(dated) 23 May 2003

INDEPENDENT EXAMINER'S REPORT TO THE TRUSTEES OF THE BRITISH BRYOLOGICAL SOCIETY

I report on the accounts of the British Bryological Society for the year ended 31 December 2002, which are set out on pages 2-3.

Respective responsibilities of the trustees (British Bryological Society Members of Council) and the examiner

As the charity's trustees you are responsible for the preparation of the accounts; you consider that the audit requirements of section 43(2) of the Charities Act 1993 (the Act) do not apply. It is my responsibility to state, on the basis of procedures specified in the General Directions given by the Charity Commissioners under section 43(7)(b) of the Act, whether particular matters have come to my attention.

Basis of the independent examiner's report

My examination was carried out in accordance with the General Directions given by the Charity Commissioners. An examination includes a review of the accounting records kept by the charity and a comparison of the accounts presented with those records. It also includes consideration of any unusual items or disclosures in the accounts, and seeking explanations from you as trustees concerning any such matters. The procedures

undertaken do not provide all the evidence that would be required in an audit, and consequently I do not express an audit opinion on the view given by the accounts.

Independent examiner's statement

In connection with my examination, no matter has come to my attention:

- (1) which gives me reasonable cause to believe that in any material respect the requirements
 - (a) to keep reasonable records in accordance with section 41 of the Act; and
 - (b) to prepare accounts which accord with the accounting records and to comply with the accounting requirements of the Acthave not been met; or
- (2) to which, in my opinion, attention should be drawn in order to enable a proper understanding of the accounts to be reached.

R.N. Gutteridge
Chartered Accountant
16 Reid Avenue
Caterham
Surrey CR3 5SL

(signed) R.N. Gutteridge (dated) 23 May 2003

REPORTS OF OFFICERS FOR 2002

a) GENERAL SECRETARY'S REPORT

The year saw several successes, among which were the award of the Bloomer Medal of the Linnean Society to Tom Blockeel in recognition of his contribution to bryological taxonomy, and the Hattori Prize of the International Association of Bryologists to Jean Paton for her *Liverwort Flora of the British Isles*. It is also pleasing to record the award of Honorary Membership at the AGM to Roy Perry, more details of which can be seen in the minutes of the AGM.

On a sadder note, the year also saw the deaths of several members, amongst whom were two Honorary Members, Dr H.A. Crum and Dr E. Nyholm. Overall, however, membership numbers increased slightly, just reversing the reduction in the previous year.

Council continued to consider ways in which the Society can improve its provision of facilities to members and can increase the Society's profile. The Publications Committee started a review of the contents and format of the *Bulletin*, and the Web Site Editor together with Brian O'Shea, who manages the site, started to consider ways in which the contents and design of the site can be made more attractive, informative and user-friendly. Members who wish to contribute ideas and suggestions are encouraged to contact the Bulletin Editor or the Web Site Editor (see inside front cover).

The publishing contract for the *Journal of Bryology* is still working very well: the net cost per member was £7.44 in 2002 as compared with £9.46 in 2001 (and £18.47 in 1998, the last year in which it was produced under the previous contract).

The Bequest Fund gave assistance to a number of younger members, and the fund provides a particularly important resource when set against the background of reducing opportunities in higher education.

Following the problems caused by the Foot and Mouth epidemic in 2001 it was pleasing that a full programme of meetings was held in 2002. As with all of the other activities of the Society it is important that the programme of meetings meets the wishes of members, so far as it is possible to do so, and members are encouraged to respond to the questions that are raised in the Meetings Secretary's report.

M.A. Walton, March 2003

b) TREASURER'S REPORT

Notes on the Accounts for 2002 (see pp 2-3 of this *Bulletin*)

1. I took over the Treasurer's duties immediately after the AGM and thanks are due to Mike Walton in his role as Acting Treasurer for ensuring that the hand-over proceeded smoothly.
2. General Fund income exceeded expenditure by £6,314. Repayment of income tax (plus interest) under Gift Aid boosted income by £2,288; in future years this figure will be around £1,100 but might be larger if additional eligible members return Gift Aid declarations.
3. *Journal* royalty income increased substantially. The net cost to the Society of producing the *Journal* was £4,276, made up as follows:

	£	£
Cost of members' copies (£18 per member)		10,525
Funding of Editorial Office		5,000
Payment for ancillary expenses of Editorial Office		<u>578</u>
		16,103
Income from royalties (20% of institutional sales of £33,160)	6,632	
Contribution from Maney Publishing to Editorial Office	5,000	
Sales of back issues	<u>195</u>	<u>11,827</u>
		<u>4,276</u>

4. Quoted investments:

	General Fund	Bequest Fund	Total
	£	£	£
<i>Value at 1 January 2002</i>			
COIF Accumulation Units	21,529	17,877	39,406
Additional investment		512	512
COIF Income Units		19,723	19,723
Additional investment		<u>442</u>	<u>442</u>
	<u>21,529</u>	<u>38,554</u>	<u>60,083</u>
<i>Value at 31 December 2002</i>			
COIF Accumulation Units	17,723	15,241	32,964
COIF Income Units		<u>20,647</u>	<u>20,647</u>
	<u>17,723</u>	<u>35,888</u>	<u>53,611</u>

5. Officers' expenses:
- | | |
|---|----------------|
| | £ |
| Mike Walton (General Secretary and Acting Treasurer) | 245 |
| Mark Pool (Membership Secretary) | 92 |
| David Holyoak (Conservation Officer) | <u>25</u> |
| | 362 |
|
Ken Adams (Librarian) |
108 |
| (postage and packing recovered in sales and included in 'Postage and sundries') | |
|
Total |
<u>470</u> |
6. Three grants were awarded from the Bequest Fund (£152 for 50% of fees for attendance by an aspirant bryologist at a Field Studies Council course; £400 towards costs of a visit to Belize as part of a MSc bryophyte biodiversity project; £500 towards a study of the bryophyte flora of Fruska Gora, Serbia); including bank charges the total was £1,066. At year-end, commitments are £550 and uncommitted accumulated interest available for awards is £4,641. Three applications are currently under consideration.
7. Non-bryological books from the library of the late Alan Crundwell were sold and realised £884 after deduction of expenses incurred in 2000 and 2001. These expenses (£616) were treated in the accounts for 2001 as payments in anticipation of income and are not carried forward any longer. The £982 shown as a payment in advance during 2002 represents an overpayment made to the publisher of the *Journal* (and has been allowed for in the corresponding payment made in 2003).

D.S. Rycroft, March 2003

c) BIBLIOGRAPHERS' REPORT

The work of the bibliographers has continued smoothly with no problems. No further progress has been made with the merger of the 'Recent Bryological Literature' column of the *Journal of Bryology* and the 'Recent Literature on Bryophytes' column of the *Bryologist*. This merger depends on the establishment of the necessary electronic link between the Missouri Botanical Garden and the Natural History Museum, which has to be set up from the Missouri end.

Angela Newton and Len Ellis, March 2003

d) BULLETIN EDITOR'S REPORT

Two issues of the *Bulletin* were published in 2002: number 78 in February and number 79 in July. I continued to receive a steady stream of material for publication, including several articles on ecological or taxonomic issues. I am always keen to receive articles of this nature, as I believe they are of interest to a wide range of the Society's members.

It is important that the *Bulletin* moves with the times and continues to meet the Society's needs. With this in mind I prepared a short paper on the future of the *Bulletin*, which was discussed by the Publications Committee in October. Following on from this, I hope that proposals for revamping the *Bulletin* can be considered by Council early in 2003.

Marcus Yeo, February 2003

e) CONSERVATION OFFICER'S REPORT

The level of activity in bryophyte conservation in Britain and Ireland remained high during 2002. In Britain, work organised by Plantlife continued on numerous threatened bryophyte species, and studies funded by the Countryside Council for Wales, Dartmoor National Park Authority, English Nature and Scottish Natural Heritage also involved BBS members. Work continued in Ireland to gather data for a future Red Data Book of Irish bryophytes, with field surveys supported by National Parks and Wildlife in Co. Donegal and Co. Roscommon and by Environment and Heritage Service in Co. Down and Co. Tyrone.

Liaison was continued during 2002 with several projects for bryophyte conservation, and numerous enquiries were dealt with from individuals, societies, companies, local authorities and conservation agencies. Two major projects involving the BBS commenced work during 2002. Firstly, assembly of records in a Threatened Bryophyte Database was started by Nick Hodgetts in a study organised from the Biological Records Centre at Monks Wood and carried out jointly on behalf of the BBS, the national conservation agencies and Plantlife. Secondly, the BBS Survey of the Bryophytes of Arable Land was started in autumn 2002 with a workshop held at Preston Montford. Contacts were also maintained with existing projects, especially the *Ex Situ* Bryophyte Conservation study (based at the Royal Botanic Gardens Kew), and with the Biodiversity Co-ordinator for Cryptogamic Plants (at the Natural History Museum), and the BBS became involved towards the end of the year in the UK contribution to the listing of Important Plant Areas being carried out by Plantlife.

Much time was devoted to preparation of a BBS response to the fourth quinquennial review of Schedule 8 of the Wildlife and Countryside Act carried out by JNCC. Following discussions of 27 threatened bryophyte species as potential additions to Schedule 8, details were submitted to JNCC proposing that seven of the most severely threatened species (one liverwort and six mosses) should be added. It was therefore disappointing that JNCC eventually recommended to the government that no bryophytes, and indeed no plants whatever, should be added to Schedule 8. No satisfactory explanation has been given of this lack of plant additions to Schedule 8 and it can only be concluded that there will be no purpose in our contributing to future reviews by JNCC unless they prove to be more effective.

The BBS Conservation and Recording Committee met twice during 2002, on the Isle of Wight in March and at Edinburgh in September, although fieldwork in Ireland prevented me from attending the Edinburgh meeting.

D.T. Holyoak, February 2003

f) JOURNAL EDITOR'S REPORT

The four issues of *Journal of Bryology* published in 2002 amounted to 344 pages, the pages additional to the normal annual quota being supported by two 'Monograph' articles. The additional pages in Dr Grolle's catalogue of southern hemisphere hepatics were very kindly financed by an anonymous benefactor. The other articles published during the year comprised 23 full papers, 18 bryological notes, instalments 5 and 6 of 'New national and regional bryophyte records', an obituary for our late Honorary Member Dr Ilma Stone, four book reviews, and parts 103-106 of 'Recent bryological literature'. The research papers included a wide range of topics from molecular methods through to physiology, population dynamics

and taxonomy. They included descriptions of three newly described species from America and Asia, as well as details of two additions to the flora of the British Isles.

On the input side, 46 manuscripts were submitted for publication during 2002. Among these, 17 have been accepted, nine were rejected, and the remaining 20 are still under consideration by referees or back with authors under revision. Of the papers that were submitted in 2001 but still outstanding at the start of 2002, ten were eventually accepted and the remainder rejected or withdrawn. The 46 papers submitted represents a marked decline over that in recent years: 68 in 1999, 69 in 2000, and 53 in 2001. This seems to be a negative response to the much increased times to publication over the past two years resulting from the journal's greater popularity with authors after its upgrade in 1999. The recent lower submission rate together with an increased rejection rate have now allowed this backlog of accepted papers to be cleared, and much quicker publication is anticipated for future submissions.

The year saw yet another change of Production Editor at Maney Publications. The new incumbent is Anna Thrush, and the publishers have now opened an office in London from which Mark Simon will be keeping an eye on the progress of the *Journal of Bryology* among his many other publishing responsibilities. The year 2002 also saw the completion of my first ten years as Editor. Throughout this time I have been supported by the proof reading skills of Dr Phil Stanley who has now taken a well-deserved retirement from this demanding activity with the completion of volume 24. His replacement is Dr Bob Finch who has already impressed me with his eagle eye for every kind of textual (and illustrative) imperfection! I thank them both and the many others who have contributed to keeping both myself and the *Journal of Bryology* on the straight and narrow in 2002.

Dr J.W. Bates, January 2003

g) LIBRARIAN'S REPORT

Sales

TBBS (parts)	-	Special Volume 3: Tropical Bryophytes	1
<i>J. Bryology</i> (parts)	14	Special Volume 4: Mosses in English Lit.	3
Census Catalogue (Corley & Hill)	1	Special Volume 5: English Names (2 nd ed.)	10
Census Catalogue (Blockeel & Long)	29	Bryology (Linn. Soc.)	4
Census Catalogues (old)	7	Mosses & Liverworts of Woodland	4
Hepatics of Europe and the Azores	-	German/English Glossary	-
Hepatics of Europe and Macaronesia	4	Microscope Techniques	10
BBS <i>Bulletins</i>	19	x20 lenses	9
BBS Library Catalogues	3	Stainless steel forceps (Patterson)	9
Moss Wall Charts	7	Stainless steel forceps (Idealtex)	9
Special Volume 1: Jubilee	1	BBS ties	-
Special Volume 2: Chromosomes	1	Car stickers	1

Loans

35 mm slides	-	Micrometer slide	3
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The long awaited update of the BBS library catalogue, including the books, journals and larger separates in the BBS collection, is nearing completion and will be available for circulation to members with the July *Bulletin*.

Ken Adams, February 2003

h) MEETINGS SECRETARY'S REPORT

2002 saw meetings in the Isle of Wight, Carmarthenshire, Edinburgh and Shropshire. These meetings were reported in the last *Bulletin*, and on behalf of the Society I thank Rod Stern, Lorna Snow, Colin Pope, Graham Motley, Sam Bosanquet, David Long, Mark Hill and Ron Porley for their sterling work in arranging and writing them up, and for chaperoning participants during the meetings. Three of these four meetings were arranged by small teams of two or more members; perhaps this is an emerging trend.

Digital photographs of some of the bryophytes found on, and bryologists attending, our meetings have been published on the Society's web site. This is a new and delightful development. I feel sure that Harold Whitehouse would have admired the very high quality of Jonathan Sleath's wonderful photographs taken during the Isle of Wight meeting, and heartily approved of their publication.

These reports and records by our members leave me free to discuss future meetings with you, rather than those of the past. Our meetings presently follow an annual cycle which has worked for the Society in years gone by, but which we can change if we wish. I therefore invite every member of our Society to say what kinds of meetings they want, and where and how frequently.

Do you want a workshop each year without fail, or less regularly when a worthwhile topic is identified and a suitable tutor found? What topics do you wish workshops to cover?

Do you think that our AGM/paper-reading meetings are best held in universities, or (for example) at Field Studies Centres so that we are not obliged to hold our annual meetings outside term times?

Our summer meeting in 2002 was held, and that of 2003 will be held, in early July because of constraints affecting accommodation. This also has the merit of establishing an interval between the summer meeting and the AGM, when the latter have had to be arranged early in September, before the start of the university term. In some previous years, members attending the summer meeting had hardly returned home before packing their bags again for the AGM, and this may have adversely affected attendance. On the other hand, members who work the academic terms cannot attend summer meetings if they are held too early. What are your views about the timing of these meetings?

Several members particularly look forward to summer meetings in the Scottish Highlands and Islands, and since, other things being equal, supply should meet demand, I am minded to arrange such meetings more frequently than they have been in the past. However, it may be that other members who have not attended our summer meetings would prefer meetings held elsewhere. If this applies to you, please tell me what sort of summer meetings you want, and where, so that your wishes can be factored into plans for the future.

Our Society has no formal policy about meetings overseas. The view expressed at the last AGM was that these should be in addition to, rather than instead of, meetings on home soil.

Please let me have your comments on these or any other aspects of the Society's meetings.

Mark Lawley, December 2002

i) MEMBERSHIP SECRETARY'S REPORT

The considerable decline in membership seen during 2001 was beginning to be reversed by the end of 2002. The loss of 39 members during the year, although considerable, was more than balanced by the 42 who joined, the final total (598) showing a net gain of three. There was an overall decline of 11 in the number of overseas members, but an increase of 14 in those from the UK.

A total of four members died during 2002. Most unfortunately, two of these were Dr H.A. Crum and Fru Elsa Nyholm, both of whom were honorary members and internationally-known bryologists of high repute; they will be very much missed.

As in previous years, a large percentage of new members joined after visiting the Society's web site; the vast majority, in fact, joined by this route. It is gratifying to see that an increasing number of UK members are paying their subscriptions by standing order; this is both more convenient and a useful means of ensuring that subscriptions are paid on time. Another helpful development during 2002 was the Society's implementation of the Gift Aid scheme; at the time of writing 66% of the UK membership had signed up for this, which promises to give a considerable boost to the Society's finances.

It is to be hoped that the increase in numbers will continue during 2003. The following table shows the changes in membership over the last ten years.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
New members										
UK	24	27	27	24	13	14	37	37	17	36
Overseas	11	18	9	16	7	18	34	14	11	6
TOTAL GAINED	35	45	36	40	20	32	71	51	28	42
Members lost by:										
Death	2	2	4	5	3	12	1	8	4	4
Resignation	3	4	14	11	7	18	7	13	11	17
Other	19	11	14	15	17	24	24	22	37	18
TOTAL LOSSES	24	17	32	31	27	54	32	43	52	39
Total overseas members	187	202	209	215	226	224	245	240	228	217
Total UK members	370	383	380	382	368	348	366	379	367	381
NET TOTAL	557	585	589	597	594	572	611	619	595	598
Comprising:										
Honorary	11	11	10	11	10	10	12	11	11	11
Ordinary & Junior	524	545	549	559	557	544	578	585	561	564
Family	22	29	29	27	25	18	21	23	23	23
Turnover ratio x 100	11	11	12	12	8	15	17	15	13	14

Mark Pool, February 2003

j) READING CIRCLE SECRETARY'S REPORT

Lindbergia has not been received during the year and so far I have not received *Tropical Bryology*. Otherwise it has been a fairly average year. Four accounts have been closed at the year end, one by request and the others because funds have run out and there has been no response to reminders from the members concerned. Contents lists of 15 issues of five journals have been distributed to 38 members. Copies of 112 papers totalling 1,284 pages were requested and sent out to 15 members.

Financial statement

Income:

Opening balance	£226.56
Credit (cheques etc.)	£157.99
Total	<u>£384.55</u>

Expenditure:

Photocopying	£59.39
Postage	<u>£59.20</u>
Total	<u>£118.59</u>

Balance of members' accounts	<u>£265.96</u>
------------------------------	----------------

Richard Fisk, January 2003

k) REPORT OF THE RECORDER FOR HEPATICS

Remarkably, there were about twice as many new liverwort records submitted in 2002 than in 2001. This is very largely due to intensive fieldwork in Ireland, especially by David Holyoak and with important contributions by Tom Blockeel and Nick Hodgetts. It was also another good year for records from south Wales, mainly by Sam Bosanquet and Graham Motley. In contrast, there were slightly fewer submissions from England than in the previous year.

	New records collected in 2002	New records collected pre-2002	Deletions
England	19	3	-
Wales	28	1	-
Scotland	17	5	-
Ireland	90	7	-
Total	154	16	-

Among the new Irish records there are a large number of interesting finds. These include several species for which there are only a few known Irish localities, including *Cephaloziella integerrima*, *C. turneri*, *Marsupella sphacelata* and *Scapania cuspiduligera*. Additionally, *Lophocolea bispinosa* and *L. semiteres* were recorded for the first time in Ireland, and another introduction, *Heteroscyphus fissistipus*, is also listed. The arable survey is beginning to turn up some interesting records, most notably *Phaeoceros carolinianus* newly recorded from southern Scotland in two counties by David Long.

Thanks are due to Mrs Jean Paton for help over difficult specimens.

T.H. Blackstock, January 2003

1) REPORT OF THE RECORDER FOR MOSSES

This year has again been dominated by recording in Ireland, providing nearly two-thirds of the total of over 500 new records received. In England, Wales and Scotland, the number of new records is somewhat lower than in 2001 but still represents a healthy level of recording.

	New records collected 2001-2002	New records collected pre-2001	Updated records	Deletions
England	35	6	24	-
Wales	37	-	15	1
Scotland	43	7	24	-
Ireland	219	2	112	1
Total	334	15	175	2

From such a long list it is difficult to pick out records worthy of particular acclaim but the most obvious are as follows. *Meesia uliginosa* is new to Ireland, and other notable records here include those for several rare *Bryum* species: *B. marratii*, *B. warneum*, *B. neodamense* and *B. uliginosum*. In England, there are new records for the worryingly rare *Orthotrichum pumilum* and for the ruderal species *Ephemerum cohaerens*. In Wales, *Physcomitrium sphaericum* is a new species for the Principality and *Anomodon longifolius* was refound in Monmouthshire. In Scotland, there is the first record for many years of *Homomallium incurvatum*, a second Scottish locality for *Eurhynchium pulchellum* var. *diversifolium*, a new locality for *Bryum marratii*, and a large extension of range up to the far north-west for *Paraleucobryum longifolium*.

A separate paper, in addition to the list of vouchers received this year, has been produced to show the current state of recording of the segregates of the *Schistidium apocarpum* complex. It seems clear from this that *S. crassipilum* is the most frequent species over much of the country, with *S. apocarpum* s.str. perhaps more frequent in the north.

Gordon Rothero, January 2003

m) RECORDING SECRETARY'S REPORT

The number of completed recording cards that have come to me during 2002 totalled 239, and I also received seven 'pink' individual record cards (generally for rarities) and some miscellaneous records. A sizeable batch of cards dating from 1995-2001, sent by Roy Perry and Phil Stanley, was gratefully received. Records of the spring meeting on the Isle of Wight were co-ordinated and sent in by Lorna Snow. I would like to thank everyone who has sent in their recording cards, and look forward to receiving more in the near future. Some members may already be sending data directly to the Biological Records Centre electronically, although this does mean I cannot keep track of data flow so easily. The Recorders' network is flourishing and only a few British vice-counties remain vacant.

The national survey of arable bryophytes is now under way and already we are making exciting discoveries and adding to our knowledge of this neglected element of our bryoflora. This is an excellent flagship project for the BBS, and I urge all members to get involved over the next three years.

Gill Stevens at the Natural History Museum is continuing to work closely with BBS members to bring our expertise into the Biodiversity Action Plan process, and Nick Hodgetts is compiling a Threatened Bryophyte Database (see *Bulletin* 80: 52-59), again with the assistance of members. Such projects bode well for recording activities in the Society.

Ron Porley, January 2003

n) WEB SITE EDITOR'S REPORT

Major progress has been made with the revamping of the BBS web site through the addition of Jonathan Sleath and his son Oliver to the web management team. A new home page and menu system has been constructed. A new arrangement of the contents has been put together, based in part on a proposal by Mike Walton, with modifications from Jonathan, Brian O'Shea and myself. The prototype website can be seen on www.jonathan.sleath.btinternet.co.uk/BBS/bbssml.htm.

Jonathan and Oliver will continue to work on this, with input from Brian and myself, until such time as they feel it is ready to launch. Brian wishes to retire as web site manager and, with the approval of Council, Jonathan will take over as manager with the launch of the new site. We have thought about the possibility of having a moss limerick/haiku 'competition' to advertise the new web site, with the best or possibly all contributions posted on the site. We hope that this will also encourage members to feel that they can participate in contributing to the web site – today a limerick, tomorrow a travelogue?

I hope the Council will approve of these developments, and I also wish to express my thanks to Brian for his work in establishing and running the original web site, and to Jonathan and Oliver for their work on building the new site.

Angela Newton, March 2003

ARTICLES FOR *BULLETIN* 82

Items for inclusion in the next issue of the *Bulletin* should be sent to me at the address below by **19 December 2003**. Wherever possible, material should be provided as word-processing files, either on disk or by e-mail.

Marcus Yeo, Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough, PE1 1JY; e-mail: marcus.yeo@jncc.gov.uk

REPORTS OF LOCAL MEETINGS

CAMBRIDGESHIRE GROUP

Meetings of the Cambridgeshire Group are devoted to recording for the proposed new bryophyte flora of VC 29. We often try to visit a range of habitats in one or more 5-km squares, although sometimes we concentrate on a single, larger site.

The 2002-03 season started at the Ouse Washes on 6 October 2002. Until recent years the Washes, a famous bird reserve, has been bryologically unknown, partly because the extensive tracts of grassland are not the most inviting of habitats, and partly because they are flooded for most of the winter. As we had hoped, this meeting was held before the winter rains, and we covered ground in TL48NE, 58NW and 59SW. *Aphanorhegma patens* was a feature of ditch sides and poached, peaty ground in all three squares, growing on one newly-cleaned ditch bank with tiny, *Riccia*-like rosettes of *Marchantia polymorpha* 5-10 mm in diameter. Bob Finch detected *Amblystegium humile* amongst Water Mint (*Mentha aquatica*) on winter-flooded ground, and Robin Stevenson spotted fruiting *Scleropodium cespitans* on willows on the railway embankment that crosses the Washes.

