

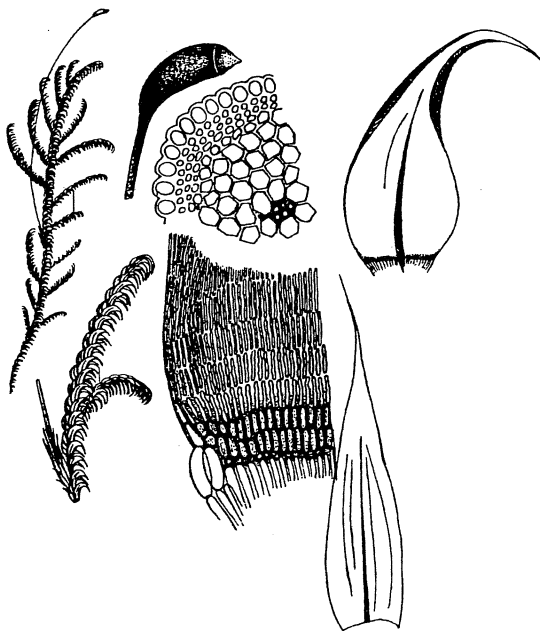


**BULLETIN
OF THE
BRITISH
BRYOLOGICAL SOCIETY**

NUMBER 75

JULY 2000

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Edited by M.J.M. Yeo

**PUBLISHED BY THE BRITISH BRYOLOGICAL SOCIETY
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BRITISH BRYOLOGICAL SOCIETY

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

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

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

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

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

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

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

The cover illustration is of *Drepanocladus revolvens* from W. Mönkemeyer's *Die Laubmoose Europas*, 1927 (see pp 32-40 of this *Bulletin* for an account of *D. revolvens* and *D. cossonii* in Britain and Ireland).



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BRITISH BRYOLOGICAL SOCIETY

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 DECEMBER 1999

	1999 £	1998 £
GENERAL FUND		
INCOME		
Interest	1,921	2,767
Grants	2,000	1,100
Subscriptions	11,448	10,795
Sales of publications, etc.		
<i>Journal of Bryology</i>	9,191	15,807
<i>Census Catalogue</i>	2,160	-
<i>English Names</i>	117	-
Other publications	174	118
Lenses and forceps	580	382
Reading Circle	192	65
Postage and sundries	438	61
AGM and other meetings	<u>2,701</u>	<u>2,711</u>
	<u>30,922</u>	<u>33,806</u>
EXPENDITURE		
Printing and distribution		
<i>Journal of Bryology</i>	14,774	26,287
<i>Bulletin</i>	3,419	1,065
<i>Census Catalogue</i>	4,318	40
<i>English Names</i>	204	-
<i>Symposium Volume</i>	3,827	-
Purchases for resale (publins, lenses and forceps)	1,105	539
Library purchases	90	26
AGM and other meetings	2,826	2,358
Officers' expenses	1,060	640
Reading Circle	81	70
Insurance	282	282
Return of overpaid subscriptions	70	45
Legal fees	870	-
Bank charges and sundries	<u>163</u>	<u>229</u>
	<u>33,089</u>	<u>31,581</u>
(DEFICIT)/SURPLUS FOR YEAR	<u>(£2,167)</u>	<u>£2,225</u>
BEQUEST AND DONATION FUND		
Bequests and donations	2,371	-
Interest	1,949	2,996
Awards	<u>(11,555)</u>	<u>(1,270)</u>
(DEFICIT)/SURPLUS FOR YEAR	<u>(£7,235)</u>	<u>£1,726</u>

BRITISH BRYOLOGICAL SOCIETY

STATEMENT OF AFFAIRS AS AT 31 DECEMBER 1999

	1999 £	1998 £
GENERAL FUND		
Balance as at 1 January	46,676	44,451
(Deficit)/Surplus for year	<u>(2,167)</u>	<u>2,225</u>
Balance as at 31 December	<u>44,509</u>	<u>46,676</u>
BEQUEST AND DONATION FUND		
Balance as at 1 January	50,779	49,053
(Deficit)/Surplus for year	<u>(7,235)</u>	<u>1,726</u>
Balance as at 31 December	<u>43,544</u>	<u>50,779</u>
	<u>£88,053</u>	<u>£97,455</u>
REPRESENTED BY:		
Cash at National Westminster Bank	5,953	6,488
Girobank	1,236	1,133
National Savings Investment Account	49,875	48,371
National Savings Treasurers Account	<u>42,473</u>	<u>51,879</u>
	<u>99,537</u>	<u>107,871</u>
Less current liabilities:		
Publication cost of <i>J. Bryol.</i> (net)	<u>11,484</u>	<u>10,416</u>
NET ASSETS	<u>£88,053</u>	<u>£97,455</u>

J.M. BLACKBURN, I.P.F.A.
Treasurer



I have examined the above accounts and, based on my examination, no matter has come to my attention which gives me reasonable cause to believe that in any material respect accounting records have not been kept in accordance with Section 41 of the Charities Act 1993, or that the accounts presented do not accord with those records or comply with the accounting requirements of the Charities Act 1993. No matter has come to my attention in connection with my examination to which, in my opinion, attention should be drawn to enable a proper understanding of the accounts.



R.N. GUTTERIDGE, F.C.A.

22 April 2000

ARTICLES FOR BULLETIN 76

Items for inclusion in the January 2001 issue of the *Bulletin* should be sent to me at the address below by **9 December 2000**. 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: yeo_m@jncc.gov.uk

RECENT DEATHS

It is with regret that we announce the deaths of:

Mr P. Colles, a member whose lifelong interest in bryophytes, kindled as a student at Oxford, led him to join the Society in 1987.

Dr P. Geissler, a member of the BBS since 1975, and an internationally respected bryologist who held office at the Conservatory and Botanic Garden in Geneva.

Dr W.J. Hoe, a member since 1969 who specialised in Hawaiian mosses and who was an Associate of the Bernice P. Bishop Museum, Honolulu.

Mr H.R. Williams, a Canadian member of the Society, who joined in 1955 and was a member for more than 40 years until his recent resignation.

REPORTS OF OFFICERS FOR 1999

a) GENERAL SECRETARY'S REPORT

There can be no doubt that 1999 was an eventful year. It was also a year in which the Society was saddened by the death of Dr E.V. Watson, an Honorary Member who was held in very great esteem. There can have been scarcely any aspiring bryologists in Britain during the last 45 years who have not had reason to be grateful for his *British Mosses and Liverworts* book.

As is customary, we have seen progress in many directions this year. Meetings, of course, have continued to form the nub of the Society's activities, providing opportunities, not only to advance recording schemes, but also to foster enjoyable and worthwhile discussion. Publications, too, have prospered; in addition to the serial publications, the *Journal of Bryology* and the *Bulletin*, a supplement to the new *Census Catalogue* was distributed. Because periodicals are such a prominent part of the Society's financial commitment, however, steps had to be taken at the end of last year to set the *Journal*, and hence the BBS, on a sounder financial footing. The effect of the new agreement with our publisher, finalised this year, was to set a cap on expenditure without compromising on quality or frequency of publication. Indeed, in this its first year under the new contract, frequency was increased. The contract served, as well, to alert Council to practical problems arising from the relationship between numbers of institutional subscribers and individual members. Indirectly, this was good, for it has helped Council to focus its efforts.

During the year, the Society has also experienced an immense setback, but one from which the BBS can, I believe, go forward more strongly than previously. To do so, Council's resolve to learn from former shortcomings must remain firm. Perhaps it would be appropriate to go into some detail in this context, for it relates to the Society's legal action against its former publisher of the *Journal of Bryology* having failed on a technicality. Although a serious blow, and very disappointing to those Officers who had put in a tremendous amount of work, it will, I hope, be turned to advantage. Through this, and also in the general course of events, it had become increasingly evident that the Society's management practices and policies needed to be overhauled. A discussion document, addressing policy and management, was therefore presented to Council during the year in an effort to ensure that uniformly sound business practices, including continuity of business between successive officers, would be put in place.

Council's efforts have not, therefore, enjoyed invariable success, but they will, if lessons are learned, be beneficial in the long term. Despite these setbacks, I have enjoyed my work on Council, and I hope my successor, Mr Mike Walton, will be given the opportunity to enjoy his term of office, too. I wish him well in taking the BBS forward.

M.E. Newton, February 2000

b) TREASURER'S REPORT

Notes on the Accounts for 1999 (see pp. 2-3 of this *Bulletin*)

1. In my first report I must place on record my thanks to my predecessor, Roy Hurr, for his help in making the change-over so smooth and for his very useful advice on the accounts now presented.
2. A change in the presentation of the accounts has been made which, it is believed, more clearly reflects the intention of Council to keep gift income separate.
3. The year 1999 was exceptional for several reasons covered in the notes below. The Society's general income fell short of general expenditure by £2,167. Interest rates fell steadily during the year until their revival in the autumn. Despite this the Society's affairs still appear healthy overall.
4. 1999 was the first year of the new printing contract for the *Journal of Bryology* with Maney. The net cost to the Society for the year was £5,583, made up as follows:

	£	£
Cost of members' copies (£18 per member)		10,714
Provision for editorial expenses		<u>4,060</u>
		14,774
Income from royalties (20% of institutional sales of £24,953)	4,990	
Contribution to editorial expenses	4,000	
Sales of back copies	<u>201</u>	<u>9,191</u>
		<u>£5,583</u>

Postal and stationery costs are now included in editorial expenses (the figures for 1998 have also been adjusted).

The result is that institutional sales, equivalent to £8.38 per member, reduced the £18 basic cost to £9.62, an encouraging result. For comparison, net costs for 1996, 1997 and 1998 were £3,270, £4,474 and £10,480 respectively, although 1998 was exceptional because of an excess of 144 pages over the normal allowance.

5. In 1998 only one issue of the *Bulletin* was published, consisting of 32 pages. In February 1999 a bumper issue was produced and in August the normal issue was published along with a supplementary list of records for the new *Census Catalogue*. This resulted in an overall total of 188 pages being produced, at a cost of £3,419.
6. The total cost of the new *Census Catalogue* was £4,379. Of this, £40 for the cover drawing was paid in 1998 and £21 for the flyer were met in the overall *Bulletin* expenditure.

	£	£
Total cost (571 copies)		4,379
Less awards: New Phytologist Trust	1,000	
Bequest and Donation Fund	<u>1,000</u>	<u>2,000</u>
		<u>£2,379</u>
Sales in 1999 - 301 copies @ £7.50 (£97.50 of this was paid into bank in 2000)		£2,257

The General Fund has, therefore, almost recovered its costs in the first year.

7. The Centenary Volume, *Bryology for the Twenty-first Century*, was paid for in 1999 at £4,820. The cost of this was partly offset by a grant of £2,000 from the New Phytologist Trust (1997 accounts). The amount paid out in 1999 (£3,827) was made up as follows:

	£
Contribution to publication costs	4,000
Corrections in excess of £300	<u>820</u>
	<u>4,820</u>
Royalties to 31 December 1998	<u>993</u>
	<u>£3,827</u>

Future sales will result in further royalties to the Society.

8. 100 copies of *English Names for British Bryophytes* were paid for in the year at a cost of £204. One third of these had been sold by the end of December for £117. The price of £3.50 (£4.00 to overseas members) includes postal costs.
9. The dispute with Blackwells has resulted in substantial costs being incurred by the Society in legal expenses. Some of these were met in 1999 (£870). A final sum is expected to be paid out in 2000.
10. The publication of the new *Liverwort Flora* and the *Census Catalogue* saw support from the Bequest and Donation Fund and other sources reflected in the accounts for 1999. Payments made from the Fund during the year were as follows:

	£	£
<i>Liverwort Flora</i>		
Anonymous donation (£5,000) plus accumulated interest	6,090	
Award from B&D Fund	3,000	
Grant from New Phytologist Trust	<u>1,000</u>	<u>10,090</u>
<i>Census Catalogue</i>		1,000
Support for the Suffolk Bryoflora		165
Grant towards the Wealden Cryptogam Leaflet		<u>300</u>
		<u>£11,555</u>

11. Bequests and Donations received in 1999 totalled £2,371. Of this sum, £1,000 was from the New Phytologist Trust towards the *Liverwort Flora*, paid out as shown above. The remaining £1,371 was the proceeds from the sale of Eustace Jones' books which Council, in April 1999, agreed to transfer to the Fund. This amount, less the £300 Wealden Cryptogam Leaflet grant, awarded by the Fund during the year and paid out of the General Fund in December, will be transferred into the Fund in the new year.
12. The total committed by the B&D Fund but not paid at the end of the year was £165.
13. At the end of 1999 the accumulated and uncommitted B&D Fund interest available for awards amounted to £3,633.
14. Officers' expenses:

	Telephone	Postage	Stationery	Photocopying	Travelling	Total
	£	£	£	£	£	£
Tom Blockeel (Vice-President)	-	-	-	-	79	79
Roy Hurr (Treasurer & SE Group Secretary)	48	24	4	1	-	77
Martha Newton (General Secretary & Associate Journal Editor)	33	85	8	118	40	284
Roy Perry (Curator)	36	1	-	-	-	37
Mike Walton (Membership Secretary)	12	121	72	-	-	205
Total	<u>129</u>	<u>231</u>	<u>84</u>	<u>119</u>	<u>119</u>	<u>682</u>
ARP	-	378	-	-	-	378
(<i>Census Catalogue</i> - recovered in sales but shown under Postage and sundries)						<u>£1,060</u>

J.M. Blackburn, March 2000

c) BIBLIOGRAPHER'S REPORT

Recent Bryological Literature 91, 92, 93 and 94 have appeared in the *Journal of Bryology*;

number 95 is in press and number 96 is in preparation. I am grateful to all those who have sent me references for inclusion in these lists. Special thanks are owed to the staff of the Botany Library at the Natural History Museum, London, for their co-operation and assistance. I much appreciate receiving details of papers and books that I may have overlooked.

L.T. Ellis, January 2000

d) BULLETIN EDITOR'S REPORT

Two issues of the *Bulletin* were produced in 1999. Number 72 (104 pages) was published in February; number 73 (56 pages with a 28 page supplement) was published in August. These two issues were significantly larger than usual, containing a total of 188 pages of material. The reasons for this are that a) a large backlog of articles had accumulated because only one issue of the *Bulletin* was produced in 1998, and b) there was a large number of supplementary vice-county records associated with the production of the new *Census Catalogue* (these were included in the supplement to the August *Bulletin*).

During the year I moved from Bangor to Peterborough, which necessitated finding a new printer for the *Bulletin*. The search for a printer who could deliver a high-quality product at an acceptable cost proved time-consuming but was eventually successful.

Much of the content of the *Bulletin* is inevitably taken up with routine BBS business. However, there is always room for short articles of an ecological or taxonomic nature which are likely to be of general interest to members of the Society. Good examples published in 1999 include Nick Hodgetts' account of the rediscovery of *Didymodon mamillosus* in Scotland (*Bulletin* 72: 88-89), and the note by David Holyoak describing his work on *Lejeunea mandonii* and *Petalophyllum ralfsii* (*Bulletin* 73: 24-26). I am always keen to receive more articles of this sort.