By the next meeting, on 19 October, the landscape was no longer so dry. We met at Floods Ferry to visit one of the randomly selected arable survey tetrads and adjacent fenland ground in TL39NE and 39SE. The two arable fields we surveyed were on base-rich silt (pH 7.9 and 8.1) and both provided *Microbryum floerkeanum*, accompanied rather incongruously by *Ditrichum cylindricum* at the pH 8.1 site. The owner of the latter field, returning to his farm with a Range Rover full of pheasants after a good morning's shooting, greeted us with benign amusement.

On 3 November we visited Bottisham Hall (TL56SE and 56SW), by kind permission of Mr Jenyns, descendant of the noted 19th century naturalist who lived there in the 1820s and 1830s. As is often the case, the parkland produced a varied list of species without any really notable finds. The final excursion of 2002 was to Steeple Morden, on the chalklands at the southern edge of the county (TL23NE, 24SE and 34SW). *Eurhynchium megapolitanum* was fruiting in the churchyard and then seen in abundance on short, mown trackside turf leading to a chalk pit at Morden Grange. The old, wooded spoil banks of the pit provided some characteristic chalk species, including *Microbryum curvicolle*, *M. floerkeanum*, *M. rectum*, *Seligeria calcarea*, *S. calycina*, *Tortella inflexa* and *Leiocolea turbinata*, as well as frustratingly sterile plants of *Aloina* and *Weissia*.

We started 2003 in deepest fenland on 11 January, a day on which the frost melted just sufficiently to permit bryology. The station yard at Shippea Hill, some farm buildings and a stubble field provided a basic list for TL68SW, the most interesting find being *Riccia fluitans* amongst Least Duckweed (*Lemna minuta*) on the bank of the River Lark. Moving on to 68NW, we at first found it difficult to find anywhere to bryologise and were driven to ask permission to search an asphalt drive and garden (it was grudgingly granted, and we were kept under close observation until we finished by a gentleman who charmingly observed that if we had time for this sort of thing we must be less busy than him). Fortunately, a track led us to Six Acre Plantation, where the abundance of *Eurhynchium praelongum* immediately suggested that the peat was acidified, later confirmed by the presence of swards of *Mnium hornum* and a pH reading of 4.1. Elders on the north side of the Plantation provided *Cryphaea*

heteromalla, *Orthotrichum tenellum*, *Syntrichia laevipila* and *S. papillosa*. We returned to the cars, listening to the calls of wild swans in the nearby fields and satisfied that we had done rather well in what must surely be some of the least productive bryological terrain in Europe.

A private shoot/nature reserve in disused gravel pits at Hauxton, TL45SW, was the venue on 26 January. We failed to refind *Dicranum montanum* and *D. tauricum*, both seen on our last visit to the site in 1977. However, we recorded 58 species, including both *Brachythecium mildeanum* and *B. salebrosum*, and, most remarkably, a 20-metre long colony of *Climacium dendroides* in a goose-grazed sward at the edge of one of the gravel pit lakes. This has previously been recorded in the county as a rare plant of undrained fenland and ancient woodland, never as an obvious recent colonist. The colony was sufficiently vigorous to be first detected by our non-bryological friend Philip Oswald, who was leading the party.

We were lucky to have Oliver Rackham to guide us round Hayley Wood (TL25SE) on 8 February. He led us to the area where the bodies of oaks killed by caterpillar plagues in the 1920s still lie on the ground, their dry, decorticated trunks with attached branches still remarkably intact after 80 years. We refound *Nowellia curvifolia*, discovered on these logs in 1962 and growing with few associates except *Dicranum tauricum* and *Hypnum cupressiforme*. The rotting wood flora was well developed, and other uncommon Cambridgeshire species included *Campylopus flexuosus*, *Tetraphis pellucida* and *Lepidozia reptans*. We paid our respects to the tiny colony of *Lejeunea cavifolia* in the wood, known since 1968 on the base of a single ash tree, and then found all three *Pellia* species on the boulder clay rides.

On 23 February we looked at swampy woodland beside the River Snail at Fordham (TL66NW and 67SW). Bob Ellis and Mark Hill found *Plagiomnium elatum* at only its third extant site in the county, and Kevin Walker spotted *P. undulatum* in fruit. Although we are now accustomed to finding *Syntrichia ruraliformis* in inland habitats, its presence as an epiphyte on ash extended its known habitat range in our area.

Ickleton church (TL44SE) in the southern chalklands of the county was the rendezvous for the next excursion, on 8 March. Mark Hill spotted *Grimmia trichophylla* in quantity on the calcareous coping stones of the boundary wall as we arrived, and *Didymodon nicholsonii* on shaded tarmac in the village. We had lunch in a disused chalk pit on Coploe Hill, a former site for *Thuidium abietinum*. The theory that this species had become extinct in Cambridgeshire, propounded by Mark over lunch, was disproved soon afterwards when Bob Finch found a few stems where we had been sitting! Simon Damant found *Tortula vahliana* around the edge of the pit.

The early spring drought had begun to hinder bryology by 23 March, when we visited Dullingham (TL65NW). With the help of friends from the Norfolk and Suffolk Group, we were able to get a good list from Marmer's Wood, a small ancient wood in which many of the scarcer bryophytes were apparently very uncommon. *Scleropodium cespitans* was found by a nearby pond and *Weissia longifolia* var. *longifolia* in an adjacent stubble field. We finished the day on the wooded section of the Devil's Ditch that runs through this square, ending up with the very respectable total of 85 species.

The final excursion of 2002-03 was to Wicken Fen (TL56NW, 57SE and 57SW) on 5 April, a fortunate choice as by now most sites in the county were very dry. An impressive feature of the fen carr was the frequency of *Orthotrichum pulchellum*, first recorded in VC 29 at Wicken

in 1990 and now thoroughly established here in this habitat. *Frullania tamarisci*, found by Bob Finch as a single patch on a willow trunk, was new to VC 29 (if the unlocalised 18th century records are discounted). Although many of the calcifuge mosses which colonised the fen carr in the 1960s and 1970s are no longer present, we re-found four of the five *Sphagnum* species recorded from the site and added two more: *S. denticulatum*, found by Bob Finch, and *S. russowii*, detected in a mixed tussock with *S. subnitens* by Mark Hill. It was nice to end a productive season on such a high note.

C. D. PRESTON

SOUTH-EAST GROUP

Darwell Reservoir (VC 14), 13 October 2002

This was a joint meeting of the Southern and South-East Groups. The visit was jointly led by Jeff Duckett and Rod Stern, and was timed so that water levels were low enough to expose mud at the edge and base of the reservoir. Formal permission had been obtained from Southern Water for access to the reservoir and surrounding woods although we had to survive a challenge by the conservator of the fishing rights and duly promised not to disturb his fish.

One object of the visit was to re-find *Ephemerum sessile* and we successfully located a small patch of this on the mud of the reservoir bank. However, it soon became apparent that the rich bryoflora we had expected had been overwhelmed by an almost continuous cover of New Zealand Pigmyweed (*Crassula helmsii*). A lengthy search was made over the large area of mud at the base of the reservoir for *Riccia huebeneriana*, but no *Riccias* at all could be found among the masses of *Crassula* covering the entire area.

Other bryophytes of interest on the bank of the reservoir included *Aphanorhegma patens* and a very good specimen of *Pseudephemerum nitidum*, whilst depressions in the path held *Archidium alternifolium*. A small stream feeding the reservoir had *Palustriella commutata* var. *commutata* forming tufa, together with *Eucladium verticillatum*; nearby was *Hookeria lucens*. A puzzling *Pohlia* was thought in the field to be a candidate for *P. lescuriana*. It was finally determined as *P. melanodon*, apparently with tubers attached to its rhizoids, as illustrated in C.C. Pedrotti's *Flora dei Muschi d'Italia*. In the woods were some old elders with *Ulota phyllantha*, *U. crispa*, and three *Orthotrichum* species (*O. lyellii*, *O. diaphanum* and *O. affine*).

A total of 53 mosses and 12 liverworts was seen.

ROY HURR

Hothfield Common and Bog (VC 15), 3 November 2002

The day of the visit was one of meteorological uncertainty and indeed around lunchtime we were treated to a drenching baptism. Nevertheless, 41 mosses and 11 liverworts were found, including one new vice-county record.

Calliergon stramineum and *Campylium stellatum* were found in fair quantity near the edge of the bog, whilst seven Sphagna, including *S. magellanicum*, *S. papillosum* and *S. cuspidatum*, were in the main bog. All of these species are rare in Kent. Among the liverworts were

Aneura pinguis in the bog and *Gymnocolea inflata* in the heathy margin. But the most exciting find, via the sharp eyes of Sylvia Priestley, was a new VC 15 record of *Pallavicinia lyellii*.

The Group are grateful to Jeff Duckett for leading the visit, and for much field identification. One member of the Group, who shall be nameless, also owes him thanks for a rescue after she found herself alone and sinking nearly waist-deep in an unexpectedly soft patch of the woodland! Thanks are also due to Howard Matcham for determining some difficult specimens.

ROY HURR

South Blean Woods Nature Reserve (VC 15), 22 February 2003

This reserve consists of a large expanse of mixed woodland recently purchased by the Kent Wildlife Trust (KWT) at the southern end of 'The Blean', the area of forest to the west and north of Canterbury. Much of The Blean is on London Clay but the area to the south of the A2 (Watling Street) slopes down through Palaeocene deposits to the chalk. Here the more varied pH and topography increases the bryological potential.

We started at the bog in Hunstead Wood, an already established KWT reserve. The weather was just right, even the frost; the Sphagna were frozen hard enough to make walking through the bog an easy task. However, this did mean that we couldn't look for some of the interesting liverworts that might grow amongst the Sphagna, particularly *Cryptothallus mirabilis*, recorded here at one of only three sites in Kent. The familiar species of acid wood and bog were noted. Most notable on the open bramble-covered area on the main bog was *Thuidium tamariscinum*, having a somewhat golden tinge in this environment. The banks of a little 'brook' draining the bog had a selection of liverworts; these could presumably be in danger from proposed earthworks to enhance the bog, but should reappear wherever running water subsequently cuts channels. From the bog we walked across 'Isengardian' pine clearance and precariously through the 'Mordorian' remains of a main pathway, where the machinery had displayed well the local geology (Tolkein references, for those who are familiar).

In adjacent Nickle Wood chestnut coppice gave us mainly the usual leaf cover devoid of bryophytes but with a locally familiar selection of species on the stools – mainly *Hypnum cupressiforme* with some *Dicranum scoparium*. As is usually the case, steeper slopes and pathway cuttings had a good profusion of mosses and liverworts, including *Diplophyllum albicans* and *Leucobryum glaucum* at the eastern edge of their Kentish ranges.

For the rest of our exploration, we followed pathways through Bower and Denstead Woods, which meant that we only saw about a quarter of the new reserve. As is typical for what can be called the 'North-east Kent Oceanic Zone', the woods were virtually devoid of epiphytic bryophytes. Most of the mosses found on trees were multi-habitat species growing up the trunk bases and on fallen trees, as humidity and other factors allowed. Two striking exceptions were a patch of *Frullania dilatata* and a *Ulota* species, found on two adjacent oaks, ironically not inside the reserve area.

MALCOLM WATLING

MINUTES OF THE ANNUAL GENERAL MEETING, EDINBURGH, 2002

Minutes of the Annual General Meeting held at the Royal Botanic Garden, Edinburgh, at 4.30 p.m. on Saturday 14 September 2002.

PRESENT: Dr D.G. Long (President, in the chair) and 34 other members.

1. **APOLOGIES FOR ABSENCE:** Apologies had been received from Dr K.J. Adams, Dr J.W. Bates, Mr R.J. Fisk, Dr D.T. Holyoak, Mr H.W. Matcham, Mr J.B. Mott, Dr M.E. Newton, Mrs J.A. Paton, Mr M. Pool, Mrs C.S. Rieser, Mr G. Smith, Mr A.V. Smith, Mr R. Stevenson, Dr R. Tangney, Mr J.M. Turner and Mr M. Watling.

The President paid tribute to the following members of the British Bryological Society who had died since the last AGM: Dr. H.A. Crum (an Honorary Member of the Society), Prof. J. Miles OBE, Mr W.J. Newman and Prof. W.D. Reese.

On a more pleasant note, the President drew attention to two members of the Society who had received prestigious awards in the past year (see *Bulletin* 79). Mr T.L. Blockeel had been awarded the H.H. Bloomer Award by the Linnean Society as an amateur naturalist who had made an important contribution to biological knowledge, for his contribution to bryology. Mrs J.A. Paton had been awarded the Hattori Prize for 2002 by the International Association of Bryologists in recognition of her publication of *The Liverwort Flora of the British Isles*. The President said that the Society was greatly honoured to have two such awards made to two of its members and offered congratulations to both of them.

2. **MINUTES OF THE MEETING ON 8 SEPTEMBER 2001:** The minutes were approved as a correct record of the meeting and were signed by the President.
3. **MATTERS ARISING:** There were no matters raised from the body of the meeting but the President reported the resignation of three members of Council during the year:
 - Mr J.M. Blackburn had resigned as Treasurer at the beginning of the year as a result of ill health but members were pleased to see that he had fully recovered his health and was in attendance at the meeting.
 - Mr G. Smith had resigned as an Elected Member because of his personal commitments.
 - Mr H.W. Matcham had resigned as Vice-President for personal reasons. This latter resignation had been received too recently for a nomination for a successor to be put to the AGM but it was intended that one would be put to the AGM in 2003.
4. **REPORTS OF OFFICERS FOR 2001:** There were no questions on the reports, which had been published in *Bulletin* 79.

The President thanked Mr Walton for acting as Treasurer during the year and also gave thanks to all of the officers for their work on behalf of the Society during the year.

5. **REPORT FROM COUNCIL:** The President reported on the work of Council throughout the year as follows:

- a) **Mr A.C. Crundwell's library:** During the year the books from the library had been removed from his house in Headley Down and taken to Peterborough where Mr Marcus Yeo kindly agreed to house and catalogue them. This major task of cataloguing was completed very efficiently by Marcus with the help of a colleague. In accordance with Alan's wishes, Oxford University had been given the non-bryological books/journals that they chose. The remainder of the non-bryological books were offered to several book dealers and had now been sold to one of them for £1,500.

The bryological books and journals would be offered to members at discounted prices when a decision had been taken on those that should be incorporated into the BBS library. The Society had also been bequeathed the bryological library of Mr W.J. Newman which will be offered to members with Alan Crundwell's. The income from these bequests will be added to the Bequest Fund.

The President gave thanks to: Mr Rod Stern, Mr Marcus Yeo and his colleague, Mr Tom Blockeel, Dr Giles Clarke, Dr Ken Adams and Mr Mike Walton who had all helped in this mammoth task.

- b) **Dr H.L.K. Whitehouse's stereoscopic images:** The work done by several BBS members in cataloguing and scanning the images had been explained at the last AGM by Mr Tom Blockeel. The President added that he understood that the National Museums & Galleries of Wales would be making them available on the web and hoped to issue them on CD at cost.
- c) **Innovations on the BBS web site:** The President highlighted the work that Dr Angie Newton and Mr Brian O'Shea do each year to update the web site. Since the last AGM, no fewer than 23 new items had been added to the site. These included many items of Society business from *Bulletins* 78 and 79, as well as new innovations, such as a photographic report of the BBS spring meeting on the Isle of Wight incorporating many of the excellent digital images taken by Dr Jonathan Sleath, local BBS meeting reports, the Tropical Bryology Group newsletter, and information on progress of work by members of the TBG on African bryophytes. The web site now offers access to a huge array of material which is not accessible in the *Bulletin* or elsewhere; for example, a catalogue of all previous BBS meetings and copies of the reports of those meetings.
- d) **Bibliographers:** The work of the Bibliographer was now shared by two members at the Natural History Museum: Dr Angie Newton and Mr Len Ellis. The arrangement was working well and some preliminary discussions had been held with the *Bryologist* about the possibility of collaboration on the publication of bryological bibliographies.
- e) **Meetings of the BBS:** Mr Mark Lawley was now well established in office with back-up from others as and when he needed it, and the meetings programme seemed to be operating well. There had been a full programme of meetings over the year and Council offered thanks to the organisers of those meetings:
- to Mr Roy Perry for his excellent organisation of the Cardiff AGM in September 2001 at which the innovation of inviting two guest speakers from overseas had

been introduced. Although it added to the work of the local secretary it had proved to be highly successful and for that reason was being repeated at the current meeting;

- to Mrs Lorna Snow for re-arranging the Isle of Wight meeting in the spring (after the unfortunate cancellation of the same meeting in 2001 because of restrictions arising from the outbreak of Foot and Mouth disease); and
- to Mr Graham Motley for arranging the recent very successful Carmarthen meeting.

The President pointed out that the Meetings Secretary would like to receive offers or suggestions from members about ideas and possible venues for future meetings.

- f) **Conservation and recording matters:** The recent amalgamation of the two committees was working extremely well and Council recorded its great pleasure at this success. Two projects which the committee had been particularly active in promoting would be illustrated by posters at the *Conversazione*: the *Ex Situ* Bryophyte Conservation project based at Kew, and the Arable Bryophyte Survey run directly by the Committee, which will hold a workshop later this year. Council was grateful to all of the BBS members who had helped to make such a success of the change.
- g) **Membership list:** Mr Mark Pool had produced an up-to-date list of members for which Council was extremely grateful. Council had agreed that, subject to the agreement of the Executive at the time, a new Membership List will be issued each time that the changes to the list total 200.

Dr Longton asked whether or not the list could be reproduced on the BBS web site. Mr Walton said that it was not possible under the terms of the Society's Data Protection Act registration. Dr Stanley asked that future copies of the list include the month of production as well as the year.

- h) **Popularising bryology:** At the spring meeting in March a proposal had been put to Council from the Publications Committee outlining some planned publications (illustrations, a field guide and a travelogue) to attempt to popularise bryophytes in Britain and as a help to those members who need assistance in 'getting to grips' with bryology. The first stage was to produce a travelogue – a regional guide to bryophytes of interesting areas of the country. With some reservations on confidentiality and conservation at sensitive sites, Council supported the plan, and a notice had been placed in the recent *Bulletin* seeking contributors to the project. It was planned that contributions would be placed initially on the BBS web site.
- i) **Plantlife 'County Flowers':** The President had received a request from Plantlife asking the Society to support their 'County Flowers' project. This had been supported by Council and a notice had been placed in the recent *Bulletin*. A link had been established between the BBS web site and the Plantlife web site enabling BBS members to vote on-line.
- j) **Gift Aid:** The President asked those members who had not yet returned their Gift Aid mandate to do so as soon as possible.

- k) **New members:** The Executive wished to attract new members to serve on Council and on the various Committees (listed in *Bulletin 78*). Members who wanted to become involved in helping to run the Society were urged to contact the Secretary.
6. **ELECTION OF OFFICERS:** Council nominated Dr D.S. Rycroft for the office of Treasurer and the present holders for the remaining offices that were subject to re-election, as follows: Mr M.M. Yeo (Bulletin Editor), Dr J.W. Bates (Journal Editor), Mr R.J. Fisk (Reading Circle Secretary), Mr G.P. Rothero (Recorder for Mosses) and Dr A.E. Newton (Web Site Editor). In accordance with the rules of the Society, Dr Bates had been nominated by the President and the Vice-President as his further re-election would take his tenure of the office beyond ten years. The Secretary had received no other nominations and the foregoing officers were duly elected.
7. **DELETION OF THE OFFICE OF CURATOR:** As a result of the transfer of the BBS herbarium to the ownership of the National Museums & Galleries of Wales, the office of Curator had become redundant and was accordingly deleted.
8. **AMENDMENTS TO THE SOCIETY'S RULES:** The meeting considered a report that had been published in *Bulletin 79*, and approved the following amendments to Rules 5(a), 5(b) and 5(c) (the amendments being shown in *italics*):
- 5(a) The officers of the Society shall be President, Vice-President, General Secretary, Treasurer, Editor or Editors, Librarian and such others as the Society may appoint. *The President and the Vice-President shall not be debarred from simultaneously holding one of the other offices of the Society, apart from those of General Secretary or Treasurer.*
- 5(b) The management of the Society shall be in the hands of a Council which shall consist of the officers, six Elected Members, and the immediate Past-President who shall remain a member of the Council for two years after he ceases to hold office. *The immediate Past-President may also hold one of the other offices of the Society, apart from those of General Secretary or Treasurer.* The Council shall meet at least once each year but its business may also be conducted, at the discretion of the President, by correspondence. The Council shall have power to co-opt.
- 5(d) The six Elected Members shall ordinarily serve for *three years*, two being elected at each Annual General Meeting. Vacancies occurring among the Elected Members shall be filled at the next Annual General Meeting for the remainder of the unexpired term. Elected Members *whose initial appointment was for, and who have served*, the full term shall not be eligible for re-election in this capacity for *three years* after their term expires.

Exceptionally, rule 5(d) would be implemented by the election of two Elected Members for a term of two years and one for a term of three years at the AGM in 2002 (two serving for 2003-2004 and one for 2003-2005) and then one Elected Member for a term of two years and two for a term of three years at the AGM in 2003 (one serving for 2004-2005 and two for 2004-2006). Thereafter, commencing with the AGM in 2004, two Elected Members would be elected for a term of three years each at each AGM.

For the avoidance of doubt, the terms of the amended clause 5(d) would permit an Elected Member to serve for a maximum period of five consecutive years (two following election for the unexpired term of a resigning member and an additional three following re-election immediately afterwards).

9. **ELECTION OF ELECTED MEMBERS OF COUNCIL:** Following the change to the rules, Council nominated Mr J.M. Turner as an Elected Member for a term of three years and Mr S. Bosanquet and Prof. J.G. Duckett as Elected Members, each for a term of two years. The Secretary had received no other nominations and the foregoing were duly elected.
10. **ELECTION OF AN HONORARY MEMBER:** Council submitted the name of Mr A.R. Perry for election as an Honorary Member of the Society.

Mr Perry had joined the BBS in 1957 and had made an important contribution to bryology in the British Isles since that time. He had offered his editorial skills to many bryologists, most recently offering his services to the Tropical Bryology Group to speed up the co-ordination and editing of the Eustace Jones African Liverwort Flora.

Few in recent decades could rival his contribution to the BBS as a referee and a long-standing member of Council, serving as Assistant Editor of the *Transactions* under Alan Crundwell, as General Secretary, and, in 1996 and 1997, as President. He had also edited the Society's *Bulletin* for 25 years during which time he changed it from a flimsy proto-Bulletin into a model of what such a publication should be. As Curator he had played a major role in securing the safe future of the BBS herbarium in the National Museums & Galleries of Wales.

Many in the BBS would be grateful for some of the BBS meetings that he had organised: no less than four at Cardiff over the years (including the 2001 AGM) and also a number of meetings overseas, notably the 1989 spring meeting in the Algarve and the Tenerife meeting in 2001.

Mr Perry was duly elected with a show of hands from those present at the meeting.

Mr Perry said that he very much appreciated the honour and offered his continued service to the Society for the future.

11. **PLACE AND DATE OF THE NEXT ANNUAL GENERAL MEETING:** The next Annual General Meeting will be held on 6 September 2003, at Queen Mary College, London University.
12. **OTHER FUTURE MEETINGS:** Mr Lawley said that the next meeting would be the arable bryophytes workshop at Preston Montford on 16-17 November. Mr Mark Hill said that 17 members had booked places but that 30 participants could be accommodated. He asked that members who intended to book should advise him as soon as possible.

The spring field meeting would take place in South Norfolk / North Suffolk from 10-15 April 2003 with Mr Richard Fisk acting as local secretary.

The first week of the summer field meeting would be based at the Kindrogan Field Centre in Perthshire, on 5-12 July. He stressed that the dates that were printed in *Bulletin 79* were incorrect. It was intended that the first three days of the meeting would be run as a *Schistidium* workshop under the guidance of Dr Hans Blom. He hoped that a programme could be arranged for a second week and asked for suggestions.

The spring field meeting for 2004 would be located in Worcestershire with Mrs Tessa Carrick and Mr Harry Green acting as joint local secretaries.

Finally, Mark asked for ideas and suggestions for future meetings.

Mr Perry asked whether or not any overseas meetings were scheduled. Mr Lawley said that several members had made suggestions but that he did not have the contacts to enable him to organise them. He suggested that, perhaps, members of the Tropical Bryology Group might consider organising an overseas meeting.

Dr Stanley said that meetings which used to be held in July/August had latterly been moved forward to June/July and asked if there was any particular reason for the change. Mr Lawley replied that it was not as a result of any formal change in policy but was to fit in with the other commitments of local secretaries and, in the case of the 2003 summer meeting, to fit in with the constraints on the Field Centre.

Dr Stanley then asked whether there was any policy on the relative frequency with which meetings were held in the various areas of the British Isles. Dr Long replied that, whilst there was no formal policy, the practice was to try to arrange one meeting in Ireland and one in Scotland for every two that were held in England and Wales.