Marcus Yeo, March 2000

e) CONSERVATION OFFICER'S REPORT

1. I have been in discussion and correspondence with various organisations in respect of Biodiversity Action Plans (BAPs), as have been other BBS members. Plantlife has agreed to act as Lead Partner for another fourteen species, in addition to *Petalophyllum ralfsii* for which it has produced a draft implementation plan. Plantlife has appointed a Fungi and Lower Plants officer (Dr Jennifer Duckworth), who will be responsible, among other duties, for initiating work on Species Action Plans.
2. It has now been agreed that a Red Data Book will be produced for Great Britain (i.e. excluding all of Ireland) and JNCC has almost completed the final details for this. Publication is expected in the first half of 2000.
3. There are more encouraging developments with regard to Special Areas of Conservation (SACs). The list of UK sites is currently being revised and areas such as the Western South Downs and Wealden Sandrocks, as well as some in the uplands, may be reconsidered for SAC designation.

4. With regard to *ex situ* conservation of bryophytes, Royal Botanic Gardens, Kew has agreed to the project taking place at Wakehurst Place and the statutory conservation agencies are expected to provide financial support.
5. I attended the meetings of Plantlife Link in March and September. The BBS Conservation committee met in Abergavenny in April and, jointly with the Recording Committee, in Manchester in September.
6. After 12 years, I am retiring as Conservation Officer. I wish to acknowledge the support I have had from members of the Conservation Committee, in particular the Secretary, Nick Hodgetts. I wish my successor, David Holyoak, an interesting and successful term of office.

Rod Stern, December 1999

f) CURATOR'S REPORT

Three hundred and fifty bryophytes (244 mosses and 106 liverworts) were incorporated this year. There were 11 loans of 164 specimens.

I have been Curator of BBSUK for 16 years but now hand over to my capable colleague, Miss Kathryn Cliffe, to whom all future loan requests should be made.

A.R. Perry, March 2000

g) JOURNAL EDITOR'S REPORT

The last year of the old millennium was marked by a major expansion of *Journal of Bryology* under a new publishing agreement between the BBS and Maney Publishing. Although the basic cover design of the *Journal* has been retained, in 1999 we changed to the now more normal A4 format with twin columns of text, which is cheaper to produce and allows more options for reproduction of illustrations and tabulated data. The great majority of comments from readers indicate that this is more attractive and convenient than the previous layout, and indications at the end of 1999 are that the venture has also been a financial success. A major improvement, particularly with regards to attracting the best authors, is the move from six-monthly to quarterly publication which it is hoped will speed publication of accepted articles. A single volume will in future consist of the four parts published in one year: volume 22 was published in 1999. The agreement also allowed for an increase in the total number of pages published, so that the annual allocation is now 320 pages, usually to be spread over four 80-page parts. Very long papers will continue to be published (as Bryological Monographs) only if the authors pay for the pages in excess of the first twenty. The publication of a monograph on North African bryophytes in Part 3 accounts for the fact that volume 22 ran to 328 & vi pages. For the first time in its history the aims and scope of the *Journal* are now clearly stated on the inside of the front cover. We have cut down on the number of individual bryological notes recording new records of species from particular countries. We are hoping to pick up and publish many of the new records in a more efficient manner within a new column (New national and regional bryophyte records) that is currently being edited by Mr Tom Blockeel.

Concomitant with the above changes, the new agreement has allowed the setting up of a part-

time Editorial Office at Imperial College (Silwood Park campus). In February Ms Anja Steenkiste was appointed as part-time Editorial Assistant. She has greatly improved the efficiency of our handling of papers. Her jobs include acknowledging papers upon receipt, maintaining a computer database and manuscript archive, sending out manuscripts to referees, receiving them back, requesting authors for revisions or informing them of rejections, and (most importantly) pressuring the Editor to adjudicate promptly on refereed manuscripts! Some concerns about funding of the editorial office remained at the end of 1999, but it is hoped these can be swiftly resolved in 2000. In 1999 I invited Dr Fred Rumsey to become the *Journal's* first proper Book Review Editor. Dr Martha Newton resigned as Associate Editor, and Professor Rune Økland (University of Oslo, Norway) and Dr Rodney Seppelt (Australian Antarctic Division, Kingston, Tasmania) joined the editorial board. At Maney Publications, towards the end of the year Mrs Wendy Sherlock succeeded Julia Russell as Production Editor for the *Journal*. The BBS Publications Committee met on 2 March and 2 September in London.

The popularity of the *Journal* with authors has continued to grow. During the year we received 68 main manuscripts of which 42 were accepted for eventual publication, 11 were found to be unsuitable, and 15 were still pending (being revised or refereed). Cover illustrations included a photograph of dramatic cliffs near Sani Pass, Lesotho and line drawings of *Orthotrichum casasianum*, *Platyhypnidium mutatum* and *Rhaphidolejeunea spicata*. As ever, I am indebted to the many referees and Associate Editors who contribute tirelessly towards the *Journal's* success.

Dr J.W. Bates, March 2000

h) LIBRARIAN'S REPORT

Sales

<i>TBBS</i> (parts)	9	Special Volume 4: Mosses in English Lit.	1
<i>J. Bryology</i> (parts)	9	Special Volume 5: English Names (2nd ed.)	15
Census Catalogue (Corley & Hill)	2	Bryology (Linn. Soc.)	2
Census Catalogue (Blockeel & Long)	6	Mosses & Liverworts of Woodland	9
Census Catalogues (old)	4	German/English Glossary	1
Hepatics of Europe and the Azores	-	Microscope Techniques	1
BBS <i>Bulletins</i>	-	x20 lenses	16
BBS Library Catalogues	1	Stainless steel forceps (Patterson)	3
Moss Wall Charts	6	Stainless steel forceps (Idealtek)	13
Special Volume 1: Jubilee	-	Eyepiece graticules	2
Special Volume 2: Chromosomes	5	BBS ties	1
Special Volume 3: Tropical Bryophytes	-	Car stickers	3

Loans

35 mm slides	3	Micrometer slide	-
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Sixty-four parcels were dispatched during 1999, a substantial proportion of them being generated by e-mail.

Ken Adams, February 2000

i) MEETINGS SECRETARY'S REPORT

As luck would have it millennium doomsday predictions failed to materialise and make 1999 our last year of bryologising. However, the cancellation of the workshop and a rather poorly attended summer meeting were perhaps not the best end to the millennium.

The spring meeting in Abergavenny was a successful start to the year. Some 44 attendees were ably organised by Dr Jonathan Sleath into a formidable recording force despite some periods of rather inclement weather.

While the attendance at the summer meeting was rather low, this could perhaps be expected where the effort of going to the Emerald Isle would not be rewarded by the richest areas of the country. The enthusiastic group (which included members from six countries) did manage to turn up a considerable list of new vice-county records, including *Telaranea nematodes*. The second week of the meeting saw numbers dwindle, with some making their own visits to other areas of the country. Thanks are due to Grace Kelly for organising the meeting. Thanks also to Howard Fox for his help in the organisation and writing up of the report of the visit with the assistance of Tom Blockeel. Tom's expert knowledge was regularly called upon throughout his stay. His patience and help were greatly appreciated.

The University of Manchester proved a popular venue for the AGM and paper-reading meeting. A very diverse mix of talks informed, entertained, and raised some interesting questions. Who would think some of us would leave a bryological meeting knowing how to identify fake amber! Thanks to Sean Edwards for the organisation of this event and the following day's excursion to Chee Dale and Deep Dale. Thanks also to the speakers for putting the time into preparing and writing up their talks.

Due to a move of premises, the workshop, that was to be held at Liverpool Museum, had to be cancelled. This is the second year in a row that the workshop has been cancelled but hopefully this trend will be broken by a trouble-free and well-attended workshop this year.

The attendance figures for this year's meetings were as follows:

	1998	1999
Spring meeting	(cancelled)	44
Summer meeting, week 1	18 (Islay)	15 (total for both weeks in Waterford and Wexford)
Summer meeting, week 2	10 (Jura)	
AGM weekend	46	ca 46
Workshop	(cancelled)	(cancelled)
TOTAL	ca 74	ca 105

This being my first report as Meetings Secretary, I would like to take this opportunity to thank Nick Hodgetts for his help throughout the year. I would also like to thank all the Local Meetings Secretaries who have taken up the, hopefully rewarding, challenge of hosting a meeting. Over the past year I have been greatly assisted in my post by members who have approached me without prompting with offers to organise a meeting or give a talk. Such offers are particularly useful to me as I am still relatively new to the Society and it is difficult

to know who is out there to ask. So if anyone would like to organise a meeting, give a talk or just has an idea for future meetings or talks please do get in touch.

Dan Wrench, April 2000

j) MEMBERSHIP SECRETARY'S REPORT

In this, my second and last, report I am pleased to record that the Society has passed the 'magic number' of 600 members that was predicted by Tony Smith in his last report in 1997.

1999, in contrast with 1998, showed a net increase of 39 members. Of the 72 new members, 21 were Junior Members, which should augur well for the future. Additionally, 31 of the new members joined via the BBS web site which is proving a valuable source of new members. Within these pleasing results, however, it was very sad to have to record the loss of Dr E.V. Watson, an Honorary Member of the Society and one of its longest serving members.

I have enjoyed my short time in the office and thank all of those officers and members who have assisted me and have helped to make it a pleasant experience. I wish my successor, Mark Pool, every success for the future and am confident that the office is in good hands.

The following table shows changes in the number of BBS members between 1990 and 1999.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
New members										
UK	20	19	26	24	27	27	24	13	14	37
Overseas	8	9	4	11	18	9	16	7	18	34
TOTAL GAINED	28	28	30	35	45	36	40	20	32	71
Members lost by:										
Death	5	3	4	2	2	4	5	3	12	1
Resignation	9	11	9	3	4	14	11	7	18	7
Other	15	9	13	19	11	14	15	17	24	24
TOTAL LOSSES	29	23	26	24	17	32	31	27	54	32
Total overseas members	199	190	186	187	202	209	215	226	224	245
Total UK members	330	352	360	370	383	380	382	368	348	366
NET TOTAL	529	542	546	557	585	589	597	594	572	611
Comprising:										
Honorary	13	12	11	11	11	10	11	10	10	12
Ordinary & Junior	503	512	513	524	545	549	559	557	544	578
Family	13	18	22	22	29	29	27	25	18	21
Turnover ratio x 100	11	9	10	11	11	12	12	8	15	17

Mike Walton, February 2000

k) READING CIRCLE SECRETARY'S REPORT

1999 was a fairly busy year. Four new members have increased membership to 38. There has been no problem with availability of journals apart from two issues having 'gone missing' in the post. Contents of 17 issues of five journals (plus *Evansia*) have been issued. There has also been a request for contents of some back issues of the *Journal of Bryology*. Photocopies of 57 papers totalling 879 pages were sent to 12 members.

Financial statement

Income:

Opening balance	£181.87
Credit (cheques received etc.)	<u>£186.50</u>
Total	<u>£368.37</u>

Expenditure:

Photocopying	£54.87
Postage	<u>£64.34</u>
Total	<u>£119.21</u>

Balance of members' accounts	<u>£249.16</u>
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Richard Fisk, 5 January 2000

l) REPORT OF THE RECORDER FOR HEPATICS

A total of 114 new liverwort records was registered for 1999. This represents an impressive increase of almost 100% over the previous year. Of the new records, 33 were updates of bracketed entries in the new *Census Catalogue*. In contrast to 1998, a very substantial number of new records were from Ireland (due in large part to submissions from David Holyoak and Tom Blockeel).

	New records collected in 1999	New records collected pre-1999	Deletions
England	23	9	-
Wales	15	2	-
Scotland	14	5	-
Ireland	45	1	1
Total	97	17	1

The outstanding new record for 1999 is *Athalamia hyalina* from Braemar, new to the British Isles. Other particularly noteworthy records in Scotland include *Gymnocolea acutiloba*, new to northern Britain. Among the Irish crop are a number of records of scarce and interesting taxa, such as *Anthelia juratzkana*, *Barbilophozia atlantica* (second Irish record), *Geocalyx graveolens*, *Lejeunea holtii*, *Marsupella adusta* and *Ptilidium ciliare*. There were several good finds from England, including *Adelanthus decipiens* in Cornwall, a third record for *Leiocolea gillmanii*, *Lophocolea bispinosa* in Devon, and several gatherings of *Lophocolea semiteres* in eastern England, notably from a coastal marshland in North Essex.

Thanks are again due to Jean Paton and David Long for checking difficult and critical material, as well as for help in other ways.

T.H. Blackstock, March 2000

m) REPORT OF THE RECORDER FOR MOSSES

A comparison of the table below with those of recent years shows a dramatic increase in the number of new and updated records. The new *Census Catalogue* has undoubtedly had an effect, prompting an examination of herbarium material and new collecting to remove the offending brackets. Ireland has received a good deal of attention this year, providing almost half of the new records. Tom Blockeel visited County Louth on his way to the BBS summer meeting and made a number of new records to augment those made in Carlow and Waterford on the meeting itself. In the north-east, David Holyoak was engaged in some bryophyte survey work which produced a large number of new records for Down, Antrim and Londonderry. In England the 'hot spots' are in East Anglia and on the Welsh border, while in Wales itself the BBS spring meeting at Abergavenny and work for Ray Woods' flora of Brecon produced a good crop of records.

	New records collected 1998-99	New records collected pre-1998	Updated records	Deletions
England	60	28	54	1
Wales	11	5	13	0
Scotland	28	13	33	0
Ireland	127	2	94	0
Total	226	48	194	1

A large number of interesting records were made during the course of the year and this brief summary does scant justice to the local significance of these finds. The work in Ireland produced a first European locality for *Ephemerum spinulosum*, a first Irish record for *Physcomitrium sphaericum*, and new localities for *Ditrichum lineare*, *Fissidens rivularis* and *Orthotrichum sprucei*. In England there were new localities for *Grimmia crinita* in Cornwall and *Orthotrichum pallens* in Durham, and *Orthodontium gracile* was refound at an old site in Cheshire. In Wales, *Grimmia montana* was found at a new site in Pembrokeshire, a long way from even some of its old stations in Wales, and *Buxbaumia aphylla* was found in Radnor. In Scotland, a second extant locality for *Buxbaumia viridis* turned up at a well-botanised site in Perthshire, and there was a significant extension of range for *Paraleptodontium recurvifolium* into the Cairngorms.

The large number of vouchers in 1999 presented me with considerable problems at times and I apologise to those of you who were kept waiting for long periods. I would like to thank Tom Blockeel in particular, and the other referees, for their help with queries over the year. My thanks also to the majority of BBS members who send in vouchers in reasonable packets with informative, legible labels; this really does speed up the process of dealing with records.