13. ANY OTHER BUSINESS:

- a) **Awards from the Bequest Fund:** In reply to a question from Dr Stanley, Mr Walton drew members' attention to the articles in the last two *Bulletins* which called for more applications from members for funding for projects and outlining the basis on which awards would be made. Prof. Duckett emphasised the fact that the Bequest Committee would welcome more applications and said that he was pleased with the results of recent funding.

Mr O'Shea then thanked Dr Long and his assistants for the work that they had put into organising an excellent programme. Dr Long replied that it had been a great pleasure to hold it in Edinburgh and paid tribute to the work of his assistants Ms Liz Kungu, Mrs Sally Rae and Ms Daniela Schill.

There being no other business, the meeting was drawn to a close at 5.30 p.m.

M.A. Walton, General Secretary, September 2002

MINUTES OF THE SPECIAL GENERAL MEETING, DICKLEBURGH, 2003

Minutes of a Special General Meeting held at the Church Rooms, Dickleburgh, nr Diss, Norfolk, at 7.45 p.m. on Saturday 12 April 2003.

PRESENT: Dr D.G. Long (President, in the chair) and 20 other members.

1. **APOLOGIES FOR ABSENCE:** Apologies had been received from Dr J.W. Bates, Mr T.H. Blackstock, Dr D.T. Holyoak, Dr M.E. Newton and Mr G.P. Rothero.
2. **APPROVAL OF THE RULES OF THE SOCIETY:** The Secretary explained the reason for the meeting and, following a proposal from Mr T.L. Blockeel, which was seconded by Mr J.B. Mott, the Rules of the British Bryological Society as set out on pages 45-48 of *Bulletin* **80** were approved unanimously.

The meeting then closed at 7.55 p.m.

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.

ANNUAL GENERAL MEETING AND BRYOLOGICAL SYMPOSIUM 2003, Queen Mary, University of London, 5-7 September

Local secretary: Professor J.G. Duckett, School of Biological Sciences, Queen Mary, University of London, Mile End Rd, London, E1 4NS; tel: 0207 882 3294; fax: 0208 983 0973; e-mail: j.g.duckett@qmul.ac.uk.

The weekend is planned as follows:

- 5 September (Friday): arrive at QMUL (Halls of Residence on site at Mile End); committee meetings and Council meeting (in the School of Biological Sciences)
- 6 September (Saturday): Bryological Symposium followed by the AGM in the School of Biological Sciences; dinner on site followed by the conversazione and an opportunity to view cultures of esoteric bryophytes
- 7 September (Sunday): field excursion; a minibus will be available to return members without their own transport to London main line railway stations

The Symposium will include the following speakers:

- Prof. Roberto Ligrone (University of Caserta, Italy) – *The structure and function of water-conducting elements in bryophytes*

- Zoe Popper (University of Edinburgh) – *Carbohydrate biochemistry of bryophyte cell walls*
- Silvia Pressel (QMUL) – *Conservation biology of rare and endangered bryophytes*
- Dr Michael Proctor (Exeter University) – *Dehydration and rehydration: a reconciliation of cell biology and physiology*
- Prof. Jeff Duckett (QMUL) – *The Cornish challenges: cytology, culture and conservation*

The ANNUAL GENERAL MEETING will be held at 4.30 p.m. on Saturday 6 September 2003 at the School of Biological Sciences, Queen Mary, University of London.

AGENDA

1. Apologies for absence
2. Minutes of the last AGM, Edinburgh, 2002 (see pp 18-23 of this *Bulletin*)
3. Matters arising
4. Minutes of the Special General Meeting, Dickleburgh, 2003 (see p. 24 of this *Bulletin*)
5. Reports of Officers for 2002 (see pp 4-13 of this *Bulletin*)
6. Report from Council
7. Election of Officers (see p. 27 of this *Bulletin*)
 - a) Vice-President (for the remainder of 2003)
 - b) Vice-President (for 2004-2005)
 - c) General Secretary
 - d) Conservation Officer
 - e) Librarian
 - f) Meetings Secretary
 - g) Membership Secretary
 - h) Recorder for Hepatics
 - i) Recording Secretary
8. Election of Elected Members of Council (see p. 27 of this *Bulletin*)
9. To approve the changes to the Society's rules, as set out on pp 28-31 of this *Bulletin*
10. Place and date of the next Annual General Meeting
11. Other future meetings
12. Any other business

SPRING FIELD MEETING 2004, Worcestershire, 1-7 April

Local secretary: Tessa Carrick, Nuthatch, Moors Farm, Lakeside Court, Upton Warren, Bromsgrove, B61 7EY; tel: 01527 873135; e-mail: tessa@carrickt.fsnet.co.uk.

Accommodation will be in a conference centre in Malvern Link or in hotels or bed and breakfasts in the Malvern area. For up-to-date information on accommodation e-mail the local secretary. **It is advised that bookings are made reasonably early** since Malvern is popular as a spring holiday area.

Worcestershire is an under-recorded county, with attractive scenery and a wide range of habitats. Visits will be made to the Malvern Hills, Bredon Hill with its limestone outcrops, the Wyre Forest, Wissetts Wood and other venues along the Teme Valley with its associated dingle woodlands and tufa streams, and arable sites (*Sphaerocarpos texanus* was recently found on sandy soil in a rhubarb field). Further information will be available from the local secretary nearer the time.

FIELD MEETING ON THE ISLAND OF RUM, 26 June - 3 July 2004

Accommodation for up to 12 people will be provided in Kinloch Castle in two- or four-bedded rooms, paid for by Scottish Natural Heritage (SNH). There is a restaurant in the Castle and full board is available (costs at the moment are £3-£5 for breakfast and £8-£14 for an evening meal) but self-catering is also possible. The ferry to Rum goes from Mallaig and the cost is £7.50 each way. Accommodation on the island is very limited and I would like to be in a position to give SNH reasonably firm numbers by January 2004. I would be happy to see more than 12 bryologists but they would need to arrange their own accommodation.

Rum is the largest of the Small Isles off the west coast of Scotland, south of the island of Skye, and making up, with Skye, VC 104. It is a National Nature Reserve with impressive mountains, the 'Rum Cuillins' up to 812 m, wild coast and complex geology. It is a stunning place. There is an impressive checklist of bryophytes produced by David Long containing some 426 taxa, but we have only limited knowledge of the frequency and distribution of these plants. There are a number of interesting species, including *Bryoerythrophyllum caledonicum*, *Myurium hochstetteri*, *Campylopus shawii* and *C. setifolius*, and also some records that need checking – *Callialaria curvicaulis* and *Pseudoleskea incurvata* come to mind. The purpose of the meeting is to produce the bulk of the information that will go towards some kind of bryophyte flora for the island and so it is my intention that the group will split up to cover the ground.

Although there are a few rough tracks on the island and we will have some Land Rover support, the going is generally rough and there will be a lot of walking, much of it on pathless terrain. In the nature of these things, much of the bryophyte interest is on craggy ground and some of the best sites are very steep indeed. It is proposed that some hardy souls will spend a night or two in bothies to enable recording in the most remote areas. I will provide much more information before the meeting.

To express interest, contact Gordon Rothero, Stronlonag, Glenmassan, Dunoon, Argyll, PA23 8RA (tel: 01369 706281 or preferably e-mail: gprothero@aol.com).

SUMMER FIELD MEETING 2004, North Aberdeenshire, 4-10 July

Local secretary: Mark Lawley, 12A Castleview Terrace, Ludlow, SY8 2NG; e-mail: m.lawley@virgin.net.

This meeting will take place in North Aberdeenshire (VC 93) immediately after the week on Rum, so that members who wish to attend both meetings can do so without having to travel unnecessarily. VC 93 is one of the bryologically least recorded regions on the British mainland, so who knows what awaits discovery. Further details will appear in the next *Bulletin*.

ANNUAL GENERAL MEETING AND BRYOLOGICAL SYMPOSIUM 2004, Preston Montford, 8-10 October

This meeting will be organised by Mark Hill, Mark Lawley and Chris Preston. The theme will be bryological recording. The meeting will have a different format to the usual one, with two half-days in the lecture room and two half-days in the field. Of course there will be the usual committee meetings. The AGM will be held before lunch on the Saturday. On Saturday

morning we shall concentrate on *recording bryological change*, and in the afternoon we shall venture into the field to visit a site that has changed greatly. In the evening, there will be a conversation, in which *recording software* will be exhibited. First thing on Sunday morning, there will be talks on the theme of *bryological recording schemes*. This will be followed by a workshop on *networking, data flow and the role of county recorders*. Then we will go into the field again, visiting an arable farm that has been managed for 30 years according to the principles of organic farming, before dispersing.

ELECTION OF OFFICERS AND ELECTED MEMBERS OF COUNCIL

The terms of seven Officers, the General Secretary, the Conservation Officer, the Librarian, the Meetings Secretary, the Membership Secretary, the Recorder for Hepatics, and the Recording Secretary, expire at the end of 2003. All of the present incumbents are eligible for re-election.

Following the resignation of Mr H.W. Matcham in 2002, the office of Vice-President is vacant and it is necessary to elect a replacement, who will take up the office immediately and who will become President on 1 January 2004. It is also necessary to elect a further member who will take up the office of Vice-President on 1 January 2004 and who will become President on 1 January 2006.

Two Elected Members of Council will retire at the end of 2003 and neither Mr J. Graham nor Mr J.B. Mott is eligible for re-election in this capacity until two years have elapsed. There is also a vacancy for a third Elected Member, following the resignation of Mr G. Smith in 2002. In accordance with the rules that were approved at the AGM in 2002, one of the three new Elected Members will be elected for a period of two years and the other two will be elected for a period of three years each.

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 **9 August 2003**. 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 London on 6 September 2003.

MOSSSES AND LIVERWORTS OF TOWN AND GARDEN

Sean Edwards has written a very handy booklet (*Mosses and Liverworts of Town and Garden*) to help in the identification of some of the commoner bryophytes that one is likely to come across in urban environments. Forty-six species are illustrated, with details about where to find them, what they look like, and how to identify them with a hand lens.

The booklet prints onto four sides of A4 paper, and is available for downloading from the BBS website (www.britishbryologicalsociety.org.uk).

BRITISH BRYOLOGICAL SOCIETY: AMENDMENTS TO THE SOCIETY'S RULES

Following the approval of the Society's rules at the Special General Meeting held on 12 April 2003 (which have now been accepted by the Charity Commission), Council has proposed a redraft as set out on pages 28-31 of this *Bulletin*. All changes are indicated by underlining or, in the case of paragraph 5(c), by the scoring through of a deleted section.

Much of the redrafting is for consistency and to remove resultant potential ambiguities (e.g. capitalisation of Elected Member, Honorary Member, etc, and consistent reference to Annual General Meeting and Special General Meeting in full rather than constructions such as 'Annual or Special Meetings'), to correct typing errors, and to make the rules gender-neutral. However there are some significant changes, as follows:

- The change of date in 4(b) to 31 March to reflect the fact that the *Journal of Bryology* is now a quarterly publication.
- The deletion of the reference to the Curator and of the last two sentences in 5(c).
- A substantial redrafting of clause 6 which, when the Executive was recently considering authorising an item of expenditure, proved to be ambiguous.
- The introduction of a new paragraph 7(c) and the renumbering of the following sub-paragraph to ensure that a President or a Vice-President who also holds another office does not have two votes on the basis of his/her two offices.

Members are asked to approve the redrafted rules of the British Bryological Society.

M.A. Walton, May 2003

RULES OF THE BRITISH BRYOLOGICAL SOCIETY

1. Name

The Society shall be called THE BRITISH BRYOLOGICAL SOCIETY.

2. Objects

- (a) To promote and advance all branches of bryology throughout the world and especially in relation to bryophytes of the British Isles.
- (b) To facilitate the exchange of information among bryologists by organising field meetings, conferences, lectures and exhibitions, publishing the results of bryological study and research, maintaining a library, and other appropriate means.
- (c) To promote in every way possible the conservation of bryophytes.

3. Membership

The Society shall consist of Honorary Members, Ordinary Members, Senior Members, Junior Members, Student Members and Family Members.

- (a) Honorary Members shall be bryologists who have rendered outstanding service either to bryology or to the Society. They shall be nominated by the Council and elected at an Annual General Meeting. They shall pay no subscription but shall have the same privileges as Ordinary Members.
- (b) Ordinary Membership shall be open to any individual with an interest in bryology. Ordinary Members shall be admitted on payment of their first annual subscription. They shall be entitled to vote at meetings and to receive the *Journal of Bryology* and the *Bulletin of the British Bryological Society*.
- (c) Senior Members shall be Ordinary Members who have been members of the Society for forty or more years and who opt to pay a reduced annual subscription. They shall enjoy the same privileges as Ordinary Members.
- (d) Junior Members shall be members under the age of 21. They shall pay a reduced annual subscription and enjoy the same privileges as Ordinary Members.
- (e) Student Members shall be members who are full-time students, irrespective of age. They shall pay a reduced annual subscription and enjoy the same privileges as Ordinary Members.
- (f) Family Members shall be members of the family of, and resident with, an Ordinary Member or an Honorary Member; they shall pay a nominal annual subscription and enjoy the same privileges as Ordinary Members except that they shall not be entitled to receive the Society's publications.
- (g) Council may terminate the membership of any member whose activities are considered to bring the Society into disrepute or be prejudicial to its objects.

4. Subscriptions

- (a) The annual subscriptions shall be as determined from time to time at Annual General Meetings or at Special General Meetings of the Society. Members shall be informed of any proposal to alter the annual subscriptions at least four weeks before the meeting, and any changes shall require the agreement of at least 60% of those voting.
- (b) The annual subscription is due in advance on 1 January in each year. Members who have not paid their subscription by 31 March shall not be entitled to receive the Society's publications until the subscription is paid. Any member whose subscription is more than one year in arrears shall be suspended unless the Council shall decide otherwise.

5. Management of the Society

- (a) The officers of the Society shall be President, Vice-President, General Secretary, Treasurer, Editor or Editors, Librarian and such others as the Society may appoint. The President and the Vice-President shall not be debarred from simultaneously holding one of the other offices of the Society, apart from those of General Secretary or Treasurer.
- (b) The management of the Society shall be in the hands of a Council which shall consist of the officers, six Elected Members, and the immediate Past-President who shall remain a member of the Council for two years after he or she ceases to hold office. The immediate Past-President may also hold one of the other offices of the Society, apart from those of General Secretary or Treasurer. The Council shall meet at least once each year but its business may also be conducted, at the discretion of the President, by correspondence. The Council shall have power to co-opt.

- (c) The officers shall be elected at an Annual General Meeting for a term of two years dating from 1 January following the meeting and shall be eligible for re-election, except that the Vice-President shall automatically succeed the President. Officers shall be eligible for election to another office immediately after retiring from an office but retiring officers shall not be eligible for election as Elected Members until after an interval of two years. Vacancies occurring among the officers shall be filled at the next Annual General Meeting for a two-year term. With the exception of the ~~Curator and Librarian~~, officers of the BBS shall have a normal limit of tenure of 10 years. Officers who have served for 10 years or more can be re-elected, but only if proposed from the Chair and seconded by the Vice-President or ~~a Past-President~~. ~~For the purposes of this resolution, officers already serving in 1989 shall be deemed to begin their period of office on 1 January 1990. Thus the rule will have no effect until the year 2000.~~
- (d) The six Elected Members shall ordinarily serve for three years, two being elected at each Annual General Meeting. Vacancies occurring among the Elected Members shall be filled at the next Annual General Meeting for the remainder of the unexpired term. Elected Members whose initial appointment was for, and who have served, the full term shall not be eligible for re-election in this capacity for three years after their term expires.
- (e) Any member of the Society may propose members for election as officers or Elected Members of Council. Such proposals shall be made to the General Secretary at least four weeks before the Annual General Meeting. The Council may also make nominations at any time before the Annual General Meeting.
- (f) An Executive Committee comprising the President, Vice-President, General Secretary and Treasurer shall have power to act on urgent matters arising between Council meetings. The Executive Committee shall report its actions to Council at the earliest opportunity.
- (g) The Council may appoint from its own body, with or without the addition of other members, such other committees as may be needed. The Council may also appoint assistants to any officer; such assistants shall be entitled to deputise for the respective officers at meetings.
- (h) All Council Members shall be Trustees of the Society within the meaning of the Charities Act 1993.

6. Financial Matters

- (a) The powers of Council, under the terms of 5(b) above, to incur expenditure on behalf of the Society, shall be consistent with their powers and duties as trustees, subject to any item of expenditure in excess of an amount equal to 100 times the annual subscription for an Ordinary Member first being considered as an agenda item.
- (b) The powers of the Executive, under the terms of 5(f) above, shall be limited in financial matters to expenditure of an amount equal to 50 times the annual subscription for an Ordinary Member on any one issue where the expenditure under consideration is not incurred on normal Society business.
- (c) Members who wish to propose expenditure in excess of an amount equal to 50 times the annual subscription for an Ordinary Member at an Annual General Meeting must give written details of the proposal to the General Secretary at least eight weeks before the meeting so that the details can be included with the agenda for the meeting. For clarification, this will not preclude members from putting such proposals to the General Secretary for consideration by Council in the normal way.

7. Meetings

- (a) An Annual General Meeting and at least one field meeting shall be held each year. Other meetings may also be held at the discretion of the Council. The places and times of such meetings shall be decided, as far as possible, at a previous Annual General Meeting.
- (b) The President shall normally chair all meetings of the Society or its Council. In the absence of the President, meetings shall be chaired by the Vice-President, General Secretary or Treasurer in that order of precedence. The procedure and order of business shall be decided by the officer who is chairing the meeting who shall have a casting vote.
- (c) Subject only to 7(b) above, no member of Council shall have more than one vote at Council meetings irrespective of whether or not that person holds two offices simultaneously (see 5(a) and 5(b) above).
- (d) Notice of Annual General Meetings, of Special General Meetings, and of Council Meetings, shall be sent to all members who are eligible to attend at least four weeks in advance of the meeting. Ten eligible members shall constitute a quorum at Special General Meetings or at Council meetings. A Special General Meeting may be called at any time at the discretion of Council, or at the written request of any 50 members.

8. Publications

- (a) The *Journal of Bryology* and the *Bulletin of the British Bryological Society* are the official organs of the Society and shall each be published at least once a year. They shall include the results of original research, reviews, information on the biology, systematics and distribution of bryophytes, an official record of the activities of the Society and such other matter as will, in the opinion of the Editor or Editors, promote the Society's objects. The Editors shall be responsible to Council. The publications shall be on sale to non-members, and to libraries and other institutions, at such prices as the Council shall determine, unless the Council delegates this power in respect of the *Journal of Bryology* to the publisher.
- (b) The Society may publish such other publications as the Council may from time to time determine.

9. Alteration of Rules

- (a) Changes in these Rules may be made only at an Annual General Meeting or at a Special General Meeting. No alterations, variations or additions shall be made to the Rules which will make the objects of the Society not exclusively charitable or the funds and assets of the Society applicable otherwise than for exclusively charitable purposes.
- (b) Proposals for changing the Rules must be submitted to the General Secretary in writing not less than eight weeks before the meeting. The General Secretary shall send to all members of the Society notice of such proposed changes at least four weeks before the meeting. Changes in the Rules require the agreement of at least 60% of those voting.

September 2003

BBS LIBRARY SALES AND SERVICE, 2003

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 μ 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 2, 4	£2.40 each; parts 1, 3, 5 out of print
Vol. 2: parts 1-3	£3.00 each; part 4 out of print
Vol. 3: parts 1-5	£2.40 each; £12.00 per volume
Vol. 4: part 3	£2.40 each; parts 1, 2, 4 out of print
Vol. 5: parts 3, 4	£3.00 each; parts 1, 2 out of print
Vol. 6: parts 1-2	£6.00 each; £12.00 per volume; ends series of <i>Transactions</i>
Vol. 7: parts 2, 4	£5.00 each; parts 1, 3 out of print; renamed <i>Journal of Bryology</i>
Vol. 8: parts 1, 2, 4	£5.00 each; part 3 out of print
Vol. 9: parts 1, 3, 4	£5.00 each; part 2 out of print
Vol. 10: parts 1-4	£8.00 each; £32.00 per volume
Vol. 11: parts 1-4	£10.00 each; £40.00 per volume
Vol. 12: parts 1-3	£11.50 each; part 4 out of print
Vol. 13: parts 2, 4	£15.50 each; parts 1, 3 out of print
Vol. 14: part 3	£18.00; parts 1, 2, 4 out of print
Vol. 15: parts 3, 4	£22.50 each; parts 1, 2 out of print
Vol. 16: parts 1, 2, 4	£29.75 each; part 3 out of print
Vol. 17: parts 1, 2, 4	£39.50 each; part 3 out of print
Vol. 18: parts 1, 2, 4	£42.25 each; part 3 out of print
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> , 2 nd edition.	£3.50

Census Catalogues

Duncan JB. 1926. <i>Census catalogue of British mosses</i> , 2 nd edition.	20p
Sherrin WR. 1946. <i>Census catalogue of British Sphagna</i> .	out of print
Warburg EF. 1963. <i>Census catalogue of British mosses</i> , 3 rd edition.	20p
Paton JA. 1966. <i>Census catalogue of British hepatics</i> , 4 th edition.	out of print
Corley MFV, Hill MO. 1981. <i>Distribution of bryophytes in the British Isles: a census catalogue of their occurrence in vice-counties</i> .	out of print
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 et al., eds. 1988. <i>Bryology: modern research and the ways forward</i> .	£5.50
Pearman MA. 1979. <i>A short German-English bryological glossary</i> .	50p
Perry AR. 1992. <i>Mosses and liverworts of woodland</i> , 41 pp.	£4.00
BBS tie, claret with single BBS logo	£4.95
Swift x20 handlens and case	£20.00
Patterson no 2 stainless steel forceps	no longer available
Idealtek no 3 stainless steel forceps	£7.25
BBS car stickers	£1.00 & SAE

PLEASE DO NOT SEND PAYMENT WITH ORDERS. Customers will be invoiced for the correct amount including postage and packing. A legibly printed address label would be appreciated. All the above are available from the BBS librarian:

Kenneth J. Adams, Department of Life Sciences, University of East London, Stratford Campus, Romford Road, London, E15 4LZ, UK.

REFEREES (JULY 2003)

The refereeing service is intended to provide assistance to members who have genuine difficulty in naming their collections. **It is not intended as a 'free-for-all' identification facility**, least of all for bulk collections. Please therefore respect the following guidelines when submitting material.

- If possible, avoid sending large quantities at any one time. Do not send material if you are not prepared to examine it yourself in advance.
- Please ensure that fragile specimens are adequately protected in the post. This applies particularly to material with lumps of soil attached. It is dispiriting to open a packet and find nothing but a pile of dust inside! Small boxes or tins are ideal for protection from crushing.
- Please label all packets clearly with full collection details, including habitat, locality, altitude and at least a 10-km grid reference.
- Always enclose a stamped addressed envelope (or label), even if material is sent to universities or institutions. Otherwise you may not receive a reply.

The General Referee will help beginners who are having difficulty in placing their material in a genus. If you encounter any other problems send it to the appropriate Recorder: Mr Tim Blackstock for hepatics (Countryside Council for Wales, Plas Penrhos, Ffordd Penrhos, Bangor, Gwynedd, LL57 2LQ) or Mr Gordon Rothero for mosses (Stronlonag, Glenmassan, By Dunoon, Argyll, PA23 8RA).

The numbers below refer to genera in *A Check-list and Census Catalogue of British and Irish Bryophytes* by T.L. Blockeel & D.G. Long (1998).

General referee

H.W. Matcham, 21 Temple Bar, Strettington, near Chichester, W Sussex, PO18 0LB.

Hepatic referees

- 1, **64-69, 75-82:** Dr M.E. Newton, c/o Department of Botany, Liverpool Museum, William Brown Street, Liverpool, L3 8EN. (All mail to be marked 'Private'.)
2-5, **9, 11-17, 52:** T.H. Blackstock, Countryside Council for Wales, Plas Penrhos, Ffordd Penrhos, Bangor, Gwynedd, LL57 2LQ.
6-8, **10, 18, 19, 32, 36-38, 50, 51, 53, 83-86:** D.G. Long, Royal Botanic Garden, Inverleith Row, Edinburgh, EH3 5LR.
20-29, **39, 45, 46:** M.F.V. Corley, Pucketty Farm Cottage, Faringdon, Oxfordshire, SN7 8JP.
30, **31, 33-35, 47-49, 70-74:** G.P. Rothero, Stronlonag, Glenmassan, By Dunoon, Argyll, PA23 8RA.
40-44, **54-63:** N.G. Hodgetts, 55 Norton Street, Grantham, Lincs, NG31 6BX.

Moss referees

- 1-10, **156-160:** Dr M.O. Hill, CEH Monks Wood, Abbots Ripton, Huntingdon, Cambs, PE28 2LS.
11-33: G.P. Rothero, Stronlonag, Glenmassan, By Dunoon, Argyll, PA23 8RA.

34, 35, 67-70, 187-195: Dr A.J.E. Smith, 5 Queens Gardens, Craig-y-Don, Llandudno, Conwy, LL30 1RU.
36, 71-89, 104-111: N.G. Hodgetts, 55 Norton Street, Grantham, Lincs, NG31 6BX.
37-66: Dr D.F. Chamberlain, Royal Botanic Garden, Inverleith Row, Edinburgh, EH3 5LR.
90-98, 112, 175-186: Dr D.T. Holyoak, 8 Edward Street, Tuckingmill, Camborne, Cornwall, TR14 8PA.
99-103: A. Orange, Department of Biodiversity & Systematic Biology, National Museum & Gallery Cardiff, Cathays Park, Cardiff, CF1 3NP.
113-146: R.D. Porley, English Nature, Foxhold House, Crookham Common, Thatcham, Berkshire, RG15 8EL.
147-155, 161-174: T.L. Blockeel, 9 Ashfurlong Close, Dore, Sheffield, S17 3NN.

RARE AND INTERESTING BRYOPHYTES IN BRITAIN AND IRELAND: A NEW FEATURE FOR THE *BULLETIN*

Under the auspices of the BBS Recording Committee, a new feature is to be started in the BBS *Bulletin*. The purpose of this is to provide current awareness of interesting finds, and to provide a vehicle for odd records that cannot be recorded under the current vice-county recording schemes. It will be run in close collaboration with the Threatened Bryophyte Database project (see *Bulletin* **80**: 52-59).

The definition of an 'interesting record' has not yet been decided, but is likely to include the following:

- a new site for a nationally rare or scarce species;
- a status report for a Red Data Book species at a known site;
- fruiting material of a rarely fruiting species;
- a second or occasionally a third record for a county of a regionally uncommon species;
- a sudden flush of records of a species that has previously been overlooked or which may have increased.

Further details of this new feature will be included in the next *Bulletin*.

Mark Hill, CEH Monks Wood, Abbots Ripton, Huntingdon, Cambs, PE28 2LS; e-mail: moh@ceh.ac.uk.

BBS TRAVELOGUE

Contributions to the BBS travelogue (see *Bulletins* **79**: 32 and **80**: 50) have started coming in. Please send me yours before the end of 2003 in order to qualify for a complementary hard copy of all contributions received by then. Contributions will be published on the Society's web site, so that authors can add to and amend their text as new information becomes available.

MARK LAWLEY

BBS PHOTOGRAPHIC ARCHIVE

The Society's archive currently contains photographs of 184 bryologists (often several different ones for an individual), but some of these are poor and/or unrepresentative. There are also more than 280 group photographs, mainly of BBS field meetings. There has been considerable interest in the collection over the past few years to judge from the numerous enquiries and loans. Unfortunately, I have only been able to satisfy about 50% of the requests. It is clear that this is an important resource for the Society, particularly for those involved in biographical, historical and county flora studies.

Members are strongly urged to contribute photographs (b/w or coloured prints) of themselves and/or other bryologists to the archive, as well as photographs of Society field meetings (in particular those held in 1959, 1960, 1961, 1962, 1963, 1965, 1966, 1968, 1969, 1970, 1973, 1976, 1977, 1978, 1984, 1985, 1999, 2000 and 2001, which are currently lacking).

All photographs should be accompanied by the name(s) of the person(s) portrayed, and, where possible, by the date when taken (and location for field meetings and events), and the name of the photographer. All donations posted to the Photograph Archivist at the address below will be duly acknowledged. Enquiries (including loans) are also welcome.

Professor Mark Seaward, Department of Environmental Science, University of Bradford, Bradford, BD7 1DP; e-mail: m.r.d.seaward@bradford.ac.uk; tel: 01274 234212.

BBS WEB SITE REBUILT

After nine years of continual growth, the BBS web site has been rebuilt by Jonathan Sleath, ably assisted by Oliver Sleath, and with editorial comments from Brian O'Shea and Angela Newton. The site can be reached at www.britishbryologicalsociety.org.uk.

The new format will be available from early June 2003. It will provide a much more user-friendly interface, and introduce several new features. These include 'moss of the month', currently displaying cool bryophyte images, but intended also to highlight breaking news in the world of mosses such as Fred Rumsey's recent article on *Zygodon gracilis* that reached CNN. You can also check out the vice-county map, which allows you to access regional information by clicking on a county. The most 'developed' counties are Shropshire (VC 40) and Dorset (VC 9), but there is plenty of scope for contributing travelogue entries for your home region.

And just in case you need further incentive to visit the new site, we will be running a moss haiku/limerick competition, with all contributions posted on the web site (submit entries to jonathan.sleath@btinternet.com). In case you don't know the format, haiku consist of three lines, with five, seven and five syllables respectively, whereas limericks have five lines, rhyming in the pattern a, a, b, b, a. All contributions must be original, and the winning entries will be printed in the BBS *Bulletin*.

Angela Newton, Department of Botany, The Natural History Museum, Cromwell Road, London, SW7 5BD.

BBS SURVEY OF THE BRYOPHYTES OF ARABLE LAND (SBAL): FIRST YEAR REPORT

Background

The Society's Survey of the Bryophytes of Arable Land (SBAL) was outlined by Porley (2002a, 2002b). The aim is to improve our knowledge of this interesting but very neglected habitat. Recorders are asked to survey arable fields by collecting simple data on location, crops, soils and the bryophytes themselves onto a standard recording card. The survey started in 2002 and will continue until 1 May 2005.

The first year's fieldwork for the survey has been completed, and with most of the results now in we can certainly say that it has got off to a good start. This is a brief report on progress so far, with the dual aims of thanking those who are already taking part in the scheme and encouraging other members to volunteer.

Progress 2002-03

SBAL was launched at a special meeting at Preston Montford in November 2002. A full report of that meeting appeared in the last *Bulletin* (Hill, 2003). The meeting was successful

in recruiting recorders for the project, and by 28 May 2003 we had received records from 210 fields in 113 10-km squares and 34 vice-counties (Figure 1). About 50 recorders have taken part in the survey so far (excluding those who have joined in only at BBS meetings). We initially thought that we might get data from 500 fields during the course of the survey, but with over 200 surveyed after the first of the three winters, we are now hoping that we might do rather better than this.

We do not want to analyse the results until all the records are in. However, many recorders have been pleasantly surprised to find that at least some of their 'ordinary' fields have been relatively species-rich, and there have already been new vice-county records for such rarities (or apparent

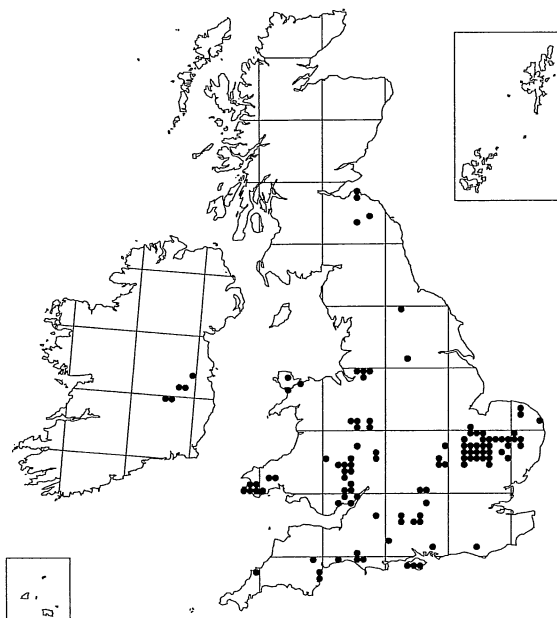


Figure 1. Location of 10-km squares in which fields had been surveyed by 28 May 2003

rarities) as *Didymodon tomaculosus*, *Fossombronina caespitiformis* and *Phaeoceros carolinianus*. There have of course also been new vice-county records of commoner species, notably for the delightful but clearly under-recorded tuberous species *Bryum violaceum*.

How to get involved

We are keen to recruit new recorders. So far, most fields have been surveyed by bryologists who were at the introductory meeting at Preston Montford, and we would encourage others who were unable to get to that meeting to join the scheme. All those wishing to take part should obtain a copy of the Introductory Pack (from Gill Stevens) or consult the instructions on the scheme's web site (www.jonathan.sleath.btinternet.co.uk/SBAL/intro.htm). If you can receive e-mail it is useful to register your interest with Mark Hill, as we can then send you relevant mailings. The 'random' tetrads that are still unadopted are listed in Table 1.

Table 1. 'Random' tetrads that have not yet been adopted

Vice-county	Tetrad	Locality	Vice-county	Tetrad	Locality
5 South Somerset	ST12I	W of Taunton	61 South-east Yorkshire	SE64K	SE of York
5 South Somerset	ST31S	Iminster	61 South-east Yorkshire	SE85N	Huggate (Wolds)
5 South Somerset	ST32A	E of Taunton	61 South-east Yorkshire	TA06E	W of Bridlington
5 South Somerset	ST41C	W of Yeovil	64 Mid-west Yorkshire	SE44G	between York and Leeds
18 South Essex	TQ68G	Basildon	85 Fife	NT29X	Kirkcaldy
18 South Essex	TQ69I	Billericay	85 Fife	NO30B	nr Markinch
18 South Essex	TQ88Z	Southend	89 East Perthshire	NO13U	N of Perth
32 Northamptonshire	SP65G	Blakesley	90 Angus	NO64N	Arbroath
33 East Gloucestershire	SP03M	Stanway	91 Kincardineshire	NO67X	Fettercairn
34 West Gloucestershire	SO90F	W of Cirencester	91 Kincardineshire	NO76P	nr Lawrencekirk
38 Warwickshire	SP46I	S of Rugby	92 South Aberdeenshire	NJ82L	E of Inverurie
39 Staffordshire	SJ71V	nr Oakengates	93 North Aberdeenshire	NJ74H	Turriff
39 Staffordshire	SJ81M	Church Eaton	93 North Aberdeenshire	NJ75L	N of Turriff
54 North Lincolnshire	SE71X	W of Scunthorpe	93 North Aberdeenshire	NJ83V	Methlick
54 North Lincolnshire	SE91H	E of Scunthorpe	93 North Aberdeenshire	NK04C	W of Peterhead
54 North Lincolnshire	TA01T	S of Hull	94 Banffshire	NJ76F	MacDuff
55 Leicestershire	SK71B	Melton Mowbray			

The progress of the scheme can be followed on the web site, which includes coverage maps that are updated monthly during the winter. As well as more serious matters, an 'anecdotal' section of the site has been started to include recorders' accounts of their progress.

A SBAL day in Kent: 19 October 2003

We are holding an informal meeting in Kent on 19 October 2003, to introduce the scheme to members in south-east England and to start recording in this county. Kent has a special significance as it is the only area of Britain where there has been a detailed, systematic survey of arable bryophytes – carried out by Trudy Side in the 1970s. We would welcome the help of experienced SBAL recorders, but the day also provides an opportunity for new recorders to learn about the survey. Contact Mark Hill for details.

The SBAL steering committee

- Mark Hill, CEH Monks Wood, Abbots Ripton, Huntingdon, Cambs, PE28 2LS; e-mail: moh@ceh.ac.uk

- Ron Porley, English Nature, Foxhold House, Crookham Common, Thatcham, RG19 8EL; e-mail: ron.porley@english-nature.org.uk
- Chris Preston, CEH Monks Wood, Abbots Ripton, Huntingdon, Cambs, PE28 2LS; e-mail: cdpr@ceh.ac.uk
- Jonathan Sleath, The Villa, Kingstone, Hereford, HR2 9ET; e-mail: jonathan.sleath@btinternet.com
- Gill Stevens, Department of Botany, Natural History Museum, Cromwell Road, South Kensington, London, SW7 5BD; e-mail: G.Stevens@nhm.ac.uk

References

- Hill M. 2003.** Bryological workshop 2002 (arable bryophytes), Preston Montford Field Centre. *Bulletin of the British Bryological Society* **80**: 27-29.
- Porley R. 2002a.** Recording Matters 21. *Bulletin of the British Bryological Society* **78**: 50-52.
- Porley R. 2002b.** Recording Matters 22. *Bulletin of the British Bryological Society* **79**: 33-35.

Chris Preston (address above).

NEW VICE-COUNTY RECORDS AND AMENDMENTS TO THE CENSUS CATALOGUE

All undated records are based on specimens collected in 2002; for specimens collected in earlier years the year of collection is given before the collector's name. Where the specimen bears a collector's number, this is given after the collector's name. All specimens are deposited in BBSUK, except where otherwise indicated. Numbers and nomenclature follow Blockeel & Long (1998), *A Check-list and Census Catalogue of British and Irish Bryophytes*.

HEPATICAEE

T.H. BLACKSTOCK

- 1.1 *Haplomitrium hookeri*, through *Blasia pusilla* on gravelly edge of moorland stream, S of Usk Reservoir, SN82, (44), Bosanquet.
- 6.1 *Telaranea nematodes*, small patches on humic soil in deciduous woodland on rocky slope (in area recently cleared of *Rhododendron* bushes), ca 80 m alt., NE of Glenveagh Castle, C02, (H35), Holyoak 02-720.
- 6.2 *Telaranea murphyae*, sandy banks, Alum Chine, Bournemouth, SZ09, (11), Stern, conf. Paton.
- 7.3 *Kurzia trichoclados*, with *Calypogeia neesiana*, peaty bank in block scree, S of Bwlch-y-Rhiw Farm, N slope of Mynydd Mallaen, SN74, (44), Motley & Paton.
- 8.1 *Lepidozia reptans*, on soil on woodland bank, 40 m alt., Curraghbinny Wood, ca 6 km E of Carrigaline, W76, (H4), Blockeel 31/379.
- 8.2 *Lepidozia pearsonii*, in base of low hummock of *Vaccinium myrtillus* and *Polytrichum formosum* on steep N-facing slope, ca 530 m alt., head of Fair Brook, High Peak, SK08, (57), Blockeel 31/003.
- 8.3 *Lepidozia cupressina*, in declivity between boulders in scree, Black Rhadley Hill, SO39, (40), Lawley; shaded rock crevices in NE-facing crags, Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4157.

- 9.1 *Bazzania trilobata*, NE-facing rock outcrop, ca 200 m alt., Kilronan Mountain, G91, (H25), Hodgetts 4144.
- 10.3 *Calypogeia azurea*, vertical bank of gritty peat by track across moorland, S end of Bal Mawr, Black Mountains, SO22, (35), Bosanquet & Motley.
- 10.4 *Calypogeia neesiana*, with *Kurzia trichoclados*, peaty bank in block scree, S of Bwlch-y-Rhiw Farm, N slope of Mynydd Mallaen, SN74, (44), Motley & Paton.
- 10.6 *Calypogeia sphagnicola*, on *Sphagnum*, bog SE of Carmel, SN51, (44), Paton; in *Sphagnum* hummock, open swampy area by loch, ca 288 m alt., W margin of Branxholme Wester Loch, NT41, (80), Long 31157; creeping amongst *Sphagnum* in raised bog, ca 40 m alt., Carrickynaghtan Bog, S of Athlone, N03, (H25), Hodgetts 4052.
- 11.1 *Adelanthus decipiens*, shaded rock crevices in NE-facing crags, ca 150 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4156.
- 12.3 *Cephalozia catenulata*, peaty banks among heather below low cliff, ca 80 m alt., A'Mhoine, NC55, (108), Hodgetts 4033; amongst *Sphagnum* in raised bog, with *Kurzia pauciflora* and *Riccardia palmata*, ca 80 m alt., Cloonchambers Bog, M68, (H25), Hodgetts 4120.
- 12.4 *Cephalozia macrostachya* a var. *macrostachya*, on peat under *Calluna*, open hummocky mire, ca 288 m alt., SW of Branxholme Wester Loch, NT41, (80), Long 31162; blanket bog, ca 160 m alt., A'Mhoine, NC55, (108), Hodgetts 4030 & Porley.
- 12.6 *Cephalozia lunulifolia*, on humus in oak woodland, 10 m alt., E bank of River Brandon, ca 3 km SE of Inishannon, W55, (H4), Blockeel 31/374.
- 12.7 *Cephalozia pleniceps*, growing through *Sphagnum papillosum* in flush, Upper Newton Farm, Wolf's Castle, SM92, (45), Bosanquet; in mossy hummocks in fen, open swampy area by loch, ca 288 m alt., W margin of Branxholme Wester Loch, NT41, (80), Long 31155; among *Sphagnum* in area of pool systems in raised bog, ca 90 m alt., Carrowbehy/Caher Bog, M58, (H25), Hodgetts 4128.
- 14.1 *Cladopodiella fluitans*, locally abundant in remnant bog, Rhymney Hill, W of Cefn Golau, Tredegar, SO10, (35), Bosanquet; on *Sphagnum* with *Odontoschisma sphagni*, 167 m alt., intermediate mire of Eldrig Moss, Kirkowan, NX27, (74), 1976, Corner.
- 14.2 *Cladopodiella francisci*, peaty bank near stream at *Carum verticillatum* site, ca 100 m alt., NW of Edergole Bridge, near Lough Eske, G98, (H35), 2001, Hodgetts 3892; on vertical peaty bank above small stream in moorland near edge of reservoir, ca 200 m alt., near N end of Silent Valley Reservoir, J32, (H38), Holyoak 02-980.
- 16.1 *Hygrobiella laxifolia*, on thin soil in crevice of rocks near river, partly shaded by deciduous trees, ca 45 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-930.
- 17.3 *Odontoschisma elongatum*, on very wet peat in flush complex on NW-facing slope, ca 250 m alt., E of Bridge of Alltgländer, Tomnavoulin, NJ12, (94), Hodgetts 4002.
- 18.7 *Cephaloziella stellulifera*, calcareous turf over limestone, Dryslwyn Castle Hill, SN52, (44), Morgan.
- 18.11 *Cephaloziella turneri*, with mosses on soil in crevice of low rocks on hillslope shaded by young deciduous woodland, ca 35 m alt., just N of Duntally Bridge, SE of Creeslough, C03, (H35), Holyoak 02-679.
- 18.12 *Cephaloziella integerrima*, on unshaded thin soil among quartzite cobbles in disturbed area of grassland near buildings, ca 50 m alt., Dunree Head, C23, (H34), Holyoak 02-786.
- 21.2 *Barbilophozia kunzeana*, creeping amongst *Sphagnum* in mire system, with *Aulacomnium palustre*, *Mylia anomala* and *Vaccinium oxycoccos*, ca 270 m alt., Branxholme Wester Loch, SW of Hawick, NT41, (80), Hodgetts 4050.

- 23.2 *Lophozia ventricosa*, on *Sphagnum* in blanket bog flush, 350 m alt., E of Three Counties Hollow, Eshbrack, H54, (H32), Lockhart.
- 23.5 *Lophozia sudetica*, dry heath on hillside below megalithic tomb, ca 200 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4147; N-facing siliceous rocks on small 'tor' on hillside, ca 500 m alt., Binnacally, Lavagh Beg, G99, (H35), 2001, Hodgetts 3869.
- 23.6 *Lophozia excisa*, in acid bryophyte-rich turf, military land, West Moors, SU00, (9), 1997, Edwards; on unshaded thin soil among rocks on edge of track, with patchy low *Calluna*, ca 50 m alt., Dunree Head, C23, (H34), Holyoak 02-783.
- 23.7 *Lophozia perssonii*, bare chalk in shaded area on quarry floor, with *Dicranella varia* and *Leiocolea turbinata*, Whitecliff Development Site, Swanscombe, TQ57, (16), Stevenson.
- 27.1 *Sphenolobopsis pearsonii*, shaded Silurian outcrop in N-facing woodland, Rhuddallt, Llyn Brianne, SN84, (44), Bosanquet & Motley; on damp vertical wall of deep crevice in NE-facing crags, 350 m alt., Creag an Fhithich, SW of Loch an Eilein, Strathspey, NH80, (96), 2001, Rothero 11073.
- 29.2 *Tritomaria exsecta*, small patch on decaying log with *Nowellia*, stream gorge, Nant Cwm-marydd, Brechfa Forest, SN53, (44), Bosanquet.
- 30.1 *Jamesoniella autumnalis*, on oak trunk in humid NE-facing woodland, Allt-yr-Hebog, Cwrt y Cadno, SN64, (44), Bosanquet.
- 32.3 *Jungermannia pumila*, rock in base-rich flush, by Afon Clun-maen, Mynydd Preseli, SN13, (45), Bosanquet.
- 32.5 *Jungermannia borealis*, small patch on shaded base-rich sandstone, with *Anoetangium*, *Schistidium strictum* and other calcicoles, near bottom of main western gully, Bannau Sir Gaer, Mynydd Du, SN82, (44), Bosanquet.
- 32.6 *Jungermannia exsertifolia* subsp. *cordifolia*, on slightly shaded rock at water-level in small stream in ravine, ca 30 m alt., S of Soldiers Hill, NW of Malin, C45, (H34), Holyoak 02-558; on damp rock in edge of small stream, shaded by ferns and grasses, ca 195 m alt., Butterlope Glen, H49, (H36), Holyoak 02-1117.
- 32.7 *Jungermannia sphaerocarpa*, on gravelly ledge on rock outcrop by path, Melin Cwrt falls, Resolven, SN80, (41), Bosanquet; just above mean water level on shaley ledges, stream gorge, Cwm Garw, N of Brynamman, SN71, (44), Bosanquet.
- 32.11 *Jungermannia hyalina*, by stream and small waterfall on NE-facing crags, ca 150 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4153.
- 32.12 *Jungermannia paroica*, streamside soil in gorge, Cwm Du, Cilmaengwyn, SN70, (41), Bosanquet; on rocks by river, ca 70 m alt., Cloghan More, W bank of River Finn by road bridge, H09, (H34), 2001, Hodgetts 3860.
- 32.13 *Jungermannia obovata*, on unshaded thin damp soil on ledge at base of N-facing gritstone crag, ca 578 m alt., high on NE slope of Cuilcagh, H12, (H33), Holyoak 02-912.
- 34.1 *Marsupella emarginata* a var. *emarginata*, rocks in stream and small waterfall on NE-facing crags, ca 150 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4150; c var. *pearsonii*, in bryophyte mat over unshaded flushed schist rock on NW-facing crag, ca 480 m alt., just NW of summit of Bulbin Mountain, C34, (H34), Holyoak 02-510.
- 34.3 *Marsupella sphacelata*, wet, stony, peaty flush in summit heath, ca 500 m alt., Binacally, Lavagh Beg, G99, (H35), 2001, Hodgetts 3875.
- 34.4 *Marsupella funcikii*, place entry for 1 in brackets: the only satisfactory record is from Tresawsen Moor, S of Perranzabuloe, collected by Rilstone in 1917, comm. Holyoak.
- 34.5 *Marsupella sprucei*, on peat among rocks on N side of summit, ca 500 m alt., Binacally, Lavagh Beg, G99, (H35), 2001, Hodgetts 3872.