Gordon Rothero, February 2000

n) RECORDING SECRETARY'S REPORT

In 1999 I received 120 record cards and a single pink card. This, in terms of record cards, is slightly up on the previous year, but continues to be rather low. I'm sure there is more recording in progress, but clearly the records are not reaching me. Possibly members are sending them direct to BRC, but this is unlikely. The national database is now being updated, and any backlog is diminishing and cards now sent in via me will be added. The quality of the national database of course depends on a good flow of records from members, and I would like to thank those of you who have sent me their record cards. The Recorder network is doing well, with only 15 vice-counties in Britain unallocated, an increase of five new Recorders since 1998.

No amount of imploring members to make records available for addition to the national database will of course come to anything if the exchange of information is not two-way. There are real efforts now, through what is known as the National Biodiversity Network Gateway project, to explore how this can be facilitated. Bryophytes have been chosen as one of the taxonomic groups to trial the project, and a recent demonstration at BRC showed the potential and what we can look forward to in the not too distant future. There is still some way to go, but clearly we have to be patient.

Ron Porley, March 2000

REPORTS OF LOCAL MEETINGS

SOUTH-EAST GROUP

Monkton Nature Reserve (VC 15), 30 January 2000

Near the village of Monkton, west of Ramsgate, a chalk pit and some surrounding land is owned by the Thanet Countryside Trust and contains a well-appointed Field Study Centre. This reserve had been extensively bryologised between 1987 and 1990, when the local bryologist was a novice, and it was felt that an update was due!

Five members met Mr Ron Stillwell, the Head of Centre, who introduced the biological and geological features of the reserve. The original impetus for its conservation was the natural colonisation by orchids; first the Bee, then Southern Marsh, Common Spotted, Pyramidal, Fragrant, and last year the appearance of Lizard, one of only four sites in the country. The reserve is on the south-west slopes of the chalk anticline which makes up the Isle of Thanet in north-east Kent. Quarrying occurred from 1799 to 1958, and in the 1960s a large hollow was scraped in the base of the pit to check the water table. This now contains a pond and an artificial bat cave, constructed in 1986. The natural history interest is currently being added to by the building of an astronomical observatory, the deep location helping to avoid the local air and light pollution.

Along part of the top of the quarry face is a band of ground which had been scraped bare of topsoil ready for more removal of chalk. This is now sparsely colonised by vascular plants,

with mosses such as *Didymodon fallax*, *Aloina aloides* and a few plants of *Fissidens incurvus*. The chalk face itself reaches 20 m high and encircles the western, northern and eastern part of the quarry, which is ovoid in shape and 350 m in length. The southern side slopes up to an adjacent road, from which, over the years, various kinds of spoil have been dumped. In one place Common Reed *Phragmites australis* grows on a patch of alluvium from the local marshes. Next to this, in the shade of some young trees, is a colony of *Thuidium tamariscinum*, its only known site in Thanet.

The quarry floor is scattered with a range of brick and concrete remains, soil mounds, chalk slopes and outcrops, and dead logs. There are various shrubs, individual trees, bramble and dewberry thickets, as well as a network of paths. A crater exists where a wartime bomb was detonated in the 1960s. One half of this has been left to colonise naturally, the other is mown annually; fascinating, but with few bryophytes at present. Towards the south-east corner, where the entrance meets the road, is the oldest part, with a good growth of scrub. Near the pond is a clump of willows.

Since 1975 young trees have been planted to build up a woodland on part of the grassland area to the north of the quarry. The topsoil (mainly Head Brickearth) is deep enough here to mask any influence from the chalk. There are already some shaded patches of bare soil yielding common species such as *Brachythecium rutabulum*, *Eurhynchium praelongum* and *E. hians*. Under a clump of Turkey Oaks, protonema and young plants of *Bryum* sp. and *Tortula acaulon* were found with fruiting *Microbryum davallianum*. Down the eastern flank of the quarry true chalk grassland emerges, with *Homalothecium lutescens* abundant.

This range of habitats, variously managed by the reserve workers, volunteers and rabbits, produces one of the best sites for bryophytes in Thanet. Most species are common but some have local significance. The epiphytic niche is filled only by *Orthotrichum diaphanum* on some of the most sheltered old elders. On one well-rotted tree stump were young plants of *Campylopus introflexus* amongst a good sward of *Bryum capillare*. *Pseudocrossidium hornschi* can be found amongst the shorter turf and *Schistidium apocarpum* is a rarity on a couple of concrete blocks. *Aloina aloides* is common in many parts of the reserve, and *Seligeria calcarea* is occasional on shaded chalk blocks near the cliff-face. A single tree in a hollow on some large chalk hillocks in the centre of the quarry shelters a colony of *Drepanocladus aduncus*. The best find of the day was *Campyliadelphus chrysophyllus* on the mound overtopping the bat cave and a few level places nearby. It occurs all along the North Downs but this is its first siting in Thanet.

A total of 54 species has now been accumulated for the reserve but on this visit some were not refound. One particular soil mound, measured at pH 6.8, was, in 1990, topped by *Dicranum scoparium*; this is now covered in a thick sward of grasses, crowned with rabbit droppings!

MALCOLM WATLING

Ketleys Wood, Bewl Water (VC 16), 26 February 2000

A small group, including a beginner, visited a wood near Ketleys Farm on the south-east corner of Bewl Water reservoir, part of VC 16 now in the county of Sussex. The wood, on Wadhurst Clay with sand at the top of the slope, supports conifers and coppiced sweet chestnut. An extensive boggy area occurs below the spring line, with dominant *Calluna* but,

alas, heavily invaded by *Molinia*, *Pteridium* and coppiced *Betula*. Six species of *Sphagnum* were found (one other has been reported), with *Aulacomnium palustre* and *Hypnum jutlandicum*. Despite a search, no bog liverworts were seen.

A crop of epiphytes occurred on a stand of poplar, willow and elder, including *Orthotrichum affine*, *O. diaphanum*, *Ulota crispa*, *Metzgeria furcata*, *Frullania dilatata* and *Radula complanata*. A good patch of *Scapania undulata* grew partly submerged on the wood of a plank bridge, and on an old birch in the adjacent marshy field was a large and luxuriant patch of *Lejeunea ulicina*. We usually have to search for a few strands of this species growing with other epiphytes. Altogether 59 species were recorded during the day.

JAN HENDEY

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.

SUMMER FIELD MEETING 2000, Grange-over-Sands, Cumbria, 19-27 August

Local secretary: Keith Raistrick, 1 Drewton Avenue, Cross Cop, Heysham, Lancs, LA3 1NU; tel: 01524 423325.

This meeting will (like the 1995 Spring Meeting at Ambleside) concentrate on the less well-known SSSIs, Cumbria Wildlife Trust Reserves, and National Trust sites in Westmorland with Furness. It is a varied programme which will include interesting rocky woods, ravines and, as the August weather is usually kind (!), it should allow one or two trips onto the higher ground with some upland tarns. We are into a second year of a survey covering tetrads, which in that time has produced several new vice-county records, and a number of refund 'bracketed' species - it has not proved difficult to find new records. Except for the few extensively, and repeatedly, bryologised 'classic' sites the county is very much under-recorded. It is hoped that this meeting will help redress the imbalance; the records gained will be a valuable addition to the Bryoflora of Westmorland project. When you consider recent finds, such as *Plagiochila killarniensis* and *P. atlantica*, almost anything in Westmorland seems possible.

Grange-over-Sands is an attractive coastal resort in a limestone region on the north side of Morecambe Bay in Furness (VC 69). The headquarters for this meeting will be the Field Studies Council, Castle Head Centre, Grange-over-Sands, Cumbria, LA11 6QT; tel: 0153 953 4300; fax: 0153 953 6662. While other accommodation is available locally attendees are encouraged to stay at the centre. Laboratory facilities will be available.

Those wishing to attend should contact the local secretary to book, and are encouraged to do so as early as possible, as accommodation at the centre is limited and sharing of rooms may be required if the turnout is large.

ANNUAL GENERAL MEETING AND SYMPOSIUM MEETING 2000, University of Reading, 8-10 September

Local Secretary: Dr Seán V. O'Leary, J.J. Thomson Physical Laboratory, PO Box 220, Whiteknights, Reading, RG6 6AF; tel: 0118 931 8576; fax: 0118 975 0203; e-mail: s.v.oleary@reading.ac.uk.

WOULD ALL THOSE WISHING TO ATTEND WHO HAVE NOT ALREADY BOOKED, PLEASE DO SO AS SOON AS POSSIBLE.

The AGM and paper-reading meeting will take place at the University of Reading, with a Sunday excursion to Greenham Common.

Speakers will be:

- Jeff Bates – 'A study of the epiphyte communities of alien trees in the Azores'.
- Rosalina Gabriel – 'Ecophysiology of bryophytes in the native laurel forest of the Azores'.
- Rod Seppelt – 'Life in the freezer - a bipolar perspective'.
- Ray Tangey – 'Circumscription and relations of the moss family Lembophyllaceae'.
- Stuart Ball – 'Managing your records using Recorder 2000'.
- Jenny Duckworth – 'Taking bryophytes back from the brink'.
- One other speaker to be confirmed.

The ANNUAL GENERAL MEETING will be held at 4.30 p.m. on Saturday 9 September 2000, at the Department of Plant Sciences of the University of Reading.

AGENDA

1. Apologies for absence
2. Minutes of the last AGM, Manchester, 1999 (see pp 21-24 of this *Bulletin*)
3. Matters arising
4. Reports of Officers for 1999 (see pp 4-15 of this *Bulletin*)
5. Report from Council
6. Proposal to elect a Web Site Editor (see p. 28 of this *Bulletin*)
7. The future of the office of Bibliographer (see p. 24 of this *Bulletin*)
8. Election of Officers (see p. 29 of this *Bulletin*)
 - a) Bulletin Editor
 - b) Journal Editor
 - c) Meetings Secretary
 - d) Reading Circle Secretary
 - e) Recorder for Hepatics
 - f) Recorder for Mosses
9. Election of Elected Members of Council (see p. 29 of this *Bulletin*)
10. Place and date of the next Annual General Meeting
11. Other future meetings
12. Any other business

BRYOLOGICAL WORKSHOP 2000, Imperial College at Silwood Park, Saturday 11 November

Local secretary: Dr Jeff Bates, Department of Biology, Imperial College at Silwood Park, Ascot, Berkshire, SL5 7PY; tel: 020 759 42228 (Silwood Park), 020 759 45397 (South Kensington); e-mail: j.bates@ic.ac.uk.

This year the subject of the workshop is 'Bryological Illustration'. The meeting is aimed at those who would like to make line drawings of bryophytes but do not know how to begin. Our esteemed member Mrs Jean A. Paton, author of *The Liverwort Flora of the British Isles*, has kindly agreed to run the workshop. To enable a good attendance the meeting will be limited to one day, although anyone staying overnight is welcome to join an informal excursion, probably to the famous gardens in Windsor Great Park, on Sunday 12 November.

Silwood Park is the rural campus of Imperial College of Science, Technology & Medicine, and houses among other things half of the College's biology staff in modern laboratories. There is a good range of habitats and an interesting bryophyte flora, and around the old Manor House some beautiful gardens. Specimens for illustration will be collected in the grounds. Microscopes (dissecting and compound) will be made available for participants and also, it is hoped, some camera lucida apparatus. The local secretary would be extremely grateful for the loan of any further sets for the meeting if participants or other BBS members have them available.

Accommodation for the meeting, if required, will be in local hotels and guesthouses. Silwood Park lies roughly midway between Virginia Water and Ascot on the A329 and is served by the M4 (Windsor junction), M3 (Bagshot junction) and (indirectly) M25 motorways. Please let the local secretary know if you wish to attend or need details of accommodation.

BRITISH BRYOLOGICAL SOCIETY MEETING IN TENERIFE, CANARY ISLANDS, 16-23 February 2001

Leader: Roy Perry, 35 Cardiff Road, Dinas Powys, Vale of Glamorgan, CF64 4DH, UK; tel: +(44) 029 2051 3382.

This week-long meeting will be based on Los Cristianos in the SW corner of the island. Participants should make their own arrangements for accommodation, and inform Roy Perry of these. There are several travel agents arranging package tours from Britain to this resort, for example Airtours, Thomas Cook, Going Places, and Thomson, but intending participants should book as soon as possible as the island is an extremely popular tourist location and flights get taken up very quickly. Non-British participants should also secure bookings soon, using their chosen travel agents.

Car drivers are required. Cars will take up to three passengers who will share the car-hire cost (about 100 stg divided between the passengers for each car) and petrol (about 10 stg each). Intending participants should inform the leader if they are willing to drive/book a car, but conversely if they prefer to be passengers then lifts can be arranged. Travel insurance must be arranged by the participants themselves.

Each day we will meet at about 0900 and leave for a field excursion, returning to Los

Cristianos in the evening about 1900 or earlier. Some of the drives are quite long, but the roads are excellent.

The island is a paradise of habitats, from semi-desert in the south with succulent plants and xerophytic bryophytes, to a high mountain volcanic ridge in the centre (with a volcano over 12,000 ft high), and a northern strip which because of its prevailing cool and moist conditions supports lauri-silva (evergreen laurel) forest with carpets of epiphytic and epigeic mosses and liverworts. We will explore all zones and hope to find some of the bryophytes recorded there. Some specialities (amongst others) we may see are *Andreaea heinemannii*, *Bryoerythrophyllum inaequalifolium*, *Crossidium geheebii*, *Gigaspermum mouretii*, *Goniomitrium seroi*, *Grimmia curviseta*, *Isothecium algarvicum*, *Myurium hochstetteri*, *Platyhypnidium torrenticola*, *Ptychomitrium nigrescens*, *Tetrastichium fontanum*, *Aphanolejeunea teotonii*, *Lepidozia azorica*, *Oxymitra incrassata*, *Plagiochila dubia*, *Porella canariensis* and *Radula jonesii* (see Dirkse GM, Bouman AC, Losada-Lima A. 1993. *Cryptogamie, Bryol. Lichenol.* **14** (1): 1-47).

Intending participants are advised that the collection of wild plants in the Canary Islands is not permitted by law. It is not yet known whether formal permission to collect will be forthcoming, but participants should not assume that this will be the case.

Please book now to avoid disappointment. Further details will be provided to intending participants.

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

Local secretary: Mrs L. Snow, Ein Shemer, Upper Hyde Farm Road, Shanklin, Isle of Wight, PO37 7PS; e-mail: snow@shemer.freereserve.co.uk.

It is 36 years since the last visit of the BBS to the Island, and this meeting in 2001 coincides with the project of the Isle of Wight Natural History & Archaeological Society to update the Island Flora, including bryophytes and lichens. Recording will be on a site or 1-km square basis, and the data obtained during this meeting will be included in the new Flora. The more members who can attend the better the coverage will be. The geology of the Island is varied. A chalk ridge runs from east to west; north of this is clay, and south of it is arable land, with sandstone cliffs and chalk again at St Catherine's Point. Good acid areas are scarce. There are several species we shall be hoping to refine after a number of years, including *Acaulon muticum*, *Leptodontium gemmascens*, *Marchesinia mackaii* and *Fissidens crassipes*.