- 34.11 *Marsupella adusta*, on thin peat and rocks on N side of summit, ca 500 m alt., Binacally, Lavagh Beg, G99, (H35), 2001, Hodgetts 3873; in small crevices of unshaded sloping surface of granitic rock on N-facing hillside, ca 485 m alt., E of Slievenagloagh, J32, (H38), Holyoak 02-1023.
- 36.1 *Douinia ovata*, on trunk of alder, Allt Rhyd-y-groes NNR, SN74, (44), Motley & Bosanquet.
- 37.3 *Diplophyllum obtusifolium*, on partly bare soil among sparse low herbs at almost unshaded edge of gravel track in young plantation of *Picea sitchensis*, ca 303 m alt., S slope of Croaghaun, S85, (H13), Holyoak 02-362.
- 38.1 *Scapania compacta*, on unshaded damp peaty soil over schist rock on low hill near coast (near low *Calluna*), ca 10 m alt., S coast of Doagh Isle, W of Balloor, C44, (H34), Holyoak 02-548.
- 38.4 *Scapania cuspiduligera*, short turf in dune heath, with *Ditrichum gracile* etc., ca 15 m alt., Maghera Strand, G69, (H35), 2001, Hodgetts 3830.
- 38.5 *Scapania scandica*, on eroding bank, near Usk Reservoir, SN82, (44), Motley.
- 38.10 *Scapania umbrosa*, on near-vertical sandstone rock amongst *Vaccinium* and *Calluna*, 300 m alt., below Creigiau Ladis, SN74, (44), Paton; peaty soil below small waterfall on NE-facing crags, with *Kurzia trichoclados*, ca 150 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4154.
- 38.12 *Scapania irrigua*, bare sandy soil, on an open bank, Papana Water SSSI, near Gifford, NT56, (82), 1999, Chamberlain, (E); with patchy low herbs and grasses among stones on unshaded silty mud exposed in inundation zone beside reservoir, ca 290 m alt., S end of Fofanny Dam, J22, (H38), Holyoak 02-969.
- 38.13 *Scapania degenii*, base-rich flush on SE-facing slope in heather moorland, ca 430 m alt., Coire na h-Airnich, Carn Diamh, Tomnavoulin, NJ12, (94), Hodgetts 3993.
- 38.19 *Scapania aequiloba*, one small patch on vertical, base-rich Old Red Sandstone, SE end of Tarren yr Esgob, SO23, (35), 2001, Bosanquet.
- 38.20 *Scapania aspera*, on chalk rock, N side of Bredon Hill, SO94, (37), Lawley.
- 38.21 *Scapania gracilis*, on shaded N-facing rock by path, ca 45 m alt., Glenbowe Wood, near Killeagh, W97, (H5), Blockeel 31/303.
- 40.2 *Lophocolea bispinosa*, female, on unshaded compressed soil in middle of track surfaced with schistose gravel, among sparse grasses and low herbs, ca 210 m alt., near Kelly's Bridge, Ardnamona, H07, (H36), Holyoak 02-1135, new to Ireland.
- 40.3 *Lophocolea heterophylla*, on decorticated wood of dead horizontal tree trunk, part shaded, in mixed deciduous and conifer woodland near river, ca 5 m alt., ca 0.5 km W of Rathmelton, C22, (H35), Holyoak 02-681; on rotting wood of tree stump (extending onto humic soil nearby) in mature conifer plantation, ca 50 m alt., Tollymore Forest Park, J33, (H38), Holyoak 02-920.
- 40.4 *Lophocolea semiteres*, female, on peaty slope under *Calluna*, steep slopes by sea, ca 83 m alt., Headon Warren, SZ38, (10), Long 31060; female, rhododendron stump, Deer Dell, Botany Hill, Farnham, SU84, (17), 2001, Chamberlain, (E); male, on wet willow bark by stream, Newchurch-in-Pendle, SD83, (59), Lowell; female, on stump, wooded slope by loch, ca 145 m alt., near St Mary's Cottage, Duns Castle, NT75, (81), Long 31144; male, with mosses and lichens at base of patchy low *Erica cinerea* on unshaded dune heathland, ca 5 m alt., Murlough NNR, J33, (H38), Holyoak 02-953, new to Ireland.
- 40.5 *Lophocolea fragrans*, shaded wet limestone rock, with *Eurhynchium pumilum*, ca 45 m alt., Tawnyskin Wood, Lough Key, M80, (H25), Hodgetts 4099; on near-vertical sandstone block ca 1.0 m above water in river gorge below waterfall, partly shaded by deciduous woodland, ca 160 m alt., Sloughan Glen, H27, (H36), Holyoak 02-1126; on

- steep bark *ca* 0.5 m above ground on old *Acer pseudoplatanus* tree in open woodland above stream, *ca* 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1081.
- 41.2 *Chiloscyphus pallescens*, basin mire, under *Salix*, Lochote Marsh, NS97, (84), 2000, Chamberlain, (E); very wet lough shore at woodland edge, below tall herbs and willow carr, *ca* 35 m alt., St John's Wood, Lough Ree, M95, (H25), Hodgetts 4062.
- 41A.1 *Heteroscyphus fissistipus*, on partly shaded rocks in garden woodland, *ca* 10 m alt., Garinish Island, near Sneem, V66, (H1), 1999, Long 28527, (E), new to the British Isles (Blackstock & Long, 2002).
- 46.6 *Plagiochila atlantica*, on rock face on SE-facing crag, *ca* 310 m alt., at the head of the valley, Gougane Barra, W06, (H3), Blockeel 31/329.
- 46.7 *Plagiochila spinulosa*, on rock wall in ravine with *Bazzania trilobata*, 100 m alt., just above outflow of Dunearn Burn, Findhorn ravine, NJ05, (95), Rothero 12037; on shaded crag under conifers, *ca* 40 m alt., Glenbower Wood, near Killeagh, W97, (H5), Blockeel 31/310.
- 46.8 *Plagiochila killarniensis*, on slabby base-rich crags in deep ravine, 100 m alt., by outflow of Dunearn Burn, Findhorn ravine, NJ05, (95), Rothero 12035; small rock outcrop under conifers, 110 m alt., banks of the River Bride, Ardarou Wood, Glenville, W78, (H5), Blockeel 31/369; shaded rock crevices in NE-facing crags, *ca* 150 m alt., Kilronan Mountain, G91, (H25), Hodgetts 4158.
- 51.1 *Radula complanata*, on bole of oak by bridleway, 60 m alt., Navestock, Curtismill Green, TQ59, (18), Pyner; on bark of *Quercus* tree in open planted woodland, *ca* 45 m alt., just S of Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-941.
- 51.5 *Radula aquilegia*, with mosses on overhanging schist of outcrop on N-facing slope near summit, *ca* 488 m alt., just NW of summit of Bulbin Mountain, C34, (H34), Holyoak 02-511.
- 53.1 *Porella platyphylla*, limestone exposure in pasture, *ca* 90 m alt., Carrigan More, M95, (H25), Hodgetts 4074.
- 53.4 *Porella obtusata*, on unshaded sloping quartzite rock on low coastal headland, *ca* 7 m alt., Culoort, NW of Malin, C45, (H34), Holyoak 02-572.
- 53.5 *Porella pinnata*, on tree roots at edge of stream, 40 m alt., Glenbower Wood, near Killeagh, W97, (H5), Blockeel 31/308.
- 54.2 *Frullania teneriffae*, epiphytic on willow growing out of crevices in NE-facing crags, *ca* 150 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4159.
- 54.4 *Frullania fragilifolia*, on maritime boulder, below Grove, Portland, SY77, (9), 1996, Edwards; on sandstone block, slopes below S end of Tarren yr Esgob, SO23, (35), Bosanquet & Motley; on vertical face, basalt rock outcrop, *ca* 202 m alt., Fatlips Castle, Minto Crags, near Denholm, NT52, (80), Long *et al.* 31139.
- 55.1 *Jubula hutchinsiae*, one large patch on vertical rock face in small stream, 10 m alt., E bank of River Brandon, *ca* 3 km SE of Inishannon, W55, (H4), Blockeel 31/375.
- 56.1 *Marchesinia mackaii*, dry limestone crag in valley, woodland by Afon Alyn, SJ16, (51), Bosanquet & Reed.
- 57.1 *Drepanolejeunea hamatifolia*, plentifully on trunks of poplar trees, 110 m alt., banks of River Bride, Ardarou Wood, Glenville, W78, (H5), Blockeel 31/363; willow bough in swampy woodland by lough, *ca* 20 m alt., NE of Lough Eske Bridge, G98, (H34), 2001, Hodgetts 3887.
- 59.1 *Microlejeunea ulicina*, on trunks of ash by stream, with *Lophocolea bidentata* and *Hypnum resupinatum*, 60 m alt., Navestock, Curtismill Green, TQ59, (18), Pyner; *ca* 1.5 m above ground on almost unshaded bark of *Betula pubescens* tree beside clearing at edge of river, *ca* 95 m alt., by N bank of Shimna River, just W of Parnells Bridge in Tollymore Forest Park, J33, (H38), Holyoak 02-1034.

- 60.1 *Lejeunea cavifolia*, on trunk of poplar tree, 110 m alt., banks of River Bride, Ardara Wood, Glenville, W78, (H5), Blockeel 31/365.
- 60.2 *Lejeunea lamacerina*, rock by stream, High Oak Coppice, SO77, (37), Lawley, and soil bank above Dowles Brook, Wyre Forest, SO77, (37), Lawley; wet clay by stream, Callow Hollow, Long Mynd, SO40, (40), 1984, Hodgetts 347.
- 60.6 *Lejeunea holtii*, on thin layer of muddy silt on shaded rock at edge of stream, 40 m alt., Glenbower Wood, near Killeagh, W97, (H5), Blockeel 31/309.
- 61.1 *Colura calyptrifolia*, several hundred tufts on *Salix* in humid valley, Afon Pib, Brechfa Forest, SN43, (44), Bosanquet; on lightly shaded, near-vertical bark of branch of felled *Picea sitchensis* at edge of clearing in plantation, ca 310 m alt., S slope of Croaghau, S85, (H13), Holyoak 02-359.
- 62.1 *Cololejeunea calearea*, with other bryophytes on steep damp limestone ca 2 m above water on N bank of river, shaded by *Corylus* and a *Quercus* sapling, ca 95 m alt., just below Carrickaneess Bridge, W of Drumquin, H27, (H36), Holyoak 02-1122.
- 62.2 *Cololejeunea rossettiana*, on shaded limestone boulders, 40 m alt., in the castle grounds, Blarney, W67, (H4), Blockeel 31/293.
- 62.3 *Cololejeunea minutissima*, on roadside holly tree in hedgerow, ca 20 m alt., NE of Lough Eske Bridge, G98, (H34), 2001, Hodgetts 3888.
- 64.1 *Fossombronia foveolata*, on gritty/peaty soil in poached flush, E end of Wallis Moor SSSI, SN02, (45), Reed.
- 64.4 *Fossombronia husnotii*, on bare peaty humus by gravelly path, 55 m alt., Glenbower Wood, W97, (H5), Blockeel 31/307; on unshaded compressed sloping soil of bare patches on old track above sea-cliff, ca 40 m alt., Dunree Head, C23, (H34), Holyoak 02-790.
- 64.5 *Fossombronia pusilla*, on near-vertical clay soil at base of bank beside track, slightly shaded by *Prunus laurocerasus* scrub, ca 65 m alt., just W of Bunclody, S95, (H13), Holyoak 02-364; in wheat stubble, 60 m alt., SE of Hazelhatch Station, N93, (H21), Preston; on steep loamy soil of low, almost unshaded bank at edge of track, ca 47 m alt., NE of Mevagh, Rosguill, C14, (H35), Holyoak 02-604.
- 64.9 *Fossombronia incurva*, occasional on wet mud of drained Scotch Peter's Reservoir, Tredegar, SO10, (35), Bosanquet; in gravelly turf with *Haplomitrium hookeri*, *Blasia pusilla* and *Riccardia* sp., 310 m alt., by the River Usk, 30 m N of Pont ar Wysg, SN82, (42), Motley; on unshaded partly bare compressed soil of edge of car park near lake, ca 260 m alt., just W of Lough Salt, C12, (H35), Holyoak 02-686; on unshaded partly bare damp gravelly sand in disused sand and gravel quarry, ca 170 m alt., Killucan, H67, (H36), Holyoak 02-1099; on unshaded, partly bare, damp sand by edge of pool in old sand quarry, ca 20 m alt., SW of Kilkeel, J21, (H38), Holyoak 02-1060.
- 66.2 *Pellia neesiana*, beside stream in fen carr, adjacent to Belton Common, TG40, (25), Fisk; by stream, Great Heath Wood, Gamlingay, TL25, (29), Hill.
- 66.3 *Pellia endiviifolia*, with other bryophytes on steep flushed rock of bank ca 2.5 m above river, part-shaded by deciduous trees, ca 45 m alt., edge of Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-938.
- 67.1 *Pallavicinia lyellii*, among *Sphagna* and other bryophytes, Hothfield Common Bog, TQ94, (15), Duckett, comm. Hendey.
- 70.1 *Aneura pinguis*, with other bryophytes on unshaded, damp, near-horizontal granite in flush, ca 465 m alt., E of Slievenagloagh, J32, (H38), Holyoak 02-1022.
- 72.2 *Riccardia chamedryfolia*, on thin soil over horizontal sandstone in floor of old quarry, partly shaded by scrub, ca 100 m alt., Scrabo Quarry, J47, (H38), Holyoak 02-1026.
- 72.3 *Riccardia incurvata*, on unshaded, partly bare, damp sand by edge of pool in old sand quarry, ca 20 m alt., SW of Kilkeel, J21, (H38), Holyoak 02-1058.

- 72.4 *Riccardia palmata*, on decaying wood in bog beside track, Allt Rhyd y Groes NNR, Rhandirmwyn, SN74, (44), 1980, Woods.
- 73.1 *Metzgeria fruticulosa*, on trunk of willow by small pond, 45 m alt., Writtle, Hylands Park, TL60, (18), Pyner; on dead branch of juniper on dunes, 5 m alt., Coul Links, Loch Fleet, NH89, (107), 2001, Rothero 11070 & MacLean; on bark of *Salix cinerea* in edge of scrub by small stream on N-facing slope above sand beach, ca 15 m alt., Kinnoge Bay, C64, (H34), Holyoak 02-541.
- 73.2 *Metzgeria temperata*, on bark of almost unshaded branch of felled *Picea sitchensis* at edge of clearing in plantation, ca 310 m alt., S slope of Croaghaun, S85, (H13), Holyoak 02-358; on *Salix cinerea* in swampy woodland by river, ca 70 m alt., Cloghan More, H09, (H34), 2001, Hodgetts 3859; on base of *Pinus radiata* tree near edge of young plantation, ca 295 m alt., near S end of Fofanny Dam, J22, (H38), Holyoak 02-972.
- 81.1 *Preissia quadrata*, in unshaded crevices of mortared stone wall of bridge over river, ca 50 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-922.
- 82.1 *Marchantia polymorpha* a subsp. *polymorpha*, amongst *Juncus inflexus* by pond, Newbourne Springs, TM24, (25), Turner; b subsp. *ruderalis*, on bare ground at foot of limestone wall, 40 m alt., Blarney, W67, (H4), Blockeel 31/290; in flower bed, ca 10 m alt., Fota House, Foaty Island, W77, (H5), Blockeel 31/344; on unshaded partly bare soil of flower borders in camping ground, ca 5 m alt., Quigley's Point, C53, (H34), Holyoak 02-775.
- 84.1 *Riccia cavernosa*, on shell-sand above water-level in circular, turlough-like lake, 10 m alt., Loch nan Easgannan, Coll, NM15, (103), 1997, Preston.
- 84.3 *Riccia huebeneriana*, on mud at reservoir margins with *Physcomitrium sphaericum*, Lower Lliedi Reservoir, Llanelli, SN50, (44), Morgan.
- 84.4 *Riccia fluitans*, Hepworth's pond at Rolston, near Hornsea, TA21, (61), 1997, Cook.
- 84.7 *Riccia sorocarpa*, in stubble field (barley), 80 m alt., N of R445, W of Newhall Cross Roads, N81, (H19), Fox & Preston.
- 84.9 *Riccia glauca*, on soil, stubble field margin, ca 90 m alt., Printonan Hill, NT74, (81), Long *et al.* 31624; abundant in stubble field (winter wheat), 70 m alt., 'Furry Field', NE of Coursetown House, Courttown East townland, Athy, S69, (H19), Fox & Preston; stubble field (wheat), 60 m alt., SE of Hazelhatch Station, N93, (H21), Preston.
- 84.10 *Riccia subbifurca*, on unshaded partly bare loamy soil of flower beds in camping ground, ca 8 m alt., Quigley's Point, C53, (H34), Holyoak 02-555.
- 84.13 *Riccia beyrichiana*, on exposed soil of flushed bank on N-facing slope on low coastal headland, ca 7 m alt., Culoort, NW of Malin, C45, (H34), Holyoak 02-573; among low grasses and herbs on unshaded, mainly bare, gravelly and gritty sediment high in inundation zone beside reservoir, ca 125 m alt., NW edge of Lough Island Reavy Reservoir, J23, (H38), Holyoak 02-964.
- 85.1 *Anthoceros punctatus*, on moist greensand sea cliff, Shanklin, SZ58, (10), Sleath; wet rocks by stream with *Conocephalum conicum*, Notcutts, Woodbridge, TM24, (25), Turner; on soil, stubble field margin, ca 120 m alt., Leader Valley, below The Park, NT53, (81), Long *et al.* 31620; on near-vertical clay soil at base of bank beside track, slightly shaded by *Prunus laurocerasus* scrub, ca 65 m alt., just W of Bunclody, S95, (H13), Holyoak.
- 85.2 *Anthoceros agrestis*, on soil, stubble field margin, ca 173 m alt., Leader Valley, below Cowdenknowes, NT53, (80), Long 31632.
- 86.1 *Phaeoceros laevis*, male, on near-vertical clay soil at base of bank beside track, slightly shaded by *Prunus laurocerasus* scrub, ca 65 m alt., just W of Bunclody, S95,

- (H13), Holyoak 02-365; male, stubble field (winter wheat), 70 m alt., 'Furry Field', NE of Coursetown House, Courtown East townland, Athy, S69, (H19), Fox & Preston; male, stubble field (wheat), 60 m alt., SE of Hazelhatch Station, N93, (H21), Preston; male, on soil in arable field, partly shaded by crop of oats, *ca* 14 m alt., W of B1, NW of Ballyhosset, SE of Downpatrick, J54, (H38), Holyoak 02-1012.
- 86.2 *Phaeoceros carolinianus*, arable field, Tinkers Hill, SO57, (40), Ricketts & Lawley; on soil, stubble field margin, *ca* 116 m alt., Leader Valley, below Cowdenknowes, NT53, (80), Long 31635; on soil, stubble field margin, *ca* 120 m alt., Leader Valley, below The Park, NT53, (81), Long 31615, new to Scotland.

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MUSCI

G.P. ROTHERO

- 1.4 *Sphagnum palustre* a var. *palustre*, in blanket bog flush, 350 m alt., E of Three Counties Hollow, Eshbrack, H54, (H32), Lockhart 2002/07a.
- 1.5 *Sphagnum magellanicum*, in blanket bog flush, 350 m alt., E of Three Counties Hollow, Eshbrack, H54, (H32), Douglas & Lockhart 2002/06a.
- 1.10 *Sphagnum russowii*, in *Sphagnum*-rich heather moorland, 400 m alt., Carn Daimh, Tomnavoulin, NJ12, (94), Hodgetts 3992; hummock in *Molinia* and *Juncus* in N-facing coire, 410 m alt., Lavagh More, G99, (H35), Hodgetts 3862.
- 1.11 *Sphagnum quinquefarium*, in mire with *Molinia caerulea* and *Eriophorum vaginatum*, Cheetham Close, SD71, (59), Holland, det. Newton; on shaded wooded bank in disused railway cutting, 100 m alt., Barnesmore Gap, SE of Ardinawark, H08, (H34), Hodgetts 3876.
- 1.12 *Sphagnum warnstorfii*, below calcareous springs, S of Lumbister Lochs, Yell, HP49, (112), 2000, Payne, (E), conf. Hill; in fen at edge of raised bog, 90 m alt., Carrowbehy/Caher Bog, M58, (H25), Hodgetts 4123.
- 1.14 *Sphagnum fuscum*, on side of hummock in raised bog, 222 m alt., Dogden Moss, central part, NT64, (81), Long 31247; single hummock in sloping mire, NW of Loch Basta, Yell, HP59, (112), 2000, Payne, (E).
- 1.17 *Sphagnum molle*, in drying-out blanket bog, 350 m alt., Kingside Loch, Buccleuch, between fen and plantation, NT31, (79), Hodgetts 4040; in *Sphagnum*-rich heather moorland, 400 m alt., Carn Daimh, Tomnavoulin, NJ12, (94), Hodgetts 3991; in wet blanket bog, 70 m alt., The Flows, Shielton Peatlands, ND14, (109), Hodgetts 4026; near edge of raised bog, 90 m alt., Derrynabrock Bog, G50, (H25), Hodgetts 4107.

- 1.19 *Sphagnum compactum*, in wet heath with *Warnstorfia exannulata*, 250 m alt., Tan-y-Foel, Halkyn Mountain, SJ26, (51), Hodgetts 3987; in wet heath near summit of hill, 250 m alt., Slieve Bawn, near radio mast, M97, (H25), Hodgetts 4092; on peat on hillside with *Nardus* and *Carex panicea*, 205 m alt., W slope of Slievenabrock, J33, (H38), Holyoak 02-1018.
- 1.21 *Sphagnum inundatum*, in flush in blanket bog, 300 m alt., Glenletter, Slieve Bloom Mountains, N20, (H18), Lockhart 2002/14a; in blanket bog flush with *S. fallax* and *Drepanocladus cossonii*, 250 m alt., 1 km downstream of outflow from Lough Bradan, H54, (H32), Lockhart 2002/02a.
- 1.22 *Sphagnum denticulatum*, on damp ground, Great Heath Wood, Gamlingay, TL25, (29), Hill.
- 1.24 *Sphagnum platyphyllum*, in runnels in flushed mire, 410 m alt., Morrone Birkwood NNR, NO19, (92), Rothero 12039.
- 1.25 *Sphagnum tenellum*, at edge of flush on moorland, S end of Bal Mawr, Black Mountains, SO22, (35), Bosanquet & Motley.
- 1.30 *Sphagnum fallax* a subsp. *fallax*, in blanket bog flush with *S. inundatum* and *Drepanocladus cossonii*, 250 m alt., 1 km downstream of outflow from Lough Bradan, H54, (H32), Lockhart 2002/03a.
- 1.31 *Sphagnum flexuosum*, in gently-sloping flush near burn, 380 m alt., East Burn, Glen Logie, NO36, (90), Hodgetts 4007; in flush complex on NW-facing slope, 250 m alt., E of Bridge of Alltglander, Tomnavoulin, NJ12, (94), Hodgetts 4004; on wet ground in mixed woodland, 20 m alt., Glengarriff Woods, V95, (H3), Blockeel 31/348; at edge of raised bog with *S. subnitens*, 90 m alt., Carrowbehy/Caher Bog, M58, (H25), Hodgetts 4122.
- 1.32 *Sphagnum angustifolium*, in basin mire with *S. fallax*, 45 m alt., Wybunbury Moss, SJ65, (58), Hodgetts 4036; in flush on NE-facing slope, 400 m alt., SE of Corrie Lawen, above Wester Dalinch, Glenprosen, NO36, (90), Hodgetts 4020.
- 2.1 *Andreaea alpina*, on sandstone rock, on cliffs E of main W gully, Bannau Sir Gaer, Carmarthen Fan, SN82, (44), Lawley; on wet rock face, 310 m alt., Gougane Barra, at head of valley, W06, (H3), Blockeel 31/331.
- 2.2 *Andreaea rupestris* a var. *rupestris*, on flat sandstone rocks in old quarry, Head of Cwm Gwyddon, Mynydd Maen, ST29, (35), Bosanquet; on steep schist of NW-facing crag, 425 m alt., NW slope of Bulbin Mountain, C34, (H34), Holyoak 02-821.
- 2.6 *Andreaea rothii* a subsp. *rothii*, on Torridonian sandstone, 500 m alt., Stob a'Chearcaill, NG96, (105), Nisbet, det. Amphlett, and on rock slab by ditch, 91 m alt., Creag a'Chadha, Little Loch Broom, NH09, (105), Long 31206; on large boulder, 530 m alt., Gougane Barra, below Lough Fadda, W06, (H3), Blockeel 31/322; on siliceous rocks on NW-facing slope above disused railway, 100 m alt., Barnesmore Gap, SE of Ardinawark, H08, (H34), Hodgetts 3882; on rock on N-facing crags, 350 m alt., Common Mountain, Glengesh, G78, (H35), Hodgetts 3850; b subsp. *falcata*, on rocks by stream, 150 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4149; on siliceous rocks on NW-facing slope above disused railway, 100 m alt., Barnesmore Gap, SE of Ardinawark, H08, (H34), Hodgetts 3879.
- 2.8 *Andreaea megistospora*, on siliceous rocks on NW-facing slope above disused railway, 100 m alt., Barnesmore Gap, SE of Ardinawark, H08, (H34), Hodgetts 3883.
- 4.1 *Polytrichum alpinum*, on turfey ledge on crag, 310 m alt., Gougane Barra, at head of valley, W06, (H3), Blockeel 31/338; on thin gritty soil over granite on N-facing slope, 485 m alt., E of Slievenaglogh, J32, (H38), Holyoak 02-1024.
- 4.2 *Polytrichum longisetum*, on soil under bracken, Nant Melyn, Mallaen, SN74, (44), Fisk, det. Bosanquet.

- 6.1 *Atrichum crispum*, by stream and waterfall on crags, 150 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4152.
- 6.2 *Atrichum tenellum*, on open gravelly sediment in inundation zone of reservoir, 125 m alt., NW end of Lough Island Reavy Reservoir, J23, (H38), Holyoak 02-960.
- 7.1 *Tetraphis pellucida*, on wet peat by path in shady plantation woodland, 45 m alt., Lough Key Forest Park 'bog garden', G80, (H25), Hodgetts 4113.
- 8.1 *Tetradontium brownianum*, on overhung sandstone, S end of Tarren yr Esgob, SO23, (35), Bosanquet; on underside of quartzite overhang on crag, 570 m alt., N slope of Muckish, C02, (H35), Holyoak 02-725.
- 9.1 *Diphyscium foliosum*, on soil, W side of Main Water of Luce, NX16, (74), 1976, Corner.
- 10.1 *Buxbaumia aphylla*, on soil on cutting of track, 270 m alt., Malvern Hills, E of British Camp, SO73, (37), Ricketts.
- 11.1 *Archidium alternifolium*, by path, 200 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4143; on open gravelly sediment in inundation zone of reservoir, 125 m alt., NW end of Lough Island Reavy Reservoir, J23, (H38), Holyoak 02-961.
- 12.2 *Pleuridium subulatum*, on soil at edge of path by lough, 225 m alt., by N end of Lough Fea, H78, (H36), Holyoak 02-1148; on open stony soil on floor of old quarry, 100 m alt., Scrabo Quarry, J47, (H38), Holyoak 02-1032.
- 13.1 *Pseudephemerum nitidum*, on open disturbed soil in old campsite, 50 m alt., Lough Keel, near Rockingham Demesne, G80, (H25), Hodgetts 4139; on soil in arable field with oat crop, 14 m alt., W of B1, NW of Ballyhosset, J54, (H38), Holyoak 02-1013.
- 14.1 *Ditrichum cylindricum*, in stubble field, 80 m alt., Garrans Crossroads, NE of Stradbally, S59, (H14), Fox & Preston; in stubble field (winter wheat), 70 m alt., Furry Field, Courtown East townland, Athy, S69, (H19), Fox & Preston.
- 14.4 *Ditrichum lineare*, on open slope of mine spoil/slag, N of Minions, SX27, (2), 1998, Holyoak 98-374; on bank by forestry ride, Fwng Forest, NE of Llandovery, SN84, (44), Bosanquet, conf. Holyoak.
- 14.5 *Ditrichum plumbicola*, on fine mineral soil on flat top of ridge of lead spoil, 380 m alt., Lady Manners Scar lead spoil heap, Leadhills, NS81, (77), Rothero 12013.
- 14.7 *Ditrichum zonatum* a var. *zonatum*, on soil in crevice in crags, Bannau Sir Gaer, Carmarthen Fan, SN82, (44), Lawley, det. Bosanquet.
- 14.9 *Ditrichum flexicaule*, in grassland in chalk pit, Tennyson Downs, SZ38, (10), 1987, Snow.
- 16.2 *Distichium inclinatum*, on damp mortar of railway bridge, Morvil, near Puncheston, SN03, (45), Bosanquet; on damp sand in grassland, 25 m alt., SW of Lagacurry, Doagh Isle, C45, (H34), Holyoak 02-554.
- 20.1 *Rhabdoweisia fugax*, on ledge of NE-facing sandstone crag, Darren Ddu, Mynydd Bedwellte, SO10, (35), Bosanquet & Motley; in crevice in low cliff, 80 m alt., A'Mhoine, NC55, (108), Hodgetts 4032; in rock crevice in S-facing cliffs, 400 m alt., Meenaguse, G98, (H35), Hodgetts 3917.
- 20.2 *Rhabdoweisia crispata*, on ledge of NE-facing sandstone crag, Darren Ddu, Mynydd Bedwellte, SO10, (35), Bosanquet & Motley; in dry rock crevices, 275 m alt., Elibank Craig, NT43, (79), 1973, Corner.
- 21.3 *Cynodontium jenneri*, on boulders in scree, 220 m alt., Heriot Side, Lauder Burn, NT54, (81), Long 31175; on base of mossy wall in wooded ravine, 250 m alt., Snails Cleugh, near Hungry Snout, NT66, (82), Long 31264; in rock crevice on S-facing cliffs, 400 m alt., Meenaguse, G98, (H35), Hodgetts 3896, new to Ireland.
- 22.2 *Oncophorus wahlenbergii*, on damp rock, Coire a'Ghearraig, NO06, (89), Lawley, det. Holyoak.

- 25.1 *Dicranella palustris*, on rock at edge of stream, 225 m alt., Spinkwee River, W of Slieveabrock, J33, (H38), Holyoak 02-1020.
- 25.2 *Dicranella schreberiana*, in barley stubble on clay, 95 m alt., 1.5 km W of Kildare railway station, M71, (H19), Fox & Preston; on disturbed soil on moorland slope by stream, 210 m alt., near N end of Silent Valley Reservoir, J32, (H38), Holyoak 02-979.
- 25.5 *Dicranella subulata*, on thin soil on ledges of steep NW-facing crag, 420 m alt., NW slope of Bulbin Mountain, C34, (H34), Holyoak 02-804; on damp soil on floor of old quarry, 275 m alt., above Whitewater Bridge, NE of Lough Fea, H78, (H40), Holyoak 02-1155.
- 25.6 *Dicranella varia*, on bare soil on bank, 40 m alt., Blarney, in the castle grounds, W67, (H4), Blockeel 31/295.
- 25.7 *Dicranella staphylina*, at edge of stubble field, 30 m alt., Curraghbinny Wood, E of Carragline, W76, (H4), Blockeel 31/380; on disturbed soil of flower bed, 5 m alt., Quigley's Point camping ground, C53, (H34), Holyoak 02-479; on soil at edge of track in woodland, 100 m alt., Drum Manor Forest Park, H77, (H36), Holyoak 02-1089; on stony soil on disturbed ground by estuarine bay, 5 m alt., W of Dundrum, J33, (H38), Holyoak 02-957.
- 25.8 *Dicranella rufescens*, on soil on steep bank above stream, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1085; on damp clay bank in inundation zone of reservoir, 290 m alt., S end of Fofanny Dam, J22, (H38), Holyoak 02-971.
- 25.9 *Dicranella cerviculata*, patches on peat hags, 330 m alt., E of Mawnbwill-du-mawr, SN82, (44), Pool.
- 26.1 *Dicranoweisia cirrata*, on roadside tree, near Sullivan's Quay, Cork city centre, W67, (H4), Blockeel 31/300.
- 28.2 *Kiaeria blyttii*, in crevices of schist on low outcrops, 480 m alt., just SW of summit of Bulbin Mountain, C34, (H34), Holyoak 02-796; on boulder on N-facing hillside near stream, 280 m alt., below Black Stairs, Thomas's Mountain, J32, (H38), Holyoak 02-1046.
- 29.8 *Dicranum fuscescens*, on boulder, Black Rhadley Hill, SO39, (40), Lawley; on NE-facing rock outcrop, 200 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4145.
- 29.12 *Dicranum tauricum*, at base of tree, 140 m alt., Miltonrigg Wood, E of Brampton, NY56, (70), Corner & Ratcliffe.
- 29.13 *Dicranum montanum*, on fallen oak branch, Burnt Wood, NE of Newtown Harbour, SZ49, (10), Stern.
- 31.4 *Campylopus fragilis*, amongst rocks by stream in crags, 150 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4155; on thin soil over rock in old quarry, 185 m alt., Butterlope Glen, H49, (H36), Holyoak 02-1111.
- 31.6 *Campylopus flexuosus*, in blanket bog, 340 m alt., NE of Lough Galluane, H54, (H32), Lockhart.
- 31.9 *Campylopus atrovirens* a var. *atrovirens*, amongst *Sphagnum* in raised bog, 50 m alt., Corbo Bog, Clooncashel, W of Lanesborough, M96, (H25), Hodgetts 4081.
- 31.12 *Campylopus brevipilus*, on drying-out raised bog, 110 m alt., Bellanagare Bog, Cornamucklagh and Falmore, M78, (H25), Hodgetts 4106.
- 32.1 *Paraleucobryum longifolium*, on quartzite boulder by lochan, 650 m alt., Lagan Mhuirich, N of Beinn an Fhurain, Assynt, NC22, (108), Rothero 12045.
- 33.1 *Leucobryum glaucum*, on floor of W17 woodland, Craig Tal-y-fan, Blackmill, SS98, (41), Bosanquet.
- 33.2 *Leucobryum juniperoideum*, on rotting *Castanea sativa* log, Ecclesall Wood, Sheffield, SK38, (63), Egan, conf. Blockeel; on old stump in woodland, 50 m alt., just N of Shimna River, J33, (H38), Holyoak 02-935.

- 34.2 *Fissidens viridulus*, in bryophyte mat beneath overhang on N-facing rocks near summit, 488 m alt., Bulbin Mountain, just NW of summit, C34, (H34), Holyoak 02-514; on rock at side of stream in woodland, 50 m alt., Lough Eske Castle, H98, (H35), Hodgetts 3889.
- 34.4 *Fissidens pusillus*, on acid sandstone in stream, Ravenscroft Wood, Cowden, TQ44, (16), Pitt, det. Hendy.
- 34.6 *Fissidens incurvus*, on shaded root-plate of fallen spruce, 50 m alt., Lough Keel, near Rockingham Demesne, G80, (H25), Hodgetts 4137.
- 34.8 *Fissidens curnovii*, on rocks in cave in small burn on sea cliffs, N end of Scarp, Harris, NA91, (110), Rothero.
- 34.14 *Fissidens celticus*, on clay-loam bank by path near lake, 80 m alt., Drum Manor Forest Park, H77, (H36), Holyoak 02-1094; on steep soil on shaded slope above stream, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1084; on vertical loamy soil on bank by river, 95 m alt., S bank of Shimna River, W of Parnells Bridge in Tollymore Forest Park, J33, (H38), Holyoak 02-1035.
- 37.1 *Eucladium verticillatum*, on damp mortar of wall of bridge, 95 m alt., S bank of Shimna River, W of Parnells Bridge in Tollymore Forest Park, J33, (H38), Holyoak 02-1033.
- 38.1 *Weissia controversa* c var. *densifolia*, on soil at base of concrete wall of building, 50 m alt., Dunree Head, C23, (H34), Holyoak 02-784.
- 38.3 *Weissia rutilans*, in ruts in track, by Loch an Eilean car park, Rothiemurchus, NH80, (96), Chamberlain.
- 38.5 *Weissia brachycarpa* b var. *obliqua*, on skeletal soil in limestone grassland, 90 m alt., Killeglan grassland, Lugboy, M84, (H25), Hodgetts 4056.
- 38.7 *Weissia rostellata*, in stubble field with *Tortula acaulon* and *T. truncata*, 100 m alt., Woodhouse Farm, near Dawlish, SX97, (3), Porley 2326.
- 38.10 *Weissia sterilis*, in chalk grassland, Afton Down, E of Freshwater Bay, SZ38, (10), Stern.
- 38.12 *Weissia longifolia* b var. *angustifolia*, on bare sandy soil in old quarry, 48 m alt., E side of Brea Hill, SW97, (2), Holyoak 02-002; on soil in Magnesian limestone grassland, 95 m alt., Little Matlock, Pleasley Vale, SK56, (57), Blockeel & Pearman, 31/406.
- 39.1 *Tortella tortuosa*, on limestone rock, Bredon Hill, SO94, (37), Green, det. Lawley.
- 39.6 *Tortella inclinata*, on sand in dune slack with *Ditrichum gracile*, 20 m alt., Invernaver SSSI, NC66, (108), Porley & Hodgetts, conf. Matcham.
- 39.8 *Tortella flavovirens* a var. *flavovirens*, in crevice of rocks on low coastal headland, 10 m alt., S of Killough, J53, (H38), Holyoak 02-1011.
- 40.1 *Trichostomum brachydontium*, in seepage in recess among coastal rocks, 2 m alt., Charles Fort, Summer Cove, Kinsale, W64, (H4), Blockeel 31/275; on soil in limestone grassland, 80 m alt., Killeglan grassland, Lugboy, M84, (H25), Hodgetts 4054; on thin soil in crevice of rocks in old quarry, 185 m alt., Butterlope Glen, H49, (H36), Holyoak 02-1112; on soil in crevices of rocks by river, 45 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-934.
- 40.3 *Trichostomum tenuirostre* a var. *tenuirostre*, in crevices of rocks above river, 45 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-931.
- 41.1 *Pottiopsis caespitosa*, on soil in chalk pit, N of Brightstone, SZ48, (10), Hill.
- 45.1 *Pseudocrossidium hornschurchianum*, on bare soil at foot of limestone wall, 40 m alt., Blarney, W67, (H4), Blockeel 31/289; on gravelly ground in car park, 20 m alt., NW of Knockadoon Head, X07, (H5), Blockeel 31/313; on open thin soil on track in plantation, 310 m alt., S slope of Croaghaun, S85, (H13), Holyoak 02-361; on sandy

- track through dry coastal dunes, 10 m alt., Murvagh Upper, G87, (H34), Hodgetts 3904.
- 47.1 *Leptodontium flexifolium*, on rotting thatch, 1 m alt., Shores Boat House, Horsey Broad, TG42, (27), Ghullam, det. Stevenson.
- 48.1 *Hymenostylium recurvirostrum*, on thin damp soil over shale rocks, 10 m alt., Doagh Isle, NE of Ballyliffin, C45, (H34), Holyoak 02-483; in rock crevice on N-facing crag in coire, 350 m alt., Slieve League, above Lough Agh, G57, (H35), Hodgetts 3795.
- 50.1 *Gyroweisia tenuis*, on mortar in wall of derelict gatehouse, 50 m alt., Lough Keel, near Rockingham Demesne, G80, (H25), Hodgetts 4136; in crevices of mortared wall, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1076; on sandstone in old quarry, 100 m alt., Scrabo Quarry, J47, (H38), Holyoak 02-1025.
- 51.1 *Gymnostomum viridulum*, on shaded cliff face, Shide Chalkpit, Newport, SZ58, (10), Stern; damp mortar on retaining wall by river, 50 m alt., Cortober, S bank of River Shannon, M99, (H25), Hodgetts 4138.
- 51.2 *Gymnostomum calcareum*, in crevice under overhang on crag in dunes, 15 m alt., Doagh Isle, NE of Ballyliffin, C45, (H34), Holyoak 02-494.
- 51.3 *Gymnostomum aeruginosum*, on steep old concrete by river, 170 m alt., W of Glen River in Donards Wood, near Newcastle, J32, (H38), Holyoak 02-1043.
- 53.2 *Barbula unguiculata*, on wall of bridge, 50 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-923.
- 54.1 *Didymodon acutus*, on blown sand amongst rocks on hillside, 45 m alt., SW slope of Brea Hill, SW97, (2), Holyoak 02-001; on soil in chalk pit, N of Brighstone, SZ48, (10), Hill.
- 54.3 *Didymodon rigidulus*, on concrete wall top, Compass Hill, Kinsale, W64, (H4), Blockeel 31/301; on top of old wall, 110 m alt., River Bride, Ardrou Wood, Glenville, W78, (H5), Blockeel 31/370.
- 54.4 *Didymodon nicholsonii*, in crevices in tarmac at edge of minor road, 45 m alt., NW of Wootton Common, SZ59, (10), Holyoak 02-350; on broken wall top, 3 m alt., Kinsale, W65, (H4), Blockeel 31/272; on thin soil over vertical damp concrete of bridge, 65 m alt., just W of Buncloidy, S95, (H13), Holyoak 02-363.
- 54.8 *Didymodon vinealis*, on sand of path in dune grassland, 8 m alt., Drumnatinny, N of Falcarragh, B93, (H35), Holyoak 02-454.
- 54.10 *Didymodon luridus*, on broken wall top, 25 m alt., Kinsale, W65, (H4), Blockeel 31/271; in concrete water channel in garden, 10 m alt., Fota House, Foaty Island, W77, (H5), Blockeel 31/345; on limestone at edge of turlough, 60 m alt., Four Roads Turlough, M85, (H25), Hodgetts 4078.
- 54.12 *Didymodon sinuosus*, on silt-covered boulder by river, N side of River Almond, downstream of Craigiehall bridge, NT17, (84), Chamberlain; on thin soil over concrete by stream, 110 m alt., Killin, NN53, (88), 1999, Pool; on shaded limestone boulder, 40 m alt., Blarney, in the castle grounds, W67, (H4), Blockeel 31/294.
- 54.13 *Didymodon tophaceus*, seepage in earthy recess in coastal bank, 2 m alt., Charles Fort, Summer Cove, Kinsale, W64, (H4), Blockeel 31/274; in crevices of mortared wall, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1078; on wall of bridge, 50 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-927.
- 54.14 *Didymodon spadiceus*, on steep damp face of sand dune, 5 m alt., Coul Links, Loch Fleet, NH89, (107), Rothero & MacLean, 11071.
- 54.16 *Didymodon tomaculosus*, on soil in field of wheat stubble, 58 m alt., just W of Atcham, SJ50, (40), Holyoak 02-1164, conf. Blockeel; in wheat stubble field, 60 m alt., SE of Hazelhatch Station, N93, (H21), Preston, conf. Blockeel.

- 54.17 *Didymodon ferrugineus*, amongst grass on quarry floor, Whitecliff Development site, Swanscombe, TQ57, (16), Stevenson; on soil bank, Bredon Hill, SO93, (37), Lawley; on open thin soil on track in plantation, 310 m alt., S slope of Croaghnaun, S85, (H13), Holyoak 02-360.
- 58.3 *Aloina aloides*, on skeletal soil in limestone grassland, 80 m alt., Killeglan grassland, Lugboy, M84, (H25), Hodgetts 4053; on heavily grazed soil terraces above beach, 10 m alt., Trabane, Malin Beg, G57, (H35), Hodgetts 3786; on thin soil over sandstone in old quarry, 100 m alt., Scrabo Quarry, J47, (H38), Holyoak 02-1027.
- 60.11 *Tortula atrovirens*, on earth on vertical sea-cliff, 10 m alt., Ballycotton, W96, (H5), Blockeel 31/286; on earth and stone hedge-bank at top of cliff, 10 m alt., Trabane, Malin Beg, G47, (H35), Hodgetts 3772.
- 60.16 *Tortula truncata*, in stubble field (winter wheat), 70 m alt., Furry Field, Courttown East townland, Athy, S69, (H19), Fox & Preston.
- 60.18 *Tortula acaulon* d var. *papillosa*, on disturbed ground by estuarine bay, 5 m alt., W of Dundrum, J33, (H38), Holyoak 02-954.
- 61.2 *Microbryum davallianum*, in stubble field, 80 m alt., Garrans Crossroads, NE of Stradbally, S59, (H14), Fox & Preston; on loamy soil near gateway into field, 5 m alt., Inch Level, C32, (H34), Holyoak 02-838.
- 61.3 *Microbryum rectum*, on calcareous soil on bank, N side of Bredon Hill, SO94, (37), Lawley; in stubble field, 80 m alt., Garrans Crossroads, NE of Stradbally, S59, (H14), Fox & Preston; in stubble field, 65 m alt., Coursetown House, W of Athy, S69, (H19), Fox & Preston.
- 62.3 *Hennediella heimii*, on soil on gravel track, 5 m alt., SE of Castle Island, Strangford Lough, J54, (H38), Holyoak 02-994.
- 63.1 *Acaulon muticum*, on clay soil in unsown corner of arable field, 95 m alt., Troway, near Dronfield, SK38, (57), Blockeel 31/400.
- 65.4 *Syntrichia intermedia*, on mortar on top of old wall, 7 m alt., SE of Castle Island, Strangford Lough, J54, (H38), Holyoak 02-999.
- 65.6 *Syntrichia virescens*, on rock on cliff face, Ben Vrackie, W face, NN96, (89), Lawley, det. Sleath.
- 65.8 *Syntrichia papillosa*, on roadside tree, South Mall, Cork city centre, W67, (H4), Blockeel 31/299; on bole of deciduous tree, 10 m alt., Fota House, Foaty Island, W77, (H5), Blockeel 31/342; on old ash tree with *Zygodon viridissimus*, 35 m alt., Galey Bay Caravan site, Lough Ree, M95, (H25), Hodgetts 4067.
- 66.1 *Cinclidotus fontinaloides*, on rock at edge of lake, 5 m alt., E side of Quoile Pondage Basin NNR, Downpatrick, J44, (H38), Holyoak 02-992.
- 68.1 *Schistidium maritimum*, on top of wall above beach, 10 m alt., S of Killough, J53, (H38), Holyoak 02-1010.
- 68.2 *Schistidium rivulare*, on rocks in river, 5 m alt., S bank of River Bandon, NE of Bandon, W55, (H3), Blockeel 31/372; on limestone rock by loch, 45 m alt., Drummans Island, Lough Key Forest Park, G80, (H25), Hodgetts 4114.
- 68.3 *Schistidium platyphyllum*, on limestone boulder by stream, 360 m alt., Needlehouse Gill, N side of Baugh Fell, SD79, (69), Blockeel 31/260; on sloping rock at edge of river, 95 m alt., just below Carrickaness Bridge, W of Drumquin, H27, (H36), Holyoak 02-1121.
- 68.5 *Schistidium apocarpum*, on limestone rock in quarry with *Grimmia orbicularis*, 250 m alt., Brynford, Holywell Common, SJ17, (51), Hodgetts 3989; on boulder at entrance to campsite, 30 m alt., Hodson's Bay, Lough Ree, N04, (H25), Hodgetts 4051; on open limestone rock, NE slope of Cuilcagh, H13, (H33), Holyoak 02-895B; on open limestone on N-facing slope, 250 m alt., just NE of Lough Salt, C12, (H35),

- Holyoak 02-682; on concrete in old quarry, 180 m alt., W of Brackagh South, H57, (H36), Holyoak 02-1104; on mortar on top of wall of bridge, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1086; on mortar on top of old wall, 7 m alt., SE of Castle Island, Strangford Lough, J54, (H38), Holyoak 02-998; on open basalt crag in gully, 355 m alt., McArt's Fort, Cave Hill, J37, (H39), Holyoak 02-1063.
- 68.16 *Schistidium crassipilum*, on concrete, electricity sub-station, Swanscombe, TQ57, (16), Stevenson; on top of concrete wall, 35 m alt., All Saints churchyard, Chingford, TQ39, (18), 1998, Pyner; on flat limestone gravestone, 90 m alt., St Marys churchyard, Stansted Mountfitchet, TL52, (19), 1998, Pyner; on limestone in disused quarry, 170 m alt., NW of Berth-ddu, Halkyn Mountain, SJ27, (51), Hodgetts 3983; on oolite tomb, 3 m alt., Crowland Abbey, Crowland, TF21, (53), Stevenson; on concrete at base of old fence post, 335 m alt., S slope of Croaghaun, near car park, S85, (H13), Holyoak 02-355; on limestone rock, 90 m alt., Killelegan grassland, Lugboy, M84, (H25), Hodgetts 4055; on calcareous rock near stream, 300 m alt., Slieve League, above Lough Agh, below *Orthothecium* gully, G57, (H35), Hodgetts 3803; on mortar on top of wall, 175 m alt., Gortin Glen Forest Park camping ground, H48, (H36), Holyoak 02-1119.
- 68.17 *Schistidium elegantulum* b subsp. *wilsonii*, on concrete pipe with *S. crassipilum*, Whitson, near electricity sub-station, ST38, (35), Bosanquet, det. Smith.
- 69.3 *Grimmia laevigata*, one large tuft on S-facing igneous rock in quarry, Llangynog, SN31, (44), Bosanquet; on basalt rocks, Penrhyn, Strumble Head, SM94, (45), Bosanquet; on exposed coastal rocks, Foel y Mwnt, near Cardigan, SN15, (46), Bosanquet *et al.*; on S-facing boulder, North Berwick Law, NT58, (82), Hill & Sleath.
- 69.5 *Grimmia montana*, delete 45: voucher (slate crevices, Dinas Head, 1999, Sleath) is *Coscinodon cribrus*, comm. Smith.
- 69.11 *Grimmia ovalis*, on S-facing clay-tiled roof, Keeper's Cottage, Woodhouse Farm, Wootton, SZ59, (10), Sleath; on +/- basic open rocks at foot of large crags, 360 m alt., crags just E of Cadha an Feidh, Creag Dubh, Newtonmore, NN69, (96), Rothero 12049.
- 69.16 *Grimmia orbicularis*, on steep, S-facing limestone face, Broad Haven, Bosherton, SR99, (45), Bosanquet.
- 69.18 *Grimmia funalis*, on boulders on loch margin, 50 m alt., Loch Gruineabhat, Lewis, NB01, (110), Rothero 11077.
- 69.19 *Grimmia trichophylla*, on rock outcrop above river, 150 m alt., W of Glen River in Donards Wood, near Newcastle, J32, (H38), Holyoak 02-1040.
- 69.20 *Grimmia retracta*, on rock, Ninewells, Solva, SM72, (45), Bosanquet, det. Smith, conf. Porley; on gneiss boulder on loch margin, 160 m alt., un-named loch N of Allt nan Ramh, N of Kylestrome, NC23, (108), Rothero 12029, det. Porley.
- 69.23 *Grimmia decipiens*, on igneous rock in quarry, Llangynog, SN31, (44), Bosanquet; on boulder on N-facing hillside, 280 m alt., below Black Stairs, Thomas's Mountain, J32, (H38), Holyoak 02-1052.
- 69.25 *Grimmia curvata*, on boulder on N-facing hillside, 280 m alt., below Black Stairs, Thomas's Mountain, J32, (H38), Holyoak 02-1050.
- 70.1 *Racomitrium ellipticum*, on schist rocks on N slope near summit, 490 m alt., Bulbin Mountain, just NW of summit, C34, (H34), Holyoak 02-512B.
- 70.3 *Racomitrium aquaticum*, on NE-facing sandstone crag, Craig Ddu, Mynydd Bedwellte, SO10, (35), Bosanquet & Motley; on boulder, Hoar Edge, Titterstone Clees, SO57, (40), Lawley; on rocks by stream, 150 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4151.
- 70.6 *Racomitrium sudeticum*, on boulder, Hoar Edge, Titterstone Clees, SO57, (40), Lawley; on E-facing crags, 600 m alt., Ben Hope, NC44, (108), Porley & Hodgetts; on