Accommodation will be in a hotel in the Sandown/Shanklin area. Some shared rooms will be necessary. Information on a camp site can be supplied if anyone would prefer this.

It would be helpful if those members who hope to attend could contact the local secretary by the end of October.

MINUTES OF THE ANNUAL GENERAL MEETING, MANCHESTER, 1999

Minutes of the Annual General Meeting held at Hulme Hall, University of Manchester, at 4.30 p.m. on Saturday 11 September 1999.

PRESENT: Dr G.C.S. Clarke (President, in the chair) and 41 other members.

1. **APOLOGIES FOR ABSENCE:** Apologies had been received from Mr R.J. Fisk, Miss J.M. Ide, Mr R. Stevenson and Mr M.M. Yeo.
2. **MINUTES OF THE MEETING ON 19 SEPTEMBER 1998:** Mrs J.A. Paton asked that the last sentence of item 9, para. 1 be deleted, and this was agreed. The minutes were then signed as a correct record of the meeting.
Dr Clarke reported the sad death of Mr A. Eddy since our last meeting, and spoke briefly of his considerable work on Malesian bryophytes and on *Sphagnum*. His death was a great loss to the Society.
3. **MATTERS ARISING:** Nothing was raised.
4. **REPORTS OF OFFICERS FOR 1998:** All reports had been published in *Bulletin* 73, and gave rise to the following comments.
 - b) **Treasurer:** Mr E.R. Hurr drew attention to a couple of errors in the text of his report. The first figure under item 1 ought to read £542 instead of £424. Under item 2, the sum of £10,414 should be replaced by £10,230. He apologised for these discrepancies.
5. **REPORT FROM COUNCIL:**
 - a) **Back Numbers of *Journal of Bryology*:** Dr Clarke said an inventory had shown that a very large number of copies had disappeared, and Council had taken legal advice in pursuing the matter with Blackwell Science Ltd. Dr M.E. Newton had calculated the substantial cost of replacing the missing stock. Counsel's opinion was that the BBS case was a strong one. Dr Newton said that legal proceedings had been commenced against Blackwell, whose response had been to apply for a stay of proceedings on the strength of a contract signed in 1971, and of which current officers of the Society had been able to find no trace, either of a copy or of a mention in the minutes. It required disputes to be resolved by arbitration. On the advice of counsel, the application was not resisted in order to minimise costs to the Society. It appeared, at the moment, that it would be impossible to proceed further. Dr Newton and Dr Clarke expressed the opinion that this was a very serious indictment of the Society's filing system, but steps had now been taken to remedy it. Mrs Paton and Dr Clarke expressed their thanks to Dr Newton and to everyone else who had spent a lot of time on this issue.
In response to a question from Dr J.D. Sleath, Dr Newton said she understood that it was now not possible to go to arbitration because action was time barred. Mr H.W. Matcham sought details of the cost involved, and Dr Newton said that in addition to the loss of the publications themselves, the replacement of which could run into six figures, the Society had paid £470 for the

barrister's opinion, £400 to lodge the case, and would be liable to pay, not only our own solicitor's fees, but also Blackwell's costs. Mr B.J. O'Shea observed that he was very saddened by Blackwell's attitude, and Dr Clarke agreed that there was now little likelihood of a successful outcome.

- b) **Biological Records Centre:** Mr R.D. Porley described new developments that are expected to facilitate the availability of records. The Society was still looking into the feasibility of a memorandum of agreement. However, he said that it was also hoped to put data on the internet and, for that reason, a new post had been created at BRC. The bryophyte data-set was to be used in the initial trials, and it was planned to have the data in place and accessible by the end of March 2000. Mr Porley expressed optimism about the outcome, but said there still remained details to sort out concerning who should have access and in what form.
- c) **Honorary Membership:** Dr Newton reported having received letters from Dr L.E. Anderson and Dr F. Rose, who had asked her to extend their sincere thanks for the considerable honour of having been elected as Honorary Members.
- d) **Eustace Jones' Bryological Books:** Mr T.L. Blockeel said his sale of these books had raised a sum of between £700 and £800. All except a damaged part of Nyholm's flora, priced at £2, had been sold, and it was agreed that it would be given to whoever wanted it.
- e) **Wallace Memorial Reserve:** Dr Clarke said that Council had been pleased to see from Mr A.C. Crundwell's report that the reserve is generally in good shape. Mr Crundwell had generously represented the Society's interests on the management committee for a number of years, but now wished to hand over the responsibility to someone else. Dr F.J. Rumsey had kindly agreed to take over from Mr Crundwell. A proposal from Mr A.R. Perry that Dr Clarke be asked to write and thank Mr Crundwell was warmly approved.
- f) **Contract with W.S. Maney & Son:** Dr Newton reported that a publishing agreement for the *Journal of Bryology* had been finalised on 4 February 1999, for a period of three years to 31 December 2001, subject to annual renewal thereafter. Dr Newton said that Maney now had a financial interest in promoting institutional sales, but she pointed out that if those sales fell and/or individual membership rose, the cost to the Society of supplying individual copies to members would increase per person. Mr O'Shea enquired about actual numbers of institutional sales, figures which were not immediately to hand. In reply to questions from Dr M.C.F. Proctor and Dr A.E. Newton, Dr Newton said that the Society would purchase copies at £18.00 per volume in order to supply individual members, costs being offset by a sum of £2,000 from Maney and by royalties on sales. The latter were dependent on the number of sales and subscribers, but the former was fixed irrespective of the number of individual members. Dr Clarke considered that the contract was much better than its predecessor, but agreed that it was necessary to monitor it closely.

6. **PROPOSAL TO WAIVE ELECTION OF PUBLICITY OFFICER:** Dr Clarke said that in discussing the matter of publicity following Dr S.R. Edwards' retirement from office, Council had considered that publicity for bryophytes and the Society ought to be everyone's objective whenever opportunities arose. Council therefore proposed that no appointment of Publicity Officer should be made. It was seconded by

Dr Edwards and agreed unanimously. Dr Clarke thanked Dr Edwards for his work in a difficult and nebulous role.

7. **ELECTION OF OFFICERS:** Dr Clarke said that because of the ten-year rule, there was an unusual number of officers to replace this year. Dr Newton said Mr T.L. Blockeel would replace Dr Clarke as President in 2000. Council's nominations were as follows: Mr D.G. Long (Vice-President), Mr M.A. Walton (General Secretary), Mr J. Blackburn (Treasurer), Dr D.T. Holyoak (Conservation Officer), Miss K. Cliffe (Curator), Dr K.J. Adams (Librarian), and Mr R.D. Porley (Recording Secretary). In addition, Mr L.T. Ellis had been nominated for election as Bibliographer by Dr Clarke (seconded by Mr Blockeel). No other nominations had been received. All the above were therefore declared elected. It was not possible to fill the vacancy for Membership Secretary, which this election had created. Dr Clarke said he spoke for everyone in offering very sincere thanks to Mr Perry for his long-term work as Curator, to Mr R.C. Stern in his effective role as Conservation Officer, and to Mr Hurr for his dedicated work as Treasurer. I, personally, am indebted to Dr Clarke for having kindly minuted the following: 'The President proposed a special vote of thanks to the General Secretary, Dr Martha Newton, on the occasion of her retirement from the post. He said that the membership would like to place on record their appreciation of her efficient, punctilious and tireless efforts on behalf of the Society over many years. Those present showed their agreement in heartfelt applause.' Mr Stern expressed his gratitude to Dr Clarke for his thanks, but said he wished to acknowledge the tremendous support he had received from the Conservation Committee. He was especially grateful to Mr N.G. Hodgetts, who had taken up the post at the JNCC for which Mr G. Bloom, when BBS President, had campaigned, with the support of Dr D.A. Ratcliffe, former chief scientist with the Nature Conservancy Council.
8. **ELECTION OF ELECTED MEMBERS OF COUNCIL:** Council nominations for the three advertised vacancies were Dr R.A. Finch, Mr M. Lawley and Mr H.W. Matcham, and Dr Newton said no others had been received. All were therefore declared elected, and Dr Clarke thanked Dr M.O. Hill and Dr Holyoak for their contributions to the work of Council.
9. **PLACE AND DATE OF THE NEXT ANNUAL GENERAL MEETING:** Mr D. Wrench said this had been arranged, provisionally, for 9 September 2000, in Reading. He was asked by Dr Newton to try to ensure that fixed dates were available in future years.
10. **OTHER FUTURE MEETINGS:** The programme of meetings reported by Mr Wrench was as follows:
Spring 2000. Bude, 12-19 April 2000.
Summer 2000. Westmorland, 19-27 August 2000.
Workshop 2000 (Bryological Illustration). Date and place to be decided.
Dr K.J. Adams again drew attention to the need for fixed dates. Speaking of the meeting in Bude, Mrs Paton said that a £20 deposit would be necessary on booking at the headquarters hotel. Mr Matcham enquired whether it would be possible to organise another Bryological Workshop to replace the one that had been cancelled for later this year, 1999, in Liverpool, but Mr Wrench said that it had been impossible to do so in time for advertising.

11. **ANY OTHER BUSINESS:**

- a) **New Liverwort Flora:** Dr Clarke said he wished to acknowledge, formally, how pleased the Society had been to see the publication of Mrs Paton's flora, and he congratulated her on a tremendous achievement. In reply, Mrs Paton thanked everyone for having helped her to make it a success.

Thanks for ensuring the success of the day's meeting were expressed on behalf of everyone to Mr Wrench and Dr Edwards by Dr Clarke, to whom Dr Hill directed further thanks for his excellent Presidency.

There being no other business, the meeting was drawn to a close at 5.45p.m.

M.E. Newton, General Secretary, November 1999

THE FUTURE OF THE OFFICE OF BIBLIOGRAPHER

The Society's present Bibliographer (Mr L.T. Ellis) has already completed more than ten years in office and was re-elected at the AGM in 1999 under the special provision of clause 5(c) of the Society's rules. Mr Ellis has indicated that he is unable to continue in the post under the present arrangements.

The post is a time-consuming one and the holder also needs ready access to the sources that are essential for the compilation of the bibliography. In practice this means access to an institutional library. In considering the future of the post, and following discussions with interested parties, the Executive Committee has concluded that the time has come to re-organise it on more flexible lines.

Council will therefore be asked to consider the following recommendation, which, if approved, will be put to the AGM on 9 September 2000. The proposal is:

1. that the holder of the office of bibliographer shall no longer be a member of Council, but that the duties of the office will not otherwise change;
2. that the duties of the office may be shared by more than one person at any one time and that there will be no limit to the time that any person(s) can hold office;
3. that the holder(s) will be appointed by Council, and that the appointment(s) will be subject to renewal every two years.

M.A. WALTON

AWARD FOR JEAN PATON

On 24 May 2000 the President of the Linnean Society of London presented Jean Paton with the 2000 Jill Smythies Award for the illustrations in her book *The Liverwort Flora of the British Isles* published by Harley Books of Colchester in August 1999. The Award comprised a medal and a cheque.

RECORDING MATTERS 18

Ron Shoubridge, Regional Recorder for VC 40, has informed me that he wishes to 'step aside', and thus we are looking for a replacement to take on the green and pleasant county of Shropshire. If anyone in the area (or indeed outside the county) is interested in becoming Recorder for VC 40 do let me know. I would like to thank Ron for all the work he has done over the years, and especially for sending me so many record cards!

The latest news on the BBS-BRC data access project is that in March I attended a meeting at Monks Wood to see a demonstration of the National Biodiversity Network (NBN) gateway project, in which bryophyte data are being used in the initial trial. However, the dataset used for the demonstration was Odonata, as the bryophyte dataset was not quite up and running at the time. Still, there was an opportunity for feedback, and Tom Blockeel and I emphasised what the Society would like to see in terms of data access and exchange. The web site address for the project is <http://www.jncc.gov.uk/gateway> and although the last time I went on line dragonflies were the only dataset available, at least it will give an idea of what to expect for bryophytes. Access to datasets and data exchange are in the development phase and are very much within the spirit of the NBN project. We look forward with anticipation to progress very soon.

Request for bryophyte records from Suffolk

Members are always interested to hear of exciting recording projects on the go, even if they are accompanied by a plea for help! Many of you will know that Richard Fisk is working hard towards a bryophyte flora of Suffolk, and he asked if the following could slot into *Recording Matters*.

The Suffolk Naturalists Society has decided to publish a new *Atlas Flora of Suffolk*, which will probably be in a similar format to the recently published *Flora of Norfolk*, and will include bryophytes. Recording is based on tetrads and will focus on records since 1980, with a target date for publication of 2005. There has never been a bryophyte flora of Suffolk, and the last account was a list by Arthur Mayfield published in the *Journal of the Ipswich and District Natural History Society* in 1930.

Coverage of the county is still very patchy, and localised records of bryophytes from any part, but particularly West Suffolk (VC 26) would be very welcome. Also, if anyone attended the 1981 BBS Spring meeting at Stowmarket, and has any records or notes, these would be much appreciated. Records from that meeting were logged onto cards on a 10-km square basis, and many cards include records from more than one site. Unfortunately, these records cannot be used since it is not possible to allocate them to tetrads. Following the publication of the new *Census Catalogue*, I have produced a revised checklist of Suffolk bryophytes. If any member is interested I will supply a copy.

Richard Fisk, 1 Paradise Row, Ringsfield, Beccles, Suffolk, NR34 8LQ.

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

BBS LIBRARY SALES AND SERVICE, 2000

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 1-4	£2.40 each; part 5 out of print
Vol. 2: parts 1-4	£3.00 each
Vol. 3: parts 1-5	£2.40 each; £12.00 per volume
Vol. 4: parts 1,3-5	£2.40 each; part 2 out of print
Vol. 5: parts 1,3	£3.00 each; parts 2 & 4 out of print
Vol. 6: parts 1-2	£6.00 each; £12.00 per volume - ends series of <i>Transactions</i>
Vol. 7: parts 1-4	£5.00 each; £20.00 per volume - renamed <i>Journal of Bryology</i>
Vol. 8: parts 2,3	£5.00 each; parts 1 & 4 out of print
Vol. 9: parts 1-3	£5.00 each; part 4 out of print
Vol. 10: parts 1,3,4	£8.00 each; part 2 out of print
Vol. 11: parts 1-3	£10.00 each; part 4 out of print
Vol. 12: parts 1-3	£11.50 each; part 4 out of print
Vol. 13: parts 1-4	£15.50 each; £62.00 per volume
Vol. 14: parts 2-4	£18.00 each; part 1 out of print
Vol. 15: parts 1-4	£22.50 each; £90.00 per volume
Vol. 16: parts 1-4	£29.75 each; £119.00 per volume
Vol. 17: parts 1-4	£39.50 each; £158.00 per volume
Vol. 18: parts 1-4	£42.25 each; £169.00 per volume
Vol. 19: parts 1-4	£47.25 each; £189.00 per volume
Vol. 20: parts 1-2	£49.50 each; £99.00 per volume (only 2 parts)

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

BBS Special Volumes

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

Census Catalogues

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

Other items

Adams KJ. <i>Microscope techniques for the bryologist. Part 1. A beginner's guide</i> .	Price incl. p&p: £1.00
Evans DE, Perry AR. 1987. Moss Wall Chart.	£2.80
Grolle R. 1983. <i>Hepatics of Europe and the Azores: an annotated list of species with synonyms</i> .	Price incl. p&p: £2.50
Newton ME <i>et al.</i> , 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	£18.75
Patterson no 2 stainless steel forceps	£4.00
Idealtek no 3 stainless steel forceps	£7.25
Eyepiece graticule 1 cm x 10 micrometer, 16 mm diameter	£25.00
BBS car stickers	£1.00 & SAE

PLEASE DO NOT INCLUDE CASH WITH ORDERS. Customers will be invoiced for the correct amount including p&p (postage and packing is extra unless stated). A legibly printed address label would be appreciated. All the above are available from the BBS librarian:

Kenneth J. Adams, 63 Wroths Path, Baldwins Hill, Loughton, Essex, IG10 1SH, UK.

THE BRITISH BRYOLOGICAL SOCIETY WEB SITE

<http://www.rbge.org.uk/bbs/>

The British Bryological Society web site, hosted free of charge on the web server of the Royal Botanic Garden Edinburgh, has been operational since 1996.

Throughout that time, David Long has acted as web site Editor, responsible for its structure and content, and Brian O'Shea has acted as the site manager, responsible for the technical aspects of preparing documents for uploading to the site and for keeping the information that is on the site up to date. Unfortunately, David can no longer continue as Editor and has asked Council to find a replacement for him.

In considering the matter, Council concluded that the increasing importance of the web site in promoting bryology generally and the Society in particular, and as a means of providing information both for members of the Society and for non-members, is such that the Editor should be a member of Council (in some respects replacing the role held by the former Publicity Officer).

The first tasks for the new Editor will be a) to review the present structure and contents of the site, b) to formulate proposals for its development, including the categories of information that should be made available on it, and c) to put those proposals to the next available meeting of Council so that a policy can be established. He/she will then be tasked, on an ongoing basis, with ensuring that the site develops by seeking new material and developing the functions of the site.

If the AGM agrees that the holder of the office should be a member of Council, he/she would be elected in accordance with clause 5(c) of the Society's Rules and, in addition to the 'General Duties of Officers', would have the following specific duties (which continue and build upon the work that has already been carried out by David Long and Brian O'Shea):

1. To ensure that the web site contributes as fully as possible to the Society's objectives of promoting bryology, facilitating the exchange of information among bryologists and promoting the conservation of bryophytes.
2. To keep the structure, format and contents of the web site under review and to ensure that it is up to date, informative and attractive for users.
3. To ensure that the web site promotes an awareness of the benefits of membership of the Society among the general public.

M.A. WALTON

BEQUEST AWARDS

Funds are available in the Society's Bequest Fund with the object of a) promoting bryology, b) providing financial support for activities such as recording, attending meetings and undertaking fieldwork and research, both in Britain and abroad, and c) enabling the results of these activities to be published.

The Bequest Committee cordially invites applications, especially from those under 25 years of age, for any work which does not form part of a professional employment. Awards may be made to members of the Society (preferably amateurs) or exceptionally, at the discretion of the Bequest Committee, to individuals or organisations outside the Society. Applications should state how the award would be used, and include a budget setting out the proposed expenditure and the financial support needed, in as much detail as possible.

In the recent past the fund has been used to support the production of the new *Liverwort Flora of the British Isles*, to provide travel expenses to carry out a detailed survey of the Suffolk bryophyte flora, and for a Wealden Cryptogam Leaflet.

The Committee strongly urges you to apply for an award, even if you are unsure that your work meets its criteria. The funds are there for your use. Applications should be sent to the Bequest Committee through the Treasurer (at present John Blackburn - see address inside front cover of this *Bulletin*) who will be pleased to give further information or advice if required.

JEFF DUCKETT

ELECTION OF OFFICERS AND ELECTED MEMBERS OF COUNCIL

The terms of six Officers, the Bulletin Editor, Journal Editor, Meetings Secretary, Reading Circle Secretary, Recorder for Hepatics, and Recorder for Mosses, expire at the end of 2000. The present incumbents are all eligible for re-election. There is also a vacancy for Membership Secretary, created by the election of Mr M.A. Walton as General Secretary. Mr M. Pool is currently serving in an acting capacity, and is eligible for election as Membership Secretary. Two Elected Members of Council will retire at the end of 2000, and neither Dr A.E. Newton nor Dr F.J. Rumsey is eligible for re-election until two years have elapsed. There is also a third vacancy for Elected Membership caused by the appointment of Mr M. Pool as acting Membership Secretary. 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 12 August 2000. 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 Reading, on 9 September 2000.

Council is proposing that the Editor of the BBS web site should be a member of Council (see p. 28 of this Bulletin). Council hope to be able to nominate a candidate for the office but members are also invited to submit nominations in the normal way, in accordance with the provisions of the preceding paragraph, so that, if the proposal is approved, a member can be elected to the office at the AGM.

REFEREES (JULY 2000)

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.L. 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, Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough, PE1 1JY.

MOSS REFEREES

- 1-10, 156-160:** Dr M.O. Hill, Monks Wood Experimental Station, Abbots Ripton,

- Huntingdon, PE17 2LS.
- 11-33:** G.P. Rothero, Stronlonag, Glenmassan, By Dunoon, Argyll, PA23 8RA.
- 34, 35, 67-70, 187-195:** Dr A.J.E. Smith, School of Biological Sciences, Brambell Building, University College of North Wales, Bangor, Gwynedd, LL57 2UW.
- 36, 71-89, 104-111:** N.G. Hodgetts, Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough, PE1 1JY.
- 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.
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BIOBASE RECORDING PROGRAMME

Some of you may already know of BioBase, a site recording package for PC written by Mike Thurner of Thurner Automation. A phanerogam version has been available for some years, and one for lichens has recently been introduced. Mr Thurner is now working on a version for bryophytes, and would appreciate any relevant advice and/or feedback.

BioBase is designed for IBM-compatible PCs and runs under Windows 3.1, 95 or 98. It includes a runtime version of the Microsoft Access database package, and is compatible both with Recorder and with DMAP. I have been using it for bryophyte recording (having customised the flowering plant version) for some time and can recommend it. Further details can be provided by Mike Thurner, Thurner Automation, Winton, Lower Ham Lane, Elstead, Surrey, GU8 6HQ.

GYMNOCOLEA ACUTILOBA IN SCOTLAND

G.P. ROTHERO

Stronlonag, Glenmassan, Dunoon, Argyll, PA23 8RA

During a survey of the bryophytes of the montane part of the RSPB's Abernethy Reserve in August 1999, I collected a small liverwort that puzzled me. Subsequent examination and comparison with material in my herbarium from the Rhinogs in North Wales suggested that it might be *Gymnocolea acutiloba*. This tentative identification was confirmed by Tim Blackstock and Jean Paton. A recent overview of the taxon in Wales is given by Blackstock & Newton (1999).

The site is in Strath Nethy in the Cairngorms, and is not too dissimilar to the North Wales sites though on a rather grander scale. There are huge areas of granite block scree in Strath Nethy, often with enormous boulders, giving many sheltered niches. The plant was growing on the surface of a granite boulder deep in one large depression in the scree at an altitude of some 600

m. The size of the scree precludes any continuous vegetation but where small patches develop, *Calluna vulgaris* is usually the most common species, often with *Sphagnum capillifolium*, again similar to the North Wales localities (Blackstock & Newton, 1999). By far the most common close associate is *Diplophyllum albicans* but heathy stands including *Anastrepta orcadensis*, *Mylia taylori*, *Bazzania tricenata* and, less frequently, *Anastrophyllum donianum* and *Pleurozia purpurea* occur close by, giving a somewhat oceanic feel to the flora. In contrast, on the same rocks, there is a large population of *Tetralophozia setiformis*, usually considered to be one of our more continental hepatics, and this continental element is reinforced by the occurrence in the same area of scattered cushions of *Anastrophyllum saxicola*.

Acknowledgements

I am grateful to Jean Paton and Tim Blackstock for their help in determining the material of *Gymnocolea acutiloba*, and to Andy Amphlett (RSPB) for pointing me in the right direction. The survey of the Arberethy Reserve was funded by the RSPB.

References

- Blackstock TH, Newton ME. 1999. A second British locality for *Gymnocolea acutiloba* in North Wales and observations from the Rhinog National Nature Reserve. *Journal of Bryology* 21: 157-162.

THE IDENTIFICATION OF *DREPANOCLADUS REVOLVENS* AND *D. COSSONII*, AND THEIR DISTRIBUTION IN BRITAIN AND IRELAND

T.L. BLOCKEEL

9 Ashfurlong Close, Dore, Sheffield, S17 3NN

INTRODUCTION

Drepanocladus cossonii (Schimp.) Loeske is the moss once known in Britain and Ireland as *D. revolvens* (Sw.) Warnst. var. *intermedius* (Lindb.) P.W. Richards & E.C. Wallace. It was included in the *Check-list and Census Catalogue of British and Irish Bryophytes* (Blockeel & Long, 1998) as a separate species but its distribution had not been fully revised when the *Census Catalogue* went to press. The present note aims to describe briefly the differences between *D. revolvens* and *D. cossonii*, and to give a more complete vice-county distribution.

TAXONOMY

Dixon (1924) recognised *Hypnum intermedium* Lindb. as a subspecies of *H. revolvens* Sw. He also remarked that *H. revolvens* var. *cossonii* (Schimp.) Ren. belonged to transitional forms connecting these two extremes. He characterised *H. intermedium* by its more slender, pale or yellowish-green stems, more shortly acuminate leaves and shorter leaf cells; he described *H. revolvens* as autoecious or dioecious, *H. intermedium* as dioecious. Because of the great variation in these characters and the occurrence of intermediates, bryologists had continuing difficulties in separating the taxa reliably and consistently. When Richards & Wallace (1950)

published their check-list, *Hypnum revolvens* was included in the genus *Drepanocladus*; they recognised the slender dioecious plant as a variety, *D. revolvens* var. *intermedius*. Smith (1978), on the other hand, was unable to find any morphological discontinuity between the two varieties and did not recognise any infra-specific taxa in *D. revolvens*. This treatment was followed by Corley & Hill (1981).

More recently, Hedenäs (1989) published a study of *Drepanocladus revolvens* s.l. and recognised var. *revolvens* and var. *intermedius* as distinct species. He described more precisely the difference in areolation between the two species, and affirmed the difference in sexuality. Hedenäs transferred these species to the genus *Scorpidium*, as *S. revolvens* (Sw.) Hedenäs and *S. cossonii* (Schimp.) Hedenäs respectively. (The epithet *intermedium* is not available for the latter species, as it is based on *Hypnum intermedium* Lindb., an illegitimate homonym.) In the new *Census Catalogue* (Blockeel & Long, 1998) a more conservative approach was taken and the species were retained in *Drepanocladus*. Although they have much in common with *Scorpidium scorpioides* (the type species of *Scorpidium*), *D. revolvens* and *D. cossonii* differ most obviously in the presence of a long single leaf nerve. This is usually short and double in *S. scorpioides*.

Typical plants of *D. revolvens* and *D. cossonii* are easily recognised. *D. revolvens* s.str. is a fairly coarse plant, the moist shoots about 3 mm wide, with sparse, long branches. In open habitats, such as gravelly flushes, the shoots are often prostrate. They are usually strongly pigmented reddish or blackish purple. The leaf cells are very long, mostly in the range 60-140 µm, and gradually tapered at the ends (except at the base of the leaf). *D. cossonii* is a more slender plant, the shoots commonly about 2 mm wide. The shoots are usually erect and are frequently subpinnately branched. They are pale green to yellow-green or brown in colour, and rarely with red pigmentation, although reddish pigmentation is sometimes present in a band of cells across the extreme base of the leaf. The leaf cells are shorter, in the range 20-90(-110 µm), and characteristically have transverse to oblique end-walls. *D. revolvens* is autoecious and *D. cossonii* dioecious. The key characters of the two species are summarised in Table 1.

Table 1. Summary of distinguishing characters of *D. revolvens* and *D. cossonii*

	<i>D. revolvens</i>	<i>D. cossonii</i>
Gross morphology	Medium-sized to robust, shoots often 3 mm wide, irregularly branched	Slender to ± robust, shoots often ca 2 mm wide, irregularly or more often pinnately branched
Pigmentation	Often red to deep blackish-purple, more rarely green	Green, yellow-green, or rarely red or reddish-brown
Leaf shape	Ovate to lanceolate below, gradually narrowed to acuminate or longly acuminate apex	Often broadly ovate below, gradually narrowed to shortly or longly acuminate apex
Mid-leaf cells	Linear, mostly 60-140 µm long, gradually tapered at the ends	Narrowly rectangular to linear, mostly 20-90 µm long, truncate, oblique or shortly tapered at the ends
Inflorescence	Autoecious, rarely appearing dioecious	Dioecious

This apparently simple situation is complicated by the occurrence of plants which are intermediate in varying degrees. Their gross morphology is particularly variable. Shoots of *D. revolvens*, especially when immature or growing in relatively closed vegetation, may be more slender than normal and/or weakly pigmented. Conversely, some forms of *D. cossonii* are as robust as forms of *D. revolvens* and may be irregularly branched. At least some of the robust herbarium specimens of *D. cossonii* appear to have been collected from submerged habitats. Such forms usually also have more elongate leaves. In such cases identification may have to be based on the length and shape of the leaf cells. This is usually decisive (Figure 1), although

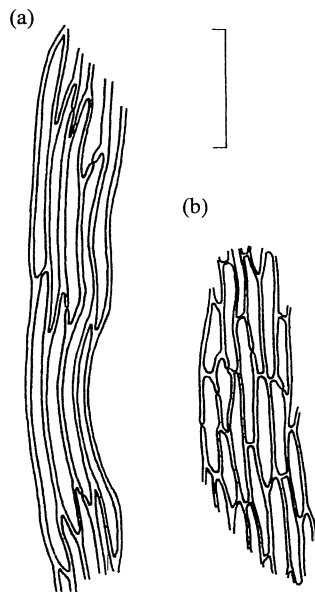


Figure 1. Median leaf cells of (a) *Drepanocladus revolvens* and (b) *D. cossonii*. Drawn from (a) Blockeel 23/249, Upper Derwent Valley, Derbyshire, VC 57, July 1994, and (b) Blockeel 28/113, Hoddy Cows, Bampton, Yorkshire, VC 61, June 1999, both in herb. Blockeel. Scale bar = 50 μ m.

the difference is not always so clear-cut as in the specimens illustrated, and it is the robust long-leaved forms of *D. cossonii* which tend also to have longer leaf cells. Young leaves of *D. revolvens* may have relatively short cells and, exceptionally, a large proportion of these may have transverse end walls. It is preferable to examine leaves on the older parts of the shoots. Sometimes, also, the cell walls are strongly incrassate, and then the shape of the cells may be obscured. In spite of this variation, if many cells are found to exceed 90 μ m and are gradually tapered at the ends, the plants may safely be referred to *D. revolvens*. In *D. cossonii* few cells exceed 90 μ m and cells with transverse, oblique or shortly tapered ends predominate.

The sexuality of the plants is sometimes useful as an aid to identification, but it can be an ambiguous character and specimens are often sterile. The autoecious condition of *D. revolvens* is readily demonstrated in many specimens, and capsules are not uncommon. However, I have encountered specimens of undoubted *D. revolvens* which have appeared to be unisexual. I suspect that such plants are rarely if ever truly dioecious; in some cases, after careful searching, I have been able to find isolated inflorescences of the second sex, and it seems that sometimes one sex may predominate. The dioecious condition of *D. cossonii* is often difficult to demonstrate; my impression is that inflorescences are produced less frequently in this species.

In the preparation of the new *Census Catalogue* (Blockeel & Long, 1998), I examined a substantial number of specimens, and became convinced that Hedenäs was correct in recognising two species. In most cases the difference in leaf areolation resolves the identification of otherwise ambiguous specimens, and I encountered very few collections which I was unable to place with confidence.

SEPARATION FROM *HAMATOCALIS VERNICOSUS*

D. cossonii is rather commonly confused with *Hamatocaulis vernicosus* (Mitt.) Hedenäs (*D. vernicosus* (Mitt.) Warnst.), and the two species very occasionally grow in mixed stands. They are similar in stature and general appearance. The leaves of *D. cossonii* are often striolate when dry and may therefore be mistaken for those of *H. vernicosus*. Although the leaves of the latter are strongly plicate at the base, the plicae generally disappear in the middle and upper part of the leaf. There is a further similarity in the basal leaf cells, which are very often tinged brownish-red in *H. vernicosus*. *D. cossonii* has a group of inflated alar cells, and *H. vernicosus* lacks them, but this distinction is easily overlooked as the alar group in the former is very small, sometimes consisting of only one or two cells.

In all cases, *D. cossonii* can be separated by the presence of a stem hyalodermis. The main stems also have a small central strand, but this may be absent in weak shoots. However, great care is needed in the examination of stem sections of *D. cossonii*, as the hyalodermis is often collapsed or eroded and is easily overlooked. Conversely, the cortical cells of *D. vernicosus* may be weakly incrassate and therefore have rather wide lumens. When unpigmented they may be misinterpreted as a hyalodermis, but they are never conspicuously wider than the inner cells. The cells of the hyalodermis of *D. cossonii* are delicate, thin-walled and much wider than the strongly incrassate cortical cells. They soon collapse, and in old herbarium specimens the inner cortical cells are often misshapen too, so that at its circumference the areolation of the stem section is irregular and obscured. This contrasts with the generally neat and clearly defined cortex of *Hamatocaulis*.

ECOLOGY

D. revolvens is found in more oligotrophic habitats than *D. cossonii*. It occurs in mires, in flushes, on wet peaty banks, on irrigated rocks, and on wet gravelly ground. *D. cossonii* is a plant of base-rich mires and fens, including dune slacks. The two species sometimes occur in close proximity. For example, at Great Close Mire near Malham in Yorkshire I have seen fertile *D. revolvens* in peaty blanket mire over limestone growing adjacent to base-rich hollows populated by *D. cossonii*. Both species are widespread in Britain and Ireland, but have now become rare in many lowland regions. *D. cossonii* is generally more common than *D. revolvens* in the lowlands, especially in southern and eastern England.

VICE-COUNTY DISTRIBUTIONS

I have confirmed the following distributions for the two species. These distributions replace the respective entries in the new *Census Catalogue* (Blockeel & Long, 1998). Brackets are used when the specimens examined from the vice-county were collected before 1950. In the new *Census Catalogue* brackets were omitted incorrectly from the entries for *D. revolvens* in H2 and *D. cossonii* in H31.

D. revolvens: 1-4, 9, 11, 17, 27, 28, (40), 41-46, 48-50, 57, (58, 59), 60, 62, (63), 64, (65, 66), 68, 69, (70), 72, (73, 75), 78, 80, (81, 83, 85, 87), 88, 89, (90), 92, (95), 96-98, 100-103, (104), 105, 106, 108-111. H1, (2), 3-7, 10, 12, (14), 15-17, 20, (21), 23, 27, 28, 31, 33, 35, 37-40.

D. cossonii: 1, (3), 5, 6, 9, 11, 12, 22, 23, 25-28, (32-34), 35, (36-38), 40-43, 47-52, (53, 54), 57, (58), 59, (60), 61-67, (68), 69, 70, 72, 73, (75, 76), 78, 80-83, 85, (86), 87-90, 92,

94, 98-104, (105), 106-110. H1, 2, 7-11, 14-20, (21), 22-29, (31, 32), 33-35, (37), 39, 40.

SELECTED SPECIMENS EXAMINED

The following list has been limited to one citation for each vice-county, generally the most recent in each case. A full list of specimens confirmed has been deposited with the Recorder for Mosses. It should be noted that some of the 10-km grid references for Irish localities are based on the extended British Grid, not on the Irish Grid. These references have been taken directly from the herbarium packets.

Drepanocladus revolvens

England and Wales: wet heath near Hayle Kimbro Pool, Lizard, W Cornwall, SW61 (1), 28 May 1961, J.A. Paton 1977 (BBSUK); just above water level and shallowly submerged in mire, near low *Molinia*, *Carex panicea* and *Drosera rotundifolia*, NE of Blisland, SX17 (2), 5 July 1997, D.T. Holyoak 97-320 (herb. Holyoak); on wet moorland, Ripon Tor, above Ashburton, Dartmoor (3), 16 April 1953, P.J. Wanstall (NMW); marshy ground on heath, head of Hoccombe Water, south of Brendon, Lynmouth SS74 (4), 7 June 1961, J.A. Paton (BBSUK); base-rich runnel on Winfrith Heath, SY88 (9), July 1972, M.O. Hill (BBSUK); in swamp, Wilverley Bog, Holmsley, New Forest (11), 27 September 1969, E.C. Wallace (NMW); Hagthorne Bog, Westend Common (17), 21 September 1981, E.C. Wallace (NMW); in acidic mire with *Sphagnum* species, Holt Lowes, Holt, TG03 (27), 24 January 1998, D.F. Strauss (BBSUK); Roydon Common, E of Kings Lynn, TF62 (28), 6 April 1967, J.A. Paton 1987 (NMW), det. L. Hedenäs; ditches on Wilderley Green (40), May 1893, R. de G. Benson (NMW); boggy flush, Graig Ddu above R Egel, SN70 (41), 18 August 1962, A.J.E. Smith (NMW); marshy ground, 1200-1300 ft, moorland north of Beili Griffith, Lower Chapel, SO03 (42), July 1980, G.W. Garlick 3463 (NMW); wet flush beneath boulder scree & grading into blanket bog, NE side of Llyn Cerrigllwydion Uchaf, nr Claerwen, SN86 (43), 3 October 1973, R.G. Woods (herb. Woods); flush on mountain side, 1500 ft, Tyle Dû, Black Mt, S of Llanddeusant, SN72 (44), 10 April 1965, A.R. Perry (NMW); flushes, Brynberian Moor, Prescelly Hills, SN13 (45), 30 July 1984, F. Rose (NMW); small bog by lane up N side of Cwm Einion, with *Sphagnum teres*, 40 m alt., SN69 (46), 18 February 1974, P.M. Benoit (NMW); Afon Cynfal Gorge, Meirionnydd, N Wales (48), 23 August 1978, D. Synnott (DBN); flush on moorland nr Bryn Refail, SH56 (49), October 1969, M.O. Hill (BBSUK); wet ground nr Sportman's Arms, Denbigh Moors, SH95 (50), March 1972, M.O. Hill (BBSUK); in moorland flush, Upper Derwent Valley, SK19 (57), July 1994, T.L. Blockeel 23/249 (herb. Blockeel); Wybunbury Bog, Cheshire (58), August 1902, D.A. Jones (BBSUK); Rainford Junction (59), July 1924, W.G. Travis (NMW); marsh behind Heysham Harbour (60), April 1956, G.W. Garlick (NMW); in watery hollow in valley bog, ca 170 m alt., Fen Bog, south of Goathland, SE89 (62), 17 August 1997, T.L. Blockeel 26/602 (herb. Blockeel); wet bog in Widdop Moors, Todmorden (63), May 1856, Mr Nowell (DBN); on peaty soil in mire, Ha Mire, Malham Tarn, SD96 (64), June 1993, T.L. Blockeel 22/219 (herb. Blockeel); in spring-head rill, 1500 ft, W side of Baugh Fell (65), July 1921, A. Wilson (BBSUK; E; LIV); submerged in pool, Widdybank, Teesdale (66), 7 June 1897, W. Ingham (DBN), and 26 July 1898 (DBN); *c.fr.*, Bizzle Burn (68), 4 September 1963, A.J. Pettifer (NMW); on flushed slope, ca 70 m alt., below Loughrigg Terrace, Grasmere, NY30 (69), 30 October 1997, T.L. Blockeel 26/644 (herb. Blockeel); wet hillside near Bull Crag, Langstrath (70), 17 May 1945, A.D. Banwell & L.B.C. Trotter (NMW).

Scotland: base-rich flush by burn, open moorland valley, 220 m alt., Carrifran Glen below Saddle Yoke, Moffatdale, NT11 (72), 4 June 1998, D.G. Long 27749 (E); Burnfoot Hill, New Galloway (73), May 1888, herb. J. McAndrew (E); *c.fr.*, Knockewart Loch (75), 1 June 1940, J.R. Lee (BBSUK; NMW); damp stony ground by loch, N end of March Wood, St Mary's Loch, NT22 (78), 22 August 1999, D.F. Chamberlain (BBSUK); margin of basin mire, 273 m alt., Blind Moss, S of Shielswood, NT41 (80), 23 August 1976, D.G. Long 5207 (E); Dowlach Moor (81), October 1927, J.B. Duncan & W.C. Millar

(BBSUK; NMW); Pentlands (83), n.d., anon. (E); West Lomond (85), June 1875, C. Howie (E); Ben a Chroin, 2500 ft (87), June 1913, herb. J.A. Wheldon (NMW); separated from specimen of *Drepanocladus exannulatus*, Ben Lawers (88), 26 August 1979, D.T. Holyoak (herb. Holyoak); basic flush, 606 m alt., S side of Sow of Atholl, Atholl Forest, NN67 (89), 25 June 1978, D.G. Long 6859 (E); Sidlaw Hills (90), May 1848, Gardner (DBN); on gravelly seepage by edge of track, Glen Callater, at S end of Loch Callater, NO18 (92), 23 August 1996, T.L. Blockeel 25/242 (herb. Blockeel); Ben More, Elfin (95), September 1909, E. Armitage (NMW); peaty ditch, 365 m alt., north end of Lochan Uaine, Pass of Ryvoan, NJ01 (96), 24 September 1996, D.G. Long 26726 (E); on wet rocks, Coire Lochain, Meall Coire Lochain, Loch Lochy (97), 13 July 1971, E.C. Wallace (NMW); Glen Creran, NN04 (98), 7 September 1972, J. Appleyard (NMW); in a ditch, on coast near Glen Sannox, Arran (100), 2 April 1969, G. Shepherd (E); bog on Cnoc na Seamraig, Knapdale (101), 11 July 1959, E.C. Wallace; in boggy ground in open area among scrubby woodland, Claggan Bay, Islay, NR45 (102), 30 July 1998, T.L. Blockeel 27/211 (herb. Blockeel); mire, Creag Mohr, Ruaig, Tiree, NM04 (103), 30 June 1999, D.F. Chamberlain (BBSUK); shady gully near Golf Links, Portree (104), 5 June 1949, L.B.C. Trotter & A.D. Banwell (NMW); with Sphagna, marsh in woods on the northern lower slopes of Cul Beag (105), 2 September 1960, R.J. Murphy (herb. Holyoak); on bank of peaty hill stream on mountainside above Lochluichart (106), 21 July 1978, O.B.J. French (NMW); damp basic flush by loch, Lochan Dubh above Coldbackie, nr Tongue, NC65 (108), 3 August 1974, D.G. Long 3880 (E); Warehouse Hill near Ulbster, ND34 (109), 30 August 1974, J. Appleyard (NMW); damp grassy ground, moorland, Askernish, Daliburgh, South Uist (110), 27 August 1968, E.C. Wallace (NMW); occasional, flush on hillside below the Dwarfie Stone, Hoy, Orkney (111), 3 August 1967, T. Laflin 15623 (CGE).

Ireland: drain near river from L Adoon, Brandon (H1), August 1953, A.P. Fanning 2005 (DBN); from boggy bank above first waterfall, 500 ft, Derrymore (H2), 16 April 1949, A.P. Fanning 347 (DBN); in flush, Aghacunna, 92/14 (H3), 25 August 1967, R.D. Fitzgerald (NMW); marshy ground at edge of stream, nr Kilcullen House, Rylane Cross, Boggeragh Mts, 9325 (H4), 24 March 1966, M.F.V. Corley & J.S. Parker (BBSUK); in bog, ca 800 ft, Lyrenamon, 92/5050 (H5), 31 August 1967, R.D. Fitzgerald (NMW); in flush, ca 1150 ft, Laghtnafrankee, Comeragh Mountains, 02/17 (H6), 21 August 1966, R.D. Fitzgerald (NMW; BBSUK); wet rocks above L Curra, Galtee Mtns, Co. Tipperary (H7), 23 August 1966, D. Synnott (DBN); in bog by L Nahinch, N Tipperary (H10), 6 June 1965, A.L.K. King (DBN); channels at foot of boggy slope, Croghan (H12), August 1975, P. Pitkin (BBSUK); on wet sandstone rock in bog at low alt., near R Gorrage (H14), 10 April 1912, W.R. Tetley (BBSUK); bottom of drain in bog by Grand Canal, Clonfert (H15), 27 July 1951, A.P. Fanning (BBSUK; DBN); in *Schoenus* fen, 40 m alt, Errisbeg, NW side of Lough Nalawney, L64 (H16), 1999, D.G. Long 28455 (BBSUK); in marginal lagg of raised bog complex, Addergoule North, River Suck, near Ballinasloe, Galway (H17), 12 September 1968, H.J.B. Birks (BBSUK); flush on SW side of Lough Ouler, Tonelagee, 42/0802 (H20), 25 August 1975, A.R. Perry (NMW); Three Rock Mountain, Co. Dublin (H21), October 1852, Dav. Orr (DBN); *c.fr.*, Scraw Bog, Portnashangan, Co. Westmeath (H23), June 1967, [A.L.K. King] (DBN); in wet boggy ground in hollow, below north side of Knockaveen, Clare Island (H27), July 1994, T.L. Blockeel 23/219 (herb. Blockeel); 1000 ft, bog below siliceous crags S of Knockachree, Slieve Gamph (H28), 27 July 1963, A.R. Perry (NMW); in peaty flush on moorland, Two Mile River, Carlingford Mountain, J11 (H31), 7 August 1999, T.L. Blockeel (BBSUK); in bog, ca 1200 ft, Quilcagh (H33), 5 June 1959, R.D. Fitzgerald (NMW); with *Schoenus*, above Muckish Gap, Co. Donegal (H35), 14 June 1963, D. Synnott (DBN); in flush, ca 700 ft, below Tower, Slieve Gullion, 14/18 (H37), 3 October 1964, R.D. Fitzgerald (NMW); Conlig Bog, 400 ft (H38), 6 June 1952, R.D. Fitzgerald (NMW); *c.fr.*, in bog, 1100 ft, Agnew's Hill, near Larne (H39), 30 June 1951, R.D. Fitzgerald (NMW); on wet peat in disturbed area of open blanket bog, Windy Hill, C73 (H40), 1999, D.T. Holyoak 99-547 (BBSUK).

Drepanocladus cossonii

England and Wales: in standing water, by road to Lizard Point, The Lizard (1), 23 March 1963, R.J. Murphy (herb. Holyoak); Little Haldon (3), August 1918, W.R. Sherrin (NMW); Holme Moss, near

Wiveliscombe, ST02 (5), 18 August 1981, J. Appleyard (NMW); bog near Heyden's Farm, near Hinton Blewett, ST55 (6), 23 September 1973, J. Appleyard (NMW); bog, Corfe Common (9), April 1952, E.M. Evans (NMW); Hinchleslea Moor, New Forest (11), 21 August 1980, E.C. Wallace (NMW); side of ditch on heathland, Farnborough (12), 2 September 1975, E.C. Wallace (NMW); Marcham Bog (22), 23 October 1954, J. Appleyard (NMW); bog, Bullingdon, Oxford (23), 30 May 1965, E.C. Wallace (NMW); calcareous fen, Redgrave Fen, Botesdale, Diss (25), 24 October 1959, P.J. Wanstall (NMW); calcareous fen, Market Weston Fen, TL97 (26), 24 May 1998, D.F. Strauss (herb. Strauss); damp area in rich fen meadow, *ca* 20 m alt., Booton Common, Booton, Reepham, TG12 (27), 31 December 1993, C.R. Stevenson (herb. Stevenson); in runnels of water, between plant tussocks, Scarning Fen, near East Dereham, TF91 (28), 7 April 1986, R.J. Murphy (herb. Holyoak); bog, Croughton (32), 1889, H.N. Dixon (NMW); near Seven Springs, R Windrush above Bourton (33), 15 December 1913, H.H. Knight (NMW); near Drybrook, Forest of Dean (34), 7 October 1929, H.H. Knight (NMW), and October 1929, H.H. Knight & D.A. Jones (BBSUK); in \pm basic flush on north-facing slope to N of Sugar Loaf, Abergavenny, SO21 (35), 10 June 1999, R.G. Woods & G. Motley (BBSUK); Cefn Hill (36), September 1922, C.H. Binstead & E. Armitage (NMW); Hay Slad Bog, Worcestershire (37), 4 September 1933, W.W. Boucher (NMW); Grimscoate Fields, Warwickshire (38), January 1906, C.H. Waddell (DBN); in flush, Catherton Common, SO67 (40), 14 February 1999, J.D. Sleath (BBSUK); marshy ground near pool, Llanguennith Burrows, Gower (41), 6 April 1963, E.F. Warburg (BBSUK; OXF); in \pm basic flush with *Campylyium stellatum*, $\frac{1}{2}$ km NE of Llyn Login, Eppynt ranges (MOD Sennybridge), SO04 (42), 13 November 1998, R.G. Woods (herb. Woods); \pm basic flush, Aberedw Hill, Hundred House, Radnor, SO15 (43), 17 October 1998, R.G. Woods (herb. Woods); in \pm basic flush, Mynydd Clogan, Adfa, Montgomeryshire, SO09 (47), 21 October 1998, R.G. Woods & R. Mathews (herb. Woods); Tir Stent, Dolgellau, SH71 (48), 8 July 1996, P.M. Benoit (herb. Benoit); Cors Geirch near Pwllheli, SH33 (49), 21 June 1979, P.M. Benoit (herb. Benoit); lower slopes on north side of Godor in the Berwyn Hills, Denbigh (50), July 1980, T.H. Blackstock (herb. Blackstock); flush by reservoir, Moel Dywyll, SJ16 (51), April 1973, M.O. Hill (BBSUK); dune slack, Newborough Warren, S Anglesey (52), 22 August 1978, D. Synnott (DBN); Deeping Fen (53), August 1898, S. Gasking (NMW); mauly pastures, nr Legbourne (54), 16 April 1921, E.F. Noel (NMW); in weakly base-rich flushed lawn on bank of moorland stream, *ca* 250 m alt., Grainfoot, Ladybower, SK18 (57), July 1994, T.L. Blockeel 23/141 (herb. Blockeel); Hale Moss, Cheshire (58), September 1881, G.A. Holt (DBN); damp dune slack, Ainsdale (59), 3 April 1973, E.C. Wallace (NMW); bog near Docker, West Lancashire (60), May 1901, A. Wilson (DBN); in base-rich mire, Hoddy Cows, Bempton, TA17 (61), 19 June 1999, T.L. Blockeel (herb. Blockeel); in calcareous flushes in boggy pasture, near Ellers Wood, Thornton Dale, SE88 (62), May 1994, T.L. Blockeel 23/100 (herb. Blockeel); in runnel in flush bog, 215 m alt., Agden Bog, Bradfield, SK29 (63), March 1990, T.L. Blockeel 19/033 (herb. Blockeel); in spring on NE-facing slope, Bent Hill, New House Farm, *ca* 4 km NE of Malham, SD96 (64), 14 February 1997, T.L. Blockeel 26/042 (herb. Blockeel); in slightly base-rich flush by moorland stream, Cotterdale, Upper Wensleydale, SD89 (65), 4 July 1998, T.L. Blockeel 27/144 (herb. Blockeel); Widdybank Fell (66), July 1961, F. Rose (NMW); calcareous moorland flush, Middlerig Burn near Sweethope Loughs, NY98 (67), 24 December 1973, D.G. Long 2963 (E); Ross Links (68), July 1926, J.B. Duncan & W.C. Millar (BBSUK), and September 1928, J.B. Duncan (BBSUK; NMW); in shallow depressions in a spring in a wet, base-rich fenny pasture, 290 m alt., 300 m SW of Street Farm, Ravenstonedale, NY70 (69), 17 August 1996, K. Raistrick (BBSUK); base-rich bog near Berrier End, nr Greystoke, NY32 (70), 1 September 1959, E.F. W[arburg] (OXF).

Scotland: base-rich flush by burn, open moorland valley, 180 m alt., lower Carrifran Glen, Moffatdale, NT11 (72), 4 June 1998, D.G. Long 27741 (E); boggy moorland flush, below Loch Whingeon, Gatehouse, NX66 (73), 26 June 1972, D.G. Long 2065 (E); Knockdhu (75), September 1915, E. Armitage (NMW); Little Loch Mearns (76), 20 June 1942, J.R. Lee (NMW); calcareous ground, near road, Medwyn Mains, Dolphinton, NT12 (78), 29 August 1971, D.G. Long 1525 (E); open fen, Beanrig Moss, near Selkirk, NT52 (80), 29 December 1973, D.G. Long 2978 (E); in basic flush by burn, 450 m alt., Dye Water below West Rotten Cleugh, NT56 (81), 19 May 1991, D.G. Long 19579 (E); dune slack, Aberlaig Bay, East Lothian (82), 24 September 1960, A.C. Crundwell (herb. Crundwell; BBSUK); basic

flush on valley side, R S Esk, S of Mirendeau Castle, Moorfoots, NT24 (83), 4 August 1974, D.G. Long 3643 (E); in shallow pool in dune slack, Dumbarnie Links, near Largo, Fife (85), 24 June 1967, A. McG. Stirling (BBSUK); Ben Lomond (86), 1823, anon. (E); near Lochan an Eireannaich, 1800 ft alt., Kirkton Glen, Balquhiddie, Perthshire (87), 20 June 1965, A.C. Crundwell (herb. Crundwell); basic flushes on hillside, 480 m alt., head of Kirkton Glen, Balquhiddie, NN52 (88), 28 May 1978, D.G. Long 6769 (E); in base-rich flush on steep slope, Gleann Beag, below Carn Ait, NO17 (89), 19 August 1996, T.L. Blockeel 25/140 (herb. Blockeel); basic flush, Rossie Moor nr Brechin (90), November 1965, U.K. Duncan (E); in grassy flush beside small burn, 440 m alt., above Corrie Feragie, Braemar, NO19 (92), November 1998, G.P. Rothero (BBSUK); shore of Loch Builg (94), 4 June 1958, E.C. Wallace (NMW); moorland above Creagan Sturra, Melfort, NM81 (98), 8 September 1972, J. Appleyard (NMW); Auchinvernal Hill, Glen Fruin (99), 13 October 1951, A.C. Crundwell (BBSUK); flush in Glen Rosa, NW of Brodick, Arran, NR93 (100), 14 March 1961, A.R. Perry (NMW); wet rocks on Creag nan Callay, Cruach Lusach, Knapdale (101), 29 June 1963, E.C. Wallace (NMW); in weakly base-rich mire in hollow among limestone hillocks, Loch nan Cadhan, Ballygrant, Islay, NR46 (102), 28 July 1988, T.L. Blockeel 27/198 (herb. Blockeel); base-rich mire, 5 m alt., Urvaig, near Caoles, Tiree, NM05 (103), 28 June 1999, D.F. Chamberlain (BBSUK); Sgaorishal area, Rhum (104), July/August 1984, P. Pitkin (E); marshy field, Sunart, Torridon (105), 19 July 1948, E.C. Wallace (NMW); in seasonally inundated area of dune slack fen, 5 m alt., Morrich Mor dunes, fen SE of control tower, NH88 (106), 20 June 1998, G.P. Rothero 98045 (herb. Rothero); calcareous flush, nr Benmore Lodge, Glen Oyckell (107), 5 September 1960, E.F. Warburg (BBSUK); marshy field, Elphin (108), 29 August 1960, E.C. Wallace (NMW); dune slack, Dunnet Links (109), 19 March 1973, A.C. Crundwell (BBSUK); in fen by loch, Daliburgh, South Uist (110), 27 August 1968, E.C. Wallace (NMW).

Ireland: with *Salix repens* and *Preissia quadrata* on sand-dunes, Castlegregory, Kerry (H1), 18 September 1951, A.C. Crundwell, BBS excursion (BBSUK; herb. Crundwell); swampy field N of village, Ardfer (H2), 10 July 1954, A.P. Fanning 1699 (DBN); edge of bog near Urlingford, Co. Tipperary (H7), 26 August 1966, D.M. Synnott (DBN); edge of marsh, near road, Diggity Bog, Ballyvogue, nr Askeaton (H8), February 1975, P.H. Pitkin (BBSUK); wet ground at edge of Watt's Lough, south of Mullaghmore, Burren, R39 (H9), 15 July 1994, H.L.K. Whitehouse, conf. Hedenäs (herb. Whitehouse); marsh by L Nahirinch, near Borrisokane (H10), June 1965, A.L.K. King (BBSUK); in pool on bog, Derryfadda, W of Johnstown (H11), 30 August 1966, E.R.B. Little (BBSUK); in marsh at Derry Hills near Clonaslee (H14), 7 June 1965, A.L.K. King (BBSUK); fen, Loughrea (H15), 9 April 1957, R.E. Parker (BBSUK); Maam Bridge (H16), 3 June 1960, A.W. Stelfox (NMW); fen at roadside ½ mile SE of Galway City (H17), 2 August 1968, A.R. Perry (BBSUK); *Schoenus*-dominated fen, Fin Lough, near Clonmacnoise, Co. Offaly (H18), June 1984, V. Power (BBSUK); margin of calcareous spring-fed fen with *Calliergon cuspidatum*, *Rhizomnium pseudopunctatum* and *Homalothecium nitens*, Pollardstown Fen, Co. Kildare (H19), 28 September 1998, N. Lockhart (DBN); Ballybetagh Bog (H20), 2 May 1964, A.L.K. King (DBN); Kilsaughlin, Co. Dublin (H21), 1856, D. Orr (DBN); with *Philonotis calcarea* in calcareous flush, Commons, Duleek (H22), 17 September 1966, D. Synnott (DBN); in calcareous fen with *Schoenus nigricans*, *Calliergonella cuspidata*, *Ctenidium molluscum*, *Palustriella commutata*, *Cratoneuron filicinum*, ca 85 m alt., south-east shore of Lough Ennell, Co. Westmeath (opposite Cherry Island), N44 (H23), 1 March 1999, M.W. Jackson (DBN); in marsh on E shore of L Ree below Cashel Lodge, Co. Longford (H24), 28 May 1966, A.L.K. King (DBN; BBSUK); with *D. sendtneri*, fen near Lough Ree, Barry Beg, N of Athlone, Roscommon, 04/00 (H25), 23 September 1970, J.A. Paton (BBSUK); marsh by lane at Down Hill, Ballina, Co. Mayo (H26), 30 May 1960, A.L.K. King (BBSUK; DBN); blanket bog outside iron flush area, T.A.E. bog, between Dooleeg and Bellacorick, W Mayo (H27), June 1958, A.L.K. King (BBSUK); fen below limestone crags, 800 ft, NE end of Bricklieve Mts (H28), 18 July 1963, A.R. Perry & R.D. Fitzgerald (NMW); basic flush below limestone outcrop, Ballinlig, Glenade, Co. Leitrim (H29), 25 July 1963, A.R. Perry & R.D. Fitzgerald (BBSUK); rocks by stream, Carlingford Mount., Co. Louth (H31), 8 September 1882, C.H. Waddell (DBN); Drumreask, Co. Monaghan (H32), 1907, W.F. de V. Kane (DBN); flushed hillside, Carrickbawn (H33), July 1970, E.C. Nelson (DBN, ex UCW Aberystwyth); in marsh, below Barnan More, Inishowen, 06/50 (H34), 21 June 1967, R.D. Fitzgerald (NMW); in calcareous marsh by lough, L. Sheshkinmore,

NW of Ardara, G69 (H35), August 1990, T.L. Blockeel 19/537 (herb. Blockeel); Camlough Mtn, Armagh (H37), 16 July 1900, H.W. Lett & C.H. Waddell (herb. Lett, DBN); on stony wet ground in *Spiranthes romanoffiana* site, Garron, above Camlough, Co. Antrim (H39), August 1990, D. Synnott (DBN); in low vegetation of damp hollow in dune-slack, Ballymaclary NNR, C63 (H40), 13 April 1999, D.T. Holyoak 99-288 (BBSUK).

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NEW VICE-COUNTY RECORDS AND AMENDMENTS TO THE CENSUS CATALOGUE

All undated records are based on specimens collected in 1999; 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

- 6.1 *Telaranea nematodes*, on humus under *Rhododendron* in N-facing woodland, ca 80 m alt., by junction of Glenakeefe River and Owennashad River, Lismore, S01 (H6), Blockeel 28/194.
- 7.3 *Kurzia trichoclados*, on peat in heathy block scree on NW-facing slope above loch, 725 m alt., Loch Avon, SW end, Cairngorms, NJ00 (94), Rothero 99136.

- 8.2 *Lepidozia pearsonii*, in unshaded heather facing N or NW, on steep slope of valley just above stream, 320 m alt., just above and to S of Reynard Clough, two miles S of Holmfirth, SE10 (63), 1996, Finch.
- 9.1 *Bazzania trilobata*, in block scree near summit, The Bloreng, SO21 (35), Bosanquet.
- 10.4 *Calypogeia neesiana*, with *Cephalozia connivens* and *Kurzia* sp. in blanket bog, NE of Pwll Cam, Merthyr Cynog, SN94 (42), Woods.
- 11.1 *Adelanthus decipiens*, at base of steep, almost unshaded, granitic outcrop on heathy slope below tor, just N of Roche Rock, SW95 (2), Holyoak 99-78.
- 12.6 *Cephalozia lunulifolia*, on rotting log near river, Cwm Clydach, SO21 (42), Newton & O'Leary.
- e 12.9 *Cephalozia connivens*, with *Calypogeia muelleriana* and *Cephalozia bicuspidata* on rotting tree stumps in wet birch wood, Tuddenham Heath, Cavenham NR, TL77 (26), 1993, Strauss.
- 13.1 *Nowellia curvifolia*, on decorticated *Alnus* log, Mynydd Du Forest, SO22 (35), Bosanquet; rotting log, Hanley Dingle, SO66 (37), Lawley; on rotting logs in oak woodland, ca 90 m alt., Owennashad River, just N of Drummer Bridge, Lismore, S00 (H6), Blockeel 28/209; on damp decorticated wood of rotting stump in mixed deciduous/coniferous woodland, Glenariff, D21 (H39), Holyoak 99-814B.
- 14.1 *Cladopodiella fluitans*, Abernethy Forest, NH91 (96), McHaffie.
- 17.2 *Odontoschisma denudatum*, rotten log at edge of woodland, Jenisowles, Blackburn, SD62 (59), Lowell.
- 19.2 *Anthelia juratzkana*, on steep damp surface of crumbling basalt at base of N-facing crag, Knock Dhu, D30 (H39), Holyoak 99-864.
- 20.1 *Tetralophozia setiformis*, on E-facing boulder scree, 650 m alt., Coire Barvick above Crieff, NN82 (88), 1996, Corner.
- 21.3 *Barbilophozia floerkei*, on peaty humus under boulder, ca 530 m alt., Lough Coumfea, Comeragh Mountains, S20 (H6), Blockeel 28/234.
- 21.4 *Barbilophozia atlantica*, on peaty humus on rock in river, ca 530 m alt., Lough Coumfea, Comeragh Mountains, S20 (H6), Blockeel 28/233.
- 23.1 *Lophozia longidens*, epiphytic on branch of deciduous tree, in ravine below Fealar Lodge, NO07 (89), Lawley.
- 23.2 *Lophozia ventricosa*, on peaty humus among rocks, ca 175 m alt., Two Mile River, Carlingford Mountain, J11 (H31), Blockeel 28/157.
- 23.7 *Lophozia perssonii*, on chalk slope in old disused chalk pit, Alderford, TG21 (27), Mott & Stauss.
- 24.1 *Leiocolea rutheana* b var. *laxa*, the record for 27 (Buxton Heath, 1953, E.C. Wallace (NMW), see BBS *Bulletin* 68: 43) is var. *rutheana*, comm. Paton; replace with: Flordon, (27 in ()), 1909, W.H. Burrell (BBSUK).
- 24.2 *Leiocolea gillmanii*, on damp humic sand in unshaded dune slack with short vegetation, Ross Links, NU13 (68), Holyoak 99-1022.
- 24.8 *Leiocolea turbinata*, on vertical tufa in shaded streamside, Ballymacart River, X28 (H6), Wrench.
- 25.2 *Gymnocolea acutiloba*, on top of boulder in hollow in vast area of block scree, 600 m alt., Strath Nethy, Cairngorms, NJ00 (96), Rothero 99121, conf. Paton, new to Scotland.
- 28.1 *Anastrophyllum minutum*, in pure stands around the base of *Calluna* and *Erica tetralix* bushes on degraded *Eriophorum* mire, Black Mountain, SN61 (44), 1997, Graham; on ledge of N-facing sandstone escarpment, 300 m alt., Letter Scarp, Lough Navar Forest, H05 (H33), Porley.

- 28.5 *Anastrophyllum joergensenii*, under ericaceous heath in block scree with *A. donnianum*, 780 m alt., Loch Avon, slopes below Creag Dhuhb, Cairngorms, NJ00 (94), Rothero 99153.
- 29.1 *Tritomaria exsectiformis*, in mixed bryophyte mat on limestone block scree below large *Fagus* tree, Waun Carn y Defaid, Blorenge SSSI, SO20 (35), Bosanquet.
- 31.2 *Mylia anomala*, on peat, 305 m alt., Bellendean Rig, Redfordgreen, Alemoor, NT31 (79), 1988, Corner.
- 32.3 *Jungermannia pumila*, on wet grit rock on wooded stream bank, ca 315 m alt., Upper Dove Valley, ca 2 km NW of Hollinsclough, SK06 (39), Blockeel 28/383; Quoyawa, Hoy, HY20 (111), 1996, Rothero.
- 32.6 *Jungermannia exsertifolia* subsp. *cordifolia*, rocks in burn, 365 m alt., S side of Cooms Height, Newcastleton, NY48 (80), Corner.
- 32.13 *Jungermannia obovata*, on wet rocks in cave at base of granite crags, 850 m alt., Stacan Dubha crags S of Loch Avon, Cairngorms, NJ00 (94), Rothero 99137.
- 34.1 *Marsupella emarginata* a var. *emarginata*, on derelict wall in conifer plantation, ca 120 m alt., Two Mile River, Carlingford Mountain, J11 (H31), Blockeel 28/147; b var. *aquatica*, growing as mats on flushed base of quartzite crag on S side of corrie, ca 500 m alt., NE side of Slievemore, Achill Island, F60 (H27), Holyoak 99-384.
- 34.5 *Marsupella sprucei*, the record for H40 is erroneous, voucher (Dart Mountain, 1958, J.W. Fitzgerald (BBSUK)) is *M. adusta*, redet. Paton, comm. Holyoak.
- 34.11 *Marsupella adusta*, on vertical surfaces of dolerite block on N-facing slope beneath crags, Fair Head, D14 (H39), Holyoak 99-791, conf. Paton; on sloping rock faces facing NW, 1900 ft alt., Dart Mountain, (H40), 1958, J.W. Fitzgerald (BBSUK), redet. Paton, comm. Holyoak; on low unshaded sloping metamorphic rock on exposed summit, ca 600 m alt., just NW of summit of Dart Mountain, H69 (H40), Holyoak 99-697, conf. Paton; on steep unshaded base of small outcrop of metamorphic rock on exposed summit, ca 610 m alt., just SW of summit of Dart Mountain, H69 (H40), Holyoak 99-698, conf. Paton.
- 36.1 *Douinia ovata*, on rocks at base of low sandstone crag, Graig Fan Ddu, Brecon Beacons SSSI, SO01 (42), Bosanquet.
- 37.1 *Diplophyllum albicans*, on derelict wall in conifer plantation, ca 120 m alt., Two Mile River, Carlingford Mountain, J11 (H31), Blockeel 28/146.
- 38.5 *Scapania scandica*, among granite stones of cairn, ca 540 m alt., S of Watern Tor, SX68 (3), Pool; with *Cephaloziella* sp. and *Gymnocolea inflata*, Garnddyrys, SO21 (35), Bosanquet.
- 38.10 *Scapania umbrosa*, on moist sandstone rock, 520 m alt., base of Grwyne Fawr dam, near Abergavenny, SO23 (42), Sleath; Quoyawa, Hoy, HY20 (111), 1996, Rothero.
- 38.19 *Scapania aequiloba*, damp rock ledges on N-facing cliff, ca 500 m alt., Craig Cerriggleisiad, SN92 (42), Hodgetts 3377, conf. Long.
- 38.21 *Scapania gracilis*, N-facing block scree, 225 m alt., Elibank Craigs, NT43 (79), 1973, Corner.
- 40.2 *Lophocolea bispinosa*, female, growing in abundance along a 100 m bank of sandy spoil, bordering N side of a mica settling pit, 110 m alt., SW of Lee Moor near Plymouth, SX56 (3), Jeffery.
- 40.3 *Lophocolea heterophylla*, low on trunk of dying tree in young woodland, Downhill, C73 (H40), Holyoak 99-209.
- 40.4 *Lophocolea semiteres*, on leaf litter and amongst other bryophytes, especially *Sphagnum squarrosum*, in reed-bed 'hover', 1 m alt., Old Hall Marshes, Tollesbury, TL91 (19), 1998, Pyner, conf. Long; on peaty bank in birch woodland, North Warren

- NR, Aldringham, TM45 (25), 1992, Strauss; on a dry sandy bank between birch woodland and wet willow/birch scrub, Dunwich Heath, Dunwich, TM46 (25), 1998, Strauss, conf. Paton; amongst heather in small area of heath, Cliff Wood, Chelmondiston, TM23 (25), Fisk; in pure mats and among *Brachythecium albicans*, *Dicranum scoparium*, *Hypnum jutlandicum*, *Plagiomnium affine*, *Polytrichum juniperinum*, *Polytrichum piliferum*, *Scleropodium purum*, *Cladonia ramulosa* and *Cladonia scabriuscula*, with *Rumex acetosella* and *Teesdalia nudicaulis* in small depressions between *Carex arenaria* and grasses on sandy soil, on a slight terraced slope facing SE, 10 m alt., by SE corner of Mildenhall Woods, NE of lay-by on N side of A1101 road to Bury St Edmunds, TL77 (26), 1998, Finch.
- 40.5 *Lophocolea fragrans*, shaded rocks in gorge, R Clydach, Cwm Clydach NNR, E of Bryn-Mawr, SO21 (42), Hill.
- 42.1 *Geocalyx graveolens*, on peaty humus around base of *Mnium thomsonii* growing on more-or-less base-rich ledge, on N-facing sandstone escarpment, Culcarrick Scarp, Lough Navar Forest, H05 (H33), Porley 2136, det. Rothero.
- 43.1 *Harpanthus flotovianus*, in flush, 590 m alt., Buck of Cabrach, NJ42 (93), 1992, Corner.
- 44.1 *Saccogyna viticulosa*, wet shale bank, Dean Wood, Rivington, SD61 (59), 1997, Gregory, Lowell & Smith.
- 46.4 *Plagiochila britannica*, on soil overlying calcareous rock, Southstone Rock, SO76 (37), Lawley.
- 46.8 *Plagiochila killarniensis*, coastal cliffs, Mine Head, X28 (H6), Wrench; on unshaded crumbling basalt of crag, ca 200 m alt., Windy Hill, C73 (H40), Holyoak 99-535.
- 46.10 *Plagiochila exigua*, on wet rock face in gully, SW corner of corrie, ca 400 m alt., Coumshingaun, Comeragh Mountains, S31 (H6), Blockeel 28/291.
- 50.1 *Pleurozia purpurea*, on open wet blanket bog, Windy Hill, C73 (H40), Holyoak 99-545.
- 52.1 *Ptilidium ciliare*, on gently sloping granite boulder on steep E-facing slope, The Scalp (W side), N of Enniskerry, O22 (H20), Kelly; with mosses on low basalt boulder in unshaded scree/grassy slope, ca 300 m alt., SW slope of Benbradagh, C71 (H40), Holyoak 99-674.
- 52.2 *Ptilidium pulcherrimum*, on oak, 15 m alt., Cocklade Wood, near Wragby, TF17 (54), Lammiman & Rieser; on old pine in humid gully, 15 m alt., Garbh Eilean, Loch Maree Islands NNR, NG97 (105), Rothero 99041.
- 53.5 *Porella pinnata*, on rock and tree roots near water level on shaded stream bank, ca 35 m alt., N bank of Polymounty River, Ballyknockcrumpin, S73 (H13), Blockeel 28/308.
- 54.1 *Frullania tamarisci*, with *Hypnum lacunosum* on N-facing chalk grassland slope, Bacombe Hill, SP80 (24), Porley; on bole of oak tree, ca 55 m alt., Tollymore Forest Park, ca 4 km W of Newcastle, J33 (H38), Blockeel & Wrench 28/334.
- 54.3 *Frullania microphylla* a var. *microphylla*, on vertical surface of small crag on coastal cliff, ca 50 m alt., Mine Head, ca 11 km S of Dungarvan, X28 (H6), Blockeel 28/219; on vertical N-facing dolerite at base of crags, Fair Head, D14 (H39), Holyoak 99-784B; b var. *deciduifolia*, wet vertical rock on N-facing cliff, ca 500 m alt., Craig Cerrig-gleisiad, SN92 (42), Hodgetts 3376, conf. Paton.
- 54.5 *Frullania dilatata*, on *Salix*, Burton Pits, 15 m alt., near Lincoln, SK97 (54), Lammiman; on *Salix*, Rixton, SJ69 (59), 1995, Holness (LIV), comm. Lowell.
- 56.1 *Marchesinia mackaii*, on N-facing, shaded limestone cliffs, Clydach Gorge, ENE of Brynmawr, SO21 (42), 1996, Newton.

- 59.1 *Microlejeunea ulicina*, on *Salix* in damp scrubby woodland, ca 35 m alt., N bank of Polymounty River, Ballyknockcrumpin, S73 (H13), Blockeel 28/307.
- 60.1 *Lejeunea cavifolia*, on tree bark, 100 m alt., Hanley Dingle, Stanford-on-Teme, SO66 (37), Sleath.
- 60.2 *Lejeunea lamacerina*, in cleft of rock near edge of stream, ca 150 m alt., Two Mile River, Carlingford Mountain, J11 (H31), Blockeel 28/154.
- 60.6 *Lejeunea holtii*, on rock near water level on shaded stream bank, ca 35 m alt., N bank of Polymounty River, Ballyknockcrumpin, S73 (H13), Blockeel 28/309.
- 62.3 *Cololejeunea minutissima*, on *Salix* bark in thicket, Braunton Burrows, ca 10 m alt., SS43 (4), Pool; on *Salix* in wet ground, ca 8 m alt., by canal by River Barrow, 1 km NW of Saint Mullin's, S73 (H13), Blockeel 28/73; on bark of old *Taxus baccata* tree at edge of clearing in ornamental woodland, Downhill Forest, C73 (H40), Holyoak 99-291.
- 64.7 *Fossombronia wondraczekii*, on heavy