- rock slabs by small loch, 100 m alt., A'Mhoine SSSI, NC55, (108), Porley & Hodgetts; on schist crags near summit, 485 m alt., Bulbin Mountain, just NW of summit, C34, (H34), Holyoak 02-502.
- 70.7 *Racomitrium affine*, on rock slab on open slope in ravine, 250 m alt., Snails Cleugh, near Hungry Snout, NT66, (82), Long 31265, det. Blockeel; on granite boulder, 210 m alt., in old quarry SW of Cam lough, H67, (H36), Holyoak 02-1101.
- 70.8 *Racomitrium heterostichum*, Higham, SD83, (59), Lowell, det. Smith; on acid rocks, 250 m alt., Selkirk Hill, NT42, (79), 1981, Corner, det. Smith; on large boulder, 530 m alt., Gougane Barra, Lough Fadda, W06, (H3), Blockeel 31/323; on siliceous rocks on NW-facing slope above disused railway, 100 m alt., Barnesmore Gap, SE of Ardinawark, H08, (H34), Hodgetts 3884.
- 70.11 *Racomitrium ericoides*, on soil amongst rocks in old quarry, 197 m alt., NE slope of Damph, SW of Glentogher, C43, (H34), Holyoak 02-585; on open sandy shingle in dune heathland, 5 m alt., Murlough NNR, J33, (H38), Holyoak 02-949.
- 70.13 *Racomitrium canescens*, on limestone quarry spoil with *R. ericoides*, Nantrymailor Quarry, Cwm Lasgarn, SO20, (35), Bosanquet.
- 71.1 *Ptychomitrium polyphyllum*, on parapet of bridge, 50 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-925.
- 72.1 *Glyphomitrium davisii*, in crevice beneath overhang on W-facing granite crag, 498 m alt., SW slope of Slieve Snaght, B91, (H35), Holyoak 02-463.
- 75.1 *Seligeria pusilla*, under overhangs on low limestone crag in woodland, Afon Alyn, E of Cilcain, SJ16, (51), Bosanquet.
- 75.6 *Seligeria recurvata*, on damp schist rock under overhang on N facing crag near summit, 490 m alt., NW of summit of Bulbin Mountain, C34, (H34), Holyoak 02-524.
- 75.9 *Seligeria donniana*, on outcrop of sandstone in deciduous woodland, Whithalls, near Hampton, SO78, (40), Lawley; in crevices of limestone crag, 270 m alt., SW of Lough Salt, C12, (H35), Holyoak 02-641.
- 76.1 *Brachydontium trichodes*, on underside of quartzite overhang on crag, 590 m alt., N slope of Muckish, C02, (H35), Holyoak 02-729.
- 77.1 *Discelium nudum*, on steep clay bank above river, 395 m alt., Altscraghy, NE slope of Cuilcagh, H12, (H33), Holyoak 02-902.
- 79.3 *Entosthodon obtusus*, on damp +/- basic bank in steep gully, Penyworlod, Capel y Ffin, SO23, (35), Bosanquet.
- 80.1 *Physcomitrium pyriforme*, on muddy ground by lough, 85 m alt., Shad Lough, M87, (H25), Hodgetts 4095; on open damp sand on bank of small stream in dunes, 20 m alt., just E of Chapel Lough, Mullaghadoo, B72, (H35), Holyoak 02-389.
- 80.3 *Physcomitrium sphaericum*, on mud in drawdown zone with *Riccia huebeneriana*, Lower Lliedi Reservoir, Llanelli, SN50, (44), Morgan, det. Motley, new to Wales.
- 81.1 *Aphanorhagma patens*, by feeder stream to reservoir, N end of Lower Lliedi Reservoir, Llanelli, SN50, (44), Bosanquet; on loamy soil near gateway into field, 5 m alt., Inch Level, C32, (H34), Holyoak 02-836; on soil heap at edge of woodland, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1087.
- 83.2 *Ephemerum sessile*, on damp clay around puddle on floor of quarry, Iet y Bwlch Quarry, SN12, (44), Bosanquet.
- 83.3 *Ephemerum cohaerens*, on exposed mud at side of reservoir, 130 m alt., Welford reservoir, SP68, (32), Hodgetts 4163, det. Holyoak.
- 83.5 *Ephemerum serratum* a var. *serratum*, on damp floor of drained reservoir, Scotch Peter's Reservoir, Tredegar, SO10, (35), Bosanquet; on mud at margin of reservoir, 310 m alt., Usk Reservoir, SN82, (44), Motley & Bosanquet; locally abundant on N shore of reservoir, Rosebush Reservoir, SN02, (45), Bosanquet; on open gravelly

- sediment in inundation zone of reservoir, 125 m alt., NW end of Lough Island Reavy Reservoir, J23, (H38), Holyoak 02-962; b var. *minutissimum*, on edge of arable field, field by North Berwick Law car park, NT58, (82), Sleath; in stubble field, 80 m alt., N of R445, W of Newhall Crossroads, W of Naas, N81, (H19), Fox & Preston; in stubble field, 60 m alt., SE of Hazelhatch Station, N93, (H21), Preston.
- 84.1 *Oedipodium griffithianum*, on soil ledges on rocky bank of gully, 735 m alt., NE-facing gully, above Loch Coire Kander, NO18, (92), Long 31299.
- 86.2 *Tetraplodon mnioides*, amongst stones in scree by well-rotted ovine, Titterstone Clee Hill, SO57, (40), Lawley.
- 88.2 *Splachnum ampullaceum*, on dung on raised mire, 297 m alt., S side of Clearburn Loch, Alemoor, NT31, (79), Corner; on deer dung in flushed mire with *S. sphaericum*, 410 m alt., Morrone Birkwood NNR, NO19, (92), Rothero 12040.
- 89.1 *Schistostega pennata*, in abandoned rabbit burrow, Brampton Bryan Park, SO37, (36), Lawley; in rabbit hole, 270 m alt., Malvern Hills, E of British Camp, SO73, (37), Lawley.
- 92.1 *Leptobryum pyriforme*, on ledge at entrance to limestone cave, 40 m alt., Blarney, in the castle grounds, W67, (H4), Blockeel 31/196; on loamy soil near gateway into field, 5 m alt., Inch Level, C32, (H34), Holyoak 02-837; on loamy soil in flowerpot at camping ground, 20 m alt., SE of Portsalon, C23, (H35), Holyoak 02-878; on open damp soil in ditch, 185 m alt., Barnes Gap, H58, (H36), Holyoak 02-1141; on thin soil on floor of old quarry, 100 m alt., Scrabo Quarry, J47, (H38), Holyoak 02-1031; on mud by reservoir, 95 m alt., NE edge of Bonner's Reservoir, Lisburn, J26, (H39), Holyoak 02-1007.
- 93.1 *Pohlia elongata* a subsp. *elongata* var. *elongata*, on thin soil on ledges of steep NW-facing crag, 420 m alt., NW slope of Bulbin Mountain, C34, (H34), Holyoak 02-807.
- 93.3 *Pohlia cruda*, on soil beneath overhang on limestone crag, 270 m alt., just SW of Lough Salt, C12, (H35), Holyoak 02-697.
- 93.6 *Pohlia drummondii*, on forestry track, Fwng Forest, NE of Llandoverly, SN84, (44), Bosanquet; sparsely on bare ground by gravelly path, 55 m alt., Glenbower Wood, near Killeagh, W97, (H5), Blockeel 31/305; on thin soil over quarried schist, 180 m alt., Barnes Gap, H58, (H36), Holyoak 02-1143.
- 93.7 *Pohlia scotica*, on sand where small burn flows into loch, 380 m alt., Loch nam Meallan Liatha, Assynt, NC21, (108), Rothero 11075.
- 93.8 *Pohlia filum*, on open sandy soil by track in old quarry, 285 m alt., above Whitewater Bridge, NE of Lough Fea, H78, (H40), Holyoak 02-1150.
- 93.10 *Pohlia bulbifera*, on peaty soil at edge of reservoir, 280 m alt., N end of Spelga Dam, J22, (H38), Holyoak 02-917.
- 93.13 *Pohlia camptotrachela*, on soil below crag, 566 m alt., NE slope of Cuilcagh, H12, (H33), Holyoak 02-910; on sandy soil among pebbles by river, 15 m alt., by Clonmany River, SE of Clonmany, C34, (H34), Holyoak 02-545; on damp soil on track, 185 m alt., Butterlope Glen, H49, (H36), Holyoak 02-1110.
- 93.14 *Pohlia flexuosa*, on vertical soil of bank above river, 35 m alt., by Crana River, NE of Buncrana, C33, (H34), Holyoak 02-580; on open damp soil in ditch, 185 m alt., Barnes Gap, H58, (H36), Holyoak 02-1142; on gravelly soil at edge of quarry, 280 m alt., above Whitewater Bridge, NE of Lough Fea, H78, (H40), Holyoak 02-1149.
- 93.16 *Pohlia lutescens*, on thin soil over rotting bough of *Quercus* near lake, 80 m alt., Drum Manor Forest Park, H77, (H36), Holyoak 02-1093; on steep soil on bank above stream, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1083.
- 93.18 *Pohlia melanodon*, in stubble field, 65 m alt., Coursetown House, W of Athy, S69, (H19), Fox & Preston; on muddy bank by channel into harbour, 35 m alt., Lecarrow

- Harbour, M95, (H25), Hodgetts 4071; on steep soil on bank on limestone, 95 m alt., near Carrickaness Bridge, W of Drumquin, H27, (H36), Holyoak 02-1124; on gritty sediment between stones by reservoir, 155 m alt., NE edge of Seagahan Reservoir, H93, (H37), Holyoak 02-1070.
- 93.19 *Pohlia wahlenbergii* a var. *wahlenbergii*, on bare wet sand by pool in old quarry, 20 m alt., SW of Kilkeel, J21, (H38), Holyoak 02-1061; c var. *calcareae*, on thin calcareous sand on ledges in shallow ravine, 35 m alt., S of Soldiers Hill, NW of Malin, C45, (H34), Holyoak 02-566.
- 96.1 *Anomobryum julaceum* b var. *concinatum*, on damp soil on bank near waterfall, Light Spout Waterfall, Cardingmill Valley, Long Mynd, SO49, (40), Lawley, det. Holyoak.
- 97.1 *Bryum marratii*, on muddy sand at edge of saltmarsh, 0 m alt., John Muir Country Park, NT67, (82), Long 31549 & Kungu; in damp hollow on dunes, Achill Island, F60, (H27), 1987, Long, (E), det. Holyoak; in ditch by road near estuary, Clonmany River, Tullagh Bay, (H34), 1969, Paton, (E, NMW), det. Holyoak.
- 97.2 *Bryum warneum*, on damp sand in dune slack, 5 m alt., N of Fahan, C32, (H34), Holyoak 02-774; on open damp sand on disturbed ground at edge of dune slack, 5 m alt., Catherine's Isle, ENE of Dunfanaghy, C03, (H35), Holyoak 02-859.
- 97.4 *Bryum calophyllum*, in damp hollow on sandy flats, 5 m alt., W of Doon Hill, near Ballyconeely, L54, (H16), 1986, Long, (E), det. Holyoak.
- 97.7 *Bryum uliginosum*, on vertical damp sand on N-facing bank in shallow ravine, 30 m alt., S of Soldiers Hill, NW of Malin, C45, (H34), Holyoak 02-561.
- 97.13 *Bryum algovicum* var. *rutheanum*, on small hummock in limestone grassland on river bank, 45 m alt., Suck River Callows, N of Athleague Bridge, M85, (H25), Hodgetts 4161; in crevices of mortared wall, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1075.
- 97.17 *Bryum imbricatum*, on wall top, Ty-isaf, Llanelli, SN59, (44), Morgan, det. Bosanquet; on skeletal metal-rich soil in Calaminarian grassland, 170 m alt., Chwara Las Mine, S of Pentre Halkyn, SJ17, (51), Hodgetts 3982; in crevice in boulder at edge of lough, 233 m alt., SW edge of Lough Reelan, C12, (H35), Holyoak 02-685; on gravelly soil on bank between ditch and road, 210 m alt., near Kelly's Bridge, Ardnamona, H07, (H36), Holyoak 02-1132.
- 97.19 *Bryum donianum*, on soil by path near coast, 87 m alt., near Luccombe Chine, SZ57, (10), Holyoak 02-338; on soil at edge of path, Burford Churchyard, near Tenbury Wells, SO56, (40), Lawley, conf. Holyoak.
- 97.21 *Bryum elegans*, on dry ledge of calcareous rock face, 1027 m alt., Creag Loisgte, Ben Lawers, NN64, (88), Long 31322.
- 97.24 *Bryum torquescens*, on open sandy slope in dunes, 5 m alt., NW of Rock, SW97, (2), Holyoak 02-003; on loose sand on foredune slope above beach, 10 m alt., Kinnoge Bay, C64, (H34), Holyoak 02-533.
- 97.27 *Bryum pallescens*, large mounds under chain-link fence, Winchestown, near Brynmawr, SO11, (35), Bosanquet; on bare sand on bank by sea, West Links, below Marine Villa, Yellow Craig SSSI, NT58, (82), Chamberlain; on waste ground by sea, Caroline Park, Granton, Edinburgh, NT27, (83), Chamberlain; on old mine tailings, near Tynagh, (H15), Good, 02-1162, det. Holyoak; in gutter below galvanised iron roof, 115 m alt., SW of Doonbeakin, S of Dromore West, G42, (H28), Holyoak 02-662; on shaded rock at entrance to old mine, 116 m alt., S of Glentogher, C43, (H34), Holyoak 02-592; on thin detritus over rusted remains of car (Opel Kadett) by lake, 90 m alt., NE edge of Lough Barra, B91, (H35), Holyoak 02-408; on damp mud among debris of ruined building, 180 m alt., in old quarry W of Brackagh South, H57, (H36),

- Holyoak 02-1109; on ground of old fire-site in old quarry, 280 m alt., above Whitewater Bridge, NE of Lough Fea, H78, (H40), Holyoak 02-1153.
- 97.28 *Bryum pseudotriquetrum* a var. *pseudotriquetrum*, on rock at edge of stream, 225 m alt., Spinkwee River, W of Slievenabrock, J33, (H38), Holyoak 02-1021; b var. *bimum*, on steep calcareous reclaimed ground, Coetgae-hen, ST29, (35), Hodgetts 3659, conf. Holyoak; on margin of calcareous pool in disused quarry, 210 m alt., Pen yr Henblas, Halkyn Mountain, SJ17, (51), Hodgetts 3988; on wet sandy lake margin, 150 m alt., Whinell Forest Center Parcs Holiday Village, NY52, (69), Hodgetts 3956; on wet path, 90 m alt., Meenanall, NW of Lough Anna, G89, (H35), Hodgetts 3852.
- 97.29 *Bryum neodamense*, delete H34: voucher (in ditch by road near estuary, Clonmany River, Tullagh Bay, (H34), 1969, Paton, E & NMW) is *B. marraii*, comm. Holyoak.
- 97.30 *Bryum caespitium*, in crevices of rocks in limestone wall, 80 m alt., Cloonchambers, M68, (H25), Hodgetts 4121.
- 97.34 *Bryum gemmiferum*, in crevice in concrete at base of bridge, River Terme, Tenbury Wells, SO56, (37), Lawley, det. Holyoak; wet area in barley stubble on clay, 95 m alt., 1.5 km W of Kildare railway station, M71, (H19), Fox & Preston; on thin soil on limestone boulder on lake shore, 47 m alt., N shore of Annaghmore Lough, M98, (H25), Holyoak 02-890; on sandy soil in damp hollow, 177 m alt., in old quarry, Killucan, H67, (H36), Holyoak 02-1095; on bank of sandy gravel in old quarry, 20 m alt., SW of Kilkeel, J21, (H38), Holyoak 02-1057.
- 97.38 *Bryum radiculosum*, on stonework of bridge, 10 m alt., Fota House, Foaty Island, W77, (H5), Blockeel 31/343; on wall at edge of lake, 5 m alt., E edge of New Lake, SW of Dunfanaghy, C03, (H35), Holyoak 02-648; in crevices of mortared wall, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1077; on wall of bridge, 50 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-928.
- 97.39 *Bryum rudemale*, in stubble field, 65 m alt., Coursetown House, W of Athy, S69, (H19), Fox & Preston, in stubble field, 60 m alt., SE of Hazelhatch Station, N93, (H21), Preston; on disturbed soil at base of wall, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1074; on disturbed ground by estuarine bay, 5 m alt., W of Dundrum, J33, (H38), Holyoak 02-955.
- 97.40 *Bryum violaceum*, on chalky-loam soil in stubble field, 20 m alt., Wellow, SZ38, (10), Hill & Preston, in stubble field, field by North Berwick Law car park, NT58, (82), Hill; in stubble field, 80 m alt., Garrans Crossroads, NE of Stradbally, S59, (H14), Fox & Preston; in stubble field, 60 m alt., SE of Hazelhatch Station, N93, (H21), Preston.
- 97.41 *Bryum klingraeffii*, in stubble field, 60 m alt., SE of Hazelhatch Station, N93, (H21), Preston.
- 97.43 *Bryum tenuisetum*, in arable ley with *Weissia longifolia* var. *longifolia*, field by North Berwick Law car park, NT58, (82), Duckett; on thin soil on damp rock beside estuary, 5 m alt., E bank of Lackagh River, near Lackagh Bridge, C03, (H35), Holyoak 02-678.
- 97.44 *Bryum subapiculatum*, on exposed soil of flushed bank on N-facing low coastal headland, 7 m alt., Culoort, NW of Malin, C45, (H34), Holyoak 02-574; on gravelly sand, 177 m alt., in old quarry, Killucan, H67, (H36), Holyoak 02-1097B; on gravelly soil on verge beside road, 210 m alt., near N end of Silent Valley Reservoir, J32, (H38), Holyoak 02-978.
- 97.45 *Bryum bornholmense*, on gritty soil amongst granite rocks on hill top, 520 m alt., W summit of Edenodooish, B92, (H35), Holyoak 02-437.
- 97.46 *Bryum rubens*, on disturbed soil by path, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1079; on bank of sandy gravel in old quarry, 20 m alt., SW of Kilkeel, J21, (H38), Holyoak 02-1059.

- 99.3 *Mnium thomsonii*, on N-facing crag just above lough, 250 m alt., Slieve League, above Lough Agh, G57, (H35), Hodgetts 3812.
- 99.5 *Mnium marginatum* a var. *marginatum*, in short turf on sandy bank above cliffs, 15 m alt., Maghera Strand, near caves, G69, (H35), Hodgetts 3834; on sand in low dunes, 15 m alt., Drumnatanny, N of Falcarragh, B93, (H35), Holyoak 02-456.
- 99.6 *Mnium stellare*, in open damp grassland on flushed slope below dunes, 10 m alt., Doagh Isle, NE of Ballyliffin, C45, (H34), Holyoak 02-486.
- 101.2 *Rhizomnium magnifolium*, in flush, 600 m alt., Ben Buck, Ochils, NN80, (87), 1992, Corner, conf. Long.
- 102.1 *Plagiomnium cuspidatum*, at base of *Juncus* tussock in muddy pasture, 35 m alt., Cullagh, Lough Ree, W of Lanesborough, M98, (H25), Hodgetts 4086.
- 102.2 *Plagiomnium affine*, in short turf in dune heath, 15 m alt., Maghera Strand, dune heath peninsula, G69, (H35), Hodgetts 3826.
- 102.5 *Plagiomnium ellipticum*, on tree base in stream, 65 m alt., Wetmoor Nature Reserve, Wickwar, ST78, (34), Martin & Martin; in grassy flush below limestone outcrops, 590 m alt., Morrone Birkwood NNR, NO18, (92), Rothero 12042; below carr and tall herbs at lough edge, 35 m alt., St John's Wood, Lough Ree, M95, (H25), Hodgetts 4060.
- 106.1 *Meesia uliginosa*, on damp humic sand in dune slack, 5 m alt., SE of Rosepenna, C13, (H35), Holyoak 02-597, new to Ireland.
- 107.1 *Amblyodon dealbatus*, in calcareous stony flush below limestone outcrops, 590 m alt., Morrone Birkwood NNR, NO18, (92), Rothero 12041; on sand at base of slope by stream in shallow ravine, 30 m alt., S of Soldiers Hill, NW of Malin, C45, (H34), Holyoak 02-560; in mat on damp sandy soil at base of slope, 7 m alt., N end of Rosses Strand, C14, (H35), Holyoak 02-599.
- 109.1 *Plagiopus oederianus*, on NE-facing crag, Rhuddallt, SN74, (44), Motley & Bosanquet.
- 110.2 *Bartramia pomiformis*, dry sheltered NE-facing rock crevice on hillside, 250 m alt., Altnandewon, Common Mountain Glengesh, G78, (H35), Hodgetts 3845.
- 112.4 *Philonotis caespitosa*, on damp face of outcrop by road, Plasgeler, SN33, (44), Bosanquet, det. Holyoak; on firm mud in inundation zone by reservoir, 155 m alt., NE edge of Seagahan Reservoir, H93, (H37), Holyoak 02-1068; on mud at edge of tarmac on disused moorland road, 335 m alt., near S end of Spelga Dam, J22, (H38), Holyoak 02-977; on open sandy soil by track in old quarry, 285 m alt., above Whitewater Bridge, NE of Lough Fea, H78, (H40), Holyoak 02-1151.
- 112.5 *Philonotis fontana*, beside ditch, Bohemia Bog, Rookley, SZ58, (10), Sleath.
- 112.6 *Philonotis tomentella*, in small flush below basalt cliffs, 300 m alt., Sgurr a'Mhadiadh Ruaidh, Trotternish, NG45, (104), Hodgetts 3697; in bryophyte mat beneath overhang on N-facing rocks near summit, 488 m alt., Bulbin Mountain, just NW of summit, C34, (H34), Holyoak 02-518; on crags just E of gully near top of N-facing coire, 550 m alt., Lavagh More, G99, (H35), Hodgetts 3863, new to Ireland.
- 116.1 *Zygodon viridissimus* b var. *stirtonii*, on limestone wall by track, 45 m alt., Suck River Callows, Carrowntarriff, M84, (H25), Hodgetts 4080; on mortar of old wall, 7 m alt., SE of Castle Island, Strangford Lough, J54, (H38), Holyoak 02-996.
- 116.2 *Zygodon rupestris*, on branch of elder in small copse, Cherry Hill, TM04, (26), Fisk; on ash tree in wooded ravine, 150 m alt., Glen Tarf, Fort Augustus, NH30, (96), Hodgetts 3958; on trunk of large *Quercus*, 50 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-919.
- 116.3 *Zygodon conoideus*, on sycamore tree, 350 m alt., Needlehouse Gill, SD79, (65), Blockeel 31/256; on mature oak in woodland, 110 m alt., by path above Duncarn Burn, Findhorn ravine, NH95, (95), Rothero 12033; on trunk of poplar, 110 m alt., River Bride, Ardarou Wood, Glenville, W78, (H5), Blockeel 31/366; on large ash by

- road, 90 m alt., Carricknahorna, N of crossroads, G96, (H34), Hodgetts 3906, and on ash tree by disused railway, 100 m alt., Barnesmore Gap, SE of Ardinawark, H08, (H34), Hodgetts 3885; on bark of *Robinia* in garden, 100 m alt., Drum Manor Forest Park, H77, (H36), Holyoak 02-1092.
- 117.1 *Orthotrichum lyellii*, on dead *Salix*, Whirlowbrook Park, Sheffield, SK38, (57), Egan, conf. Blockeel.
- 117.5 *Orthotrichum rupestre*, on open sloping shale rocks on slope below dunes, 10 m alt., Doagh Isle, NE of Ballyliffin, C45, (H34), Holyoak 02-482.
- 117.8 *Orthotrichum anomalum*, on mortar of old wall, 7 m alt., SE of Castle Island, Strangford Lough, J54, (H38), Holyoak 02-995.
- 117.9 *Orthotrichum cupulatum* b var. *riparium*, on boulder at edge of lough, 14 m alt., Lough Neagh at Oxford Island, J06, (H37), Holyoak 02-1009.
- 117.10 *Orthotrichum rivulare*, on branch of *Salix cinerea* in carr at edge of lake, 5 m alt., E side of Quoile Pondage Basin NNR, Downpatrick, J44, (H38), Holyoak 02-993.
- 117.11 *Orthotrichum sprucei*, on silt-encrusted tree in flood zone, River Lagan, Drumbridge, (H38), Weyl, det. Holyoak.
- 117.12 *Orthotrichum stramineum*, on tree trunk, 110 m alt., Ozelworth Park, Wotton-under-Edge, ST89, (34), 1996, Martin; on branch of elder by pool, Tunnel Hill, SP04, (37), Lawley.
- 117.15 *Orthotrichum pumilum*, on ash tree, near York, (62 in ()), 1843, Spruce, (NMW), det. Wharton; on ash tree on edge of riverside wood, Low Harperley, near footbridge over River Wear, NZ13, (66), 2000, Wharton & Wharton.
- 117.16 *Orthotrichum diaphanum*, on concrete fencepost in shallow ravine, 35 m alt., S of Soldiers Hill, NW of Malin, C45, (H34), Holyoak 02-568; on *Salix cinerea* in carr at edge of lake, 5 m alt., E side of Quoile Pondage Basin NNR, Downpatrick, J44, (H38), Holyoak 02-991.
- 117.17 *Orthotrichum pulchellum*, on *Salix* in wet ground, 40 m alt., Glenbower Wood, near Killeagh, W97, (H5), Blockeel 31/312; on *Corylus* in scrub on steep slope above beach, 25 m alt., Kinnoge Bay, C64, (H34), Holyoak 02-540; on *Fagus sylvatica* by pond, 45 m alt., Mill Pond, Tollymore Forest Park, J33, (H38), Holyoak 02-942.
- 118.4 *Ulota bruchii*, on ash tree, College Wood, Nash, SP73, (24), Higgs, det. Porley; on old willow on wet ground, 105 m alt., by River Meden, Pleasley Vale, SK56, (56), Blockeel 31/405; on hazel with *Frullania tamarisci* etc., 40 m alt., St John's Wood, Lough Ree, M95, (H25), Hodgetts 4059.
- 118.5 *Ulota calvescens*, on twigs of *Salix* in gully, 340 m alt., Gougane Barra, below Lough Fadda, W06, (H3), Blockeel 31/327.
- 118.7 *Ulota phyllantha*, on *Salix cinerea* in carr at edge of lake, 5 m alt., E side of Quoile Pondage Basin NNR, Downpatrick, J44, (H38), Holyoak 02-990.
- 119.2 *Hedwigia stellata*, on conglomerate block, E end of Grey Hill, Wentwood, ST49, (35), Bosanquet; on boulder on open hillside above forest, 476 m alt., below Craig Rennet, Glen Fee, NO27, (90), Long 31273; on low outcrop on hillside, 205 m alt., W slope of Slievenabrock, J33, (H38), Holyoak 02-1019.
- 120.1 *Fontinalis antipyretica* c var. *gigantea*, on concrete edging of canal, Grand Union Canal, Milton Keynes, SP84, (24), 1999, Higgs, det. Porley; in very wet fen on lough shore, 35 m alt., Portrunny Bay, Lough Ree, M96, (H25), Hodgetts 4069.
- 120.2 *Fontinalis squamosa* a var. *squamosa*, submerged on stones, 105 m alt., River Bride, Ardrou Wood, Glenville, W78, (H5), Blockeel 31/360.
- 122.1 *Cryphaea heteromalla*, on *Salix cinerea* in carr on lough shore, 21 m alt., NE shore of Lough Fern, C12, (H35), Holyoak 02-745; on *Sambucus nigra* at edge of plantation, 65 m alt., S of Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-981.

- 123.1 *Leucodon sciuroides* a var. *sciuroides*, on old *Fraxinus* in parkland, 80 m alt., Florence Court House, H13, (H33), Long 30787.
- 125.1 *Pterogonium gracile*, on crags of base-rich basalt, Blackford Hill, near summit, NT27, (83), Chamberlain.
- 129.1 *Homalia trichomanoides*, on boulder at edge of stream, 30 m alt., Kerry River, Glengarriff, V85, (H3), Blockeel 31/354.
- 131.1 *Pterigynandrum filiforme* b var. *majus*, on rock on shore of upland lochan, 730 m alt., Loch Carn a'Chuilinn, NH40, (96), Hodgetts 3962.
- 138.1 *Leskea polycarpa*, on base of tree by lake, 4 m alt., Kilkeran Lake, Castlefreke, W33, (H3), Blockeel 31/378; on *Salix cinerea* in carr on lough shore, 21 m alt., NE shore of Lough Fern, C12, (H35), Holyoak 02-746.
- 143.1 *Anomodon longifolius*, under overhang on limestone crag, Kite's Bush, Mounton, ST59, (35), Bosanquet.
- 143.3 *Anomodon viticulosus*, on limestone rocks in arboretum, 10 m alt., Fota House, Foaty Island, W77, (H5), Blockeel 31/346; on limestone wall by road, 40 m alt., Sedboro, near Dromineer, E side of Loch Derg, R88, (H10), Long 31464.
- 144.1 *Heterocladium heteropterum* a var. *heteropterum*, on rock by burn, South Burn, Hoy, (111), McCance; b var. *flaccidum*, on face of base-rich boulder in ravine, 100 m alt., just above outflow of Dunearn Burn, Findhorn ravine, NJ05, (95), Rothero 12038; on shaded damp rock by river in wooded ravine, 150 m alt., Glen Tarf, Fort Augustus, NH30, (96), Hodgetts 3971; on shaded wet limestone rock, 45 m alt., Tawnyskin Wood, Lough Key, M80, (H25), Hodgetts 4100; on limestone in plantation woodland, 60 m alt., Ederamone, G96, (H34), Hodgetts 3913; on overhanging sandstone near river in wooded gorge, 160 m alt., Sloughan Glen, H27, (H36), Holyoak 02-1125.
- 144.2 *Heterocladium wulfsbergii*, on rocks in river, Afon Cothi, W of Abergorlech, SN53, (44), Bosanquet.
- 145.4 *Thuidium philibertii*, on SE-facing spoil in limestone quarry, E side of The Bloreng, SO21, (35), Bosanquet.
- 145.5 *Thuidium recognitum*, in short grassland in dune slack, 10 m alt., Doagh Isle, NE of Ballyliffin, C45, (H34), Holyoak 02-481; in moss mat in dune slack with *Salix repens*, 5 m alt., N of Lough Nagreany, C14, (H35), Holyoak 02-882.
- 147.1 *Palustriella commutata* a var. *commutata*, on damp schisty rock above river, 70 m alt., Spinkwee River, Tollymore Forest Park, J33, (H38), Holyoak 02-986.
- 150.1 *Campylium stellatum* a var. *stellatum*, in blanket bog flush with *Drepanocladus cossonii*, 250 m alt., 1 km downstream of outflow from Lough Bradan, H54, (H32), Lockhart 2002/04a; on peat in flush on hillside, 200 m alt., W slope of Slievenabrock, J33, (H38), Holyoak 02-1017; b var. *protensum*, in moss carpet on steep damp sand on N-facing slope above beach, 15 m alt., Kinnoge Bay, C64, (H34), Holyoak 02-535.
- 151.1 *Campyliadelphus chrysophyllus*, on damp calcareous slope with *Alchemilla glaucescens*, 57 m alt., Hilton Bay, NT95, (81), Long 31202; on thin sandy soil on top of low crag in dunes, 15 m alt., Doagh Isle, NE of Ballyliffin, C45, (H34), Holyoak 02-493; on open damp sand in hollow on hillside near dunes, 10 m alt., Cruit Island, B72, (H35), Holyoak 02-383.
- 151.2 *Campyliadelphus elodes*, around stems of reeds in rich fen, 90 m alt., Carricknahorna Lough, G96, (H34), Hodgetts 3908; in dune slack, 5 m alt., NW of New Lake, Dunfanaghy, B93, (H35), Holyoak 02-704.
- 153.1 *Amblystegium serpens* a var. *serpens*, on *Salix cinerea* in carr at edge of lake, 5 m alt., E side of Quoile Pondage Basin NNR, Downpatrick, J44, (H38), Holyoak 02-989; b var. *salinum*, on steep bank of sand at landward edge of dunes, 5 m alt., NW of Rock, SW97, (2), Holyoak 02-005.

- 153.2 *Amblystegium fluviatile*, at water level on stonework of bridge, 105 m alt., River Bride, Ardarou Wood, Glenville, W78, (H5), Blockeel 31/362; on vertical limestone wall of harbour, 35 m alt., Lecarrow Harbour, M95, (H25), Hodgetts 4066.
- 153.3 *Amblystegium tenax*, on exposed tree roots at edge of lake, 115 m alt., SE edge of Castlewellan Lake, J33, (H38), Holyoak 02-1037.
- 154.1 *Leptodictyum riparium*, on log at edge of lake, 4 m alt., Kilkeran Lake, Castlefreke, W33, (H3), Blockeel 31/377; on soil beneath *Salix cinerea*, by path at edge of lake, 5 m alt., E side of Quoile Pondage Basin NNR, Downpatrick, J44, (H38), Holyoak 02-988.
- 155.1 *Conardia compacta*, on E-facing rocks at base of crag by stream, 20 m alt., rocky valley near Boscastle, SX08, (2), Holyoak 02-354; on vertical sandstone rock face in wooded ravine, Roslin Glen, below Roslin castle, NT26, (83), Chamberlain.
- 156.1 *Warnstorfia fluitans*, by stream and waterfall on crags, 150 m alt., Kilronan Mountain, Arigna, G91, (H25), Hodgetts 4148.
- 156.2 *Warnstorfia exannulata*, in wet heath with *Sphagnum compactum*, 250 m alt., Tan-y-Foel, Halkyn Mountain, SJ26, (51), Hodgetts 3986; in flush in blanket bog, 300 m alt., Glenletter, Slieve Bloom Mountains, N20, (H18), Lockhart 2002/15a; in carpet on wet ground at edge of lake, 235 m alt., E edge of Loughahull, H07, (H36), Holyoak 02-1137; on peat in inundation zone of reservoir, 330 m alt., near S edge of Spelga Dam, J22, (H38), Holyoak 02-975.
- 157.1 *Drepanocladus polygamus*, on damp soil in grass just above saltmarsh, 5 m alt., Binnion, NW of Clonmany, C34, (H34), Holyoak 02-498.
- 157.3 *Drepanocladus sendtneri*, edge of sedge fen, Pwll Trefeiddan, Penlas, SM72, (45), Bosanquet, conf. Hill; in damp basic depression in limestone quarry, S of Pen yr Henblas quarry, Halkyn Mountain, SJ17, (51), Bosanquet.
- 157.4 *Drepanocladus lycopodioides*, abundant in inundated sedge and reed beds by small lough, 50 m alt., Fin Lough, near Lough Key, G80, (H25), Hodgetts 4116.
- 157.5 *Drepanocladus revolvens*, in basic flush with *D. cossonii*, Hatterall Hill, above Blaenyoy, SO32, (35), Bosanquet; in flush near head of burn, 540 m alt., West Burn, below Cairn of Barns, Glen Logie, NO37, (90), Hodgetts 4017; in flush on slope above sea-cliff, 30 m alt., Dunree Head, C23, (H34), Holyoak 02-787; in flush on N-facing hillside, 290 m alt., NE slope of Bolaght Mountain, H27, (H36), Holyoak 02-1128.
- 157.6 *Drepanocladus cossonii*, at edge of base-rich flush, by track to Llyn-y-fan Fach, SN82, (44), Motley & Bosanquet.
- 158.1 *Hamatocaulis vernicosus*, in poor fen near old diatomite workings, 180 m alt., Cuithir, Lealt, Skye, NG45, (104), Payne, (E), conf. Blockeel.
- 160.1 *Sanionia uncinata*, on willow, 4 m alt., Marston Marsh, Tuckwood, near River Yare, TG00, (27), Stevenson, conf. Hill; in damp turf, W side of Carn Sian, Mynydd Preseli, SN13, (45), Bosanquet.
- 160.2 *Sanionia orthothecoides*, in heathy turf by small burn at base of gully in N-facing crags, 40 m alt., crags above lochan E of Rubha Ruadh, NC15, (108), Rothero 12022.
- 161.3 *Hygrohypnum luridum* a var. *luridum*, in flush on steep E-facing slope in coire, 330 m alt., Slieve Tooley, above Lough Croaghballaghdown, G69, (H35), Hodgetts 3794; on open vertical concrete at edge of lough, 14 m alt., Lough Neagh at Oxford Island, J06, (H37), Holyoak 02-1008.
- 161.5 *Hygrohypnum eugyrium*, on rocks in river, 110 m alt., Randolph's Leap, Findhorn ravine, NH94, (95), Rothero 12034.
- 164.1 *Calliergon stramineum*, in blanket bog flush, 350 m alt., E of Three Counties Hollow, Eshbrack, H54, (H32), Lockhart 2002/05a; on peat in inundation zone of reservoir, 330 m alt., near S edge of Spelga Dam, J22, (H38), Holyoak 02-974.

- 166.1 *Isoethecium myosuroides* b var. *brachythecioides*, on sandstone crag, Bannau Sir Gaer, Mynydd Ddu, SN82, (44), Bosanquet; sheltered crevice on crags in ravine, 380 m alt., Rhinns of Kells, slopes above Loch Dungeon, NX58, (73), Rothero 12046.
- 166.2 *Isoethecium alopecuroides*, on bark of *Quercus*, 50 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-921.
- 167.1 *Scorpiurium circinatum*, on limestone spur, above Mounton Brook, Mounton, ST59, (35), Bosanquet.
- 168.2 *Homalothecium lutescens*, in rocky calcareous grassland on W-facing slope, 600 m alt., slopes just below Creag na Gaibhre, Glen Feshie, NN89, (96), Rothero 12047.
- 169.1 *Brachythecium albicans*, on open sandy shingle in dune heathland, 5 m alt., Murlough NNR, J33, (H38), Holyoak 02-951.
- 169.3 *Brachythecium glareosum*, on grassy ledge at base of +/- base-rich crag, 380 m alt., E end of Creag Dubh, near Newtonmore, NN69, (96), Rothero 12048; on damp sand in grassland, 25 m alt., SW of Lagacurry, Doagh Isle, C45, (H34), Holyoak 02-553.
- 169.5 *Brachythecium mildeanum*, on damp track in disused limestone quarry, Cwmyrnyscoy, Pontypool, ST29, (35), Bosanquet; in roadside turf on moorland, Mynydd Llanllwni, SN53, (44), Bosanquet, conf. Hill; on open sandy flats by stream, 5 m alt., small bay SW of Sheigra, NC16, (108), Long 31583 & Kungu; in moss carpet in dune slack, 5 m alt., N of Fahan, C32, (H34), Holyoak 02-767.
- 169.7 *Brachythecium rivulare*, on rocks by river, 45 m alt., edge of Shimna River, Tollymore Forest Park, J33, (H38), Holyoak 02-940.
- 169.14 *Brachythecium populeum*, on sallow in birch woodland on old dune slack, 5 m alt., Coul Links, Loch Fleet, NH89, (107), Rothero 11072 & MacLean; on sandstone block on floor of old quarry, 100 m alt., Scrabo Quarry, J47, (H38), Holyoak 02-1029.
- 170.2 *Scleropodium cespitans*, on ash in swampy carr, 15 m alt., Surlingham Broad, TG30, (27), Hodgetts 3945, conf. Blockeel; on boulder near lough shore, 21 m alt., E shore of Lough Fern, C12, (H35), Holyoak 02-748.
- 171.1 *Cirriphyllum piliferum*, in grass on roadside verge, 40 m alt., roadside near Lough Lareen, G96, (H34), Hodgetts 3911; on soil by track at edge of lake, 45 m alt., E edge of lake, Tollymore Forest Park, J33, (H38), Holyoak 02-945.
- 172.4 *Rhynchostegium confertum*, on concrete at base of old fence post, 335 m alt., S slope of Croaghaun, near car park, S85, (H13), Holyoak 02-357; on top of wall of bridge, 50 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-924.
- 173.4 *Eurhynchium pulchellum* var. *diversifolium*, on soil hummock, Ben Vrackie, NN96, (89), Lawley, det. Rothero, conf. Blockeel.
- 173.5 *Eurhynchium pumilum*, on earthy underhang on river bank, 110 m alt., River Bride, Ardrou Wood, Glenville, W78, (H5), Blockeel 31/367; on steep soil on bank in woodland, 70 m alt., just W of Bunclody, S95, (H13), Holyoak 02-371; on tufa under overhanging sea cliff, 5 m alt., coast N of Ballyliffin, C34, (H34), Holyoak 02-497; on thin soil over limestone on outcrop, 95 m alt., near Carrickaness Bridge, W of Drumquin, H27, (H36), Holyoak 02-1123; on steep soil on bank above stream, 65 m alt., Gosford Forest Park, H94, (H37), Holyoak 02-1082.
- 173.7 *Eurhynchium hians*, on soil on slope at woodland edge near road, 70 m alt., just W of Bunclody, S95, (H13), Holyoak 02-369; in stubble field (winter wheat), 70 m alt., Furry Field, Courttown East townland, Athy, S69, (H19), Fox & Preston; on thin soil over rocks by river, 45 m alt., by Shimna River in Tollymore Forest Park, J33, (H38), Holyoak 02-932.
- 174.4 *Rhynchostegiella teneriffae*, on wet rocks in small stream in oak woodland, 10 m alt., E bank of River Bandon, SE of Innishannon, W55, (H4), Blockeel 31/376.

- 175.1 *Entodon concinnus*, on grassy calcareous slope with *Helianthemum*, 195 m alt., near Deil's Neuk, Greenlaw Dean, NT64, (81), Long 31237.
- 177.1 *Myurella julacea* a var. *julacea*, on thin soil in crevices beneath overhang on schist crags near summit, 485 m alt., Bulbin Mountain, just NW of summit, C34, (H34), Holyoak 02-503B.
- 178.1 *Platydictya jungermannioides*, on shaded conglomerate rock by stream, Tinker's Leap, Woodhall Dean SSSI, NT67, (82), Chamberlain; on soil on marble outcrop, 15 m alt., W of Melmore Lough, C14, (H35), Holyoak 02-608.
- 180.9 *Plagiothecium cavifolium*, with other bryophytes on thin soil under overhang of N-facing crag, 490 m alt., NW of summit of Bulbin Mountain, C34, (H34), Holyoak 02-523.
- 180.10 *Plagiothecium succulentum*, on soil under Sitka in plantation, Garafin, S29, (H14), French *et al.*, det. Kelly.
- 184.1 *Taxiphyllum wissgrillii*, on rock in stream at edge of conifer plantation, 50 m alt., Ederamone, G96, (H34), Hodgetts 3919.
- 187.1 *Pylaisia polyantha*, on willow in swampy carr, 15 m alt., Surlingham Broad, TG30, (27), Hodgetts 3946, conf. Blockeel.
- 188.1 *Platygyrium repens*, on *Salix* trunk in carr, 35 m alt., The Wilderness, S of Rookley, SZ58, (10), Long 31024.
- 189.1 *Homomallium incurvatum*, on flat upper surface of calcareous sandstone boulder, 80 m alt., Den of Airlie NNR, NO25, (90), Rothero 12044, conf. Porley.
- 190.4 *Hypnum lacunosum* b var. *tectorum*, on rocks, 280 m alt., Roberts Linn, Shantend, NT50, (79), 1972, Corner, det. Smith; on basalt outcrop with *Schistidium apocarpum*, N bank of Eden Water, above Stichill Linn, NT73, (80), 1996, Long & Lusby, (E), conf. Smith.
- 190.6 *Hypnum andoi*, on *Salix*, River Bride, Ardarou Wood, Glenville, W78, (H5), Blockeel 31/368; on fallen tree in scrubby woodland, 70 m alt., S of Glenmore Bridge, Welchtown, H09, (H34), Hodgetts 3856, and on tree trunk in woodland, 70 m alt., Cloghan More, H09, (H34), Hodgetts 3857; on *Salix cinerea* at edge of woodland, 100 m alt., Drum Manor Forest Park, H77, (H36), Holyoak 02-1088.
- 190.11 *Hypnum lindbergii*, in wet pasture at edge of turlough, 250 m alt., Newtown Turlough, M77, (H25), Hodgetts 4093; at edge of gravel track in plantation, 135 m alt., SE of Glen River in Donards Wood, near Newcastle, J32, (H38), Holyoak 02-1039.
- 192.1 *Ctenidium molluscum* c var. *condensatum*, on flushed slope below crags, 425 m alt., NW slope of Bulbin Mountain, C34, (H34), Holyoak 02-800.
- 194.2 *Rhytidiadelphus squarrosus*, in lawn in cemetery, 80 m alt., Kildaree graveyard, near Williamstown, M56, (H17), Hodgetts 4134.

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FURTHER OBSERVATIONS ON *DREPANOCLADUS ADUNCUS* IN BRITAIN

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Segregates of *Drepanocladus aduncus* in Britain and Ireland

About a year ago, I drew attention to the possibility that there might be more than one taxon within *Drepanocladus aduncus* in Britain and Ireland (Hill, 2002). Żarnowiec (2001) recognised three taxa in Britain and Ireland: *D. polycarpus* (Bland. ex Voit) Warnst. with mid-lamina cells 29-59 µm long, *D. aduncus* (Hedw.) Warnst. with cells 71-118 µm long, and *D. stagnatus* Żarnowiec with cells 134-147 µm long. I offered to examine modern specimens if members of the BBS would send them. A puzzling thing about Żarnowiec's criteria was that his 'soft' characters, such as cell length, did not overlap. In view of Hedenäs's (1998) observations on *D. sendtneri*, this seemed unlikely. Indeed, Hedenäs (1996) had noted that under experimental conditions, a single clone of *D. aduncus* produced expressions with cell lengths mostly in the range 40-70 µm, but in one case up to 140 µm.

Given Hedenäs's results, it seemed unlikely that Żarnowiec could be right. Nevertheless, for a period of about four months I kept an open mind and tried hard to assign the specimens that were sent to me to the three putative taxa. In most cases such pigeonholing was possible. However, one specimen, collected by George Bloom in a field by the Thames near Burcot, was completely intermediate between *D. polycarpus* and *D. aduncus*, with mid-leaf cells mostly 50-80 µm long. Other specimens, especially some sent by Sam Bosanquet, were also intermediate, although there were parts of the stems in which the leaves were typical of *D. polycarpus*.

In April 2002, the BBS Cambridge Group visited Block Fen, near Mepal in Cambridgeshire. Here, there were abundant plants that appeared to fit both *D. polycarpus* and *D. aduncus*. There was no clear distinction between them in the field, and it seemed likely that they were merely differing expressions of a very variable taxon. The matter was clinched by a specimen collected by Jonathan Graham. The lower parts of the stem were unequivocally *D. polycarpus*, with relatively short leaves and mid-leaf cells about 40 µm long. The upper parts were equally unequivocally *D. aduncus*, with long leaves and mid-leaf cells about 100 µm long. Clearly, the plant was showing a similarly wide phenotypic range to that which Hedenäs (1996) had found in cultivation.

The range of phenotypic variation at Block Fen makes it clear that Żarnowiec's (2001) distinction between *D. polycarpus* and *D. aduncus* cannot be upheld. If there are two distinct taxa, then they certainly cannot be distinguished by the characters that he gives.

In early 2002, there was no definite record of *D. stagnatus* in Britain later than 1913. However, in September 2002, Sean Edwards wrote to say that he had examined a specimen collected by Fred Rumsey that appeared to be intermediate between *D. aduncus* and *D. stagnatus*. 'The cell length is perfect [for *D. stagnatus*] (ours 115-140 µm vs yours 134-147 µm), but although the longer leaves are about 3.5-4.2 mm long and the right shape, there are plenty shorter and more falcate (about 1.6 mm and cells about 100 µm). These fully grown

leaves are nearer the slightly curved stem apices, and might indicate a change of wetness during the growth period. If I were to keep looking, I'm sure I'd find a leaf longer than 4.2 mm, but this basically backs up your interpretation that *Drepanocladus stagnatus* is no more than a variety and indeed probably just a habitat adaptation of *Drepanocladus aduncus*.'

Conclusions

There is no good evidence for the existence of more than one taxon within *D. aduncus* as currently understood in Britain and Ireland. The species is remarkably plastic, and both *D. polycarpus* and *D. stagnatus* are merely distinctive phenotypes.

Key specimens examined

- Field by Thames near Burcot, SU59, (VC 22), 1985, G. Bloom (intermediate between *D. polycarpus* and *D. aduncus*)
- Edge of pool, Block Fen, Mepal, TL48, (VC 29), 2002, J. Graham (intermediate between *D. polycarpus* and *D. aduncus*)
- Margins of heathland pool with *Pilularia globulifera*, Little Mountain, near Hay-on-Wye, SO24 (VC 36), 2000, F. Rumsey (intermediate between *D. aduncus* and *D. stagnatus*); examined by Sean Edwards but not seen by Mark Hill

Acknowledgements

I thank Tony Smith for reminding me of Hedenäs's (1996) paper, George Bloom and Jonathan Graham for collecting such remarkably intermediate specimens, and Sean Edwards for his observations on the *Drepanocladus stagnatus* problem. I am grateful to other bryologists who sent specimens for checking: T.L. Blockeel, S.D.S. Bosanquet, Miss M.M. Hartley, D.T. Holyoak, R.J. Murphy, A.G. Payne, J. Port and M.C. Watling.

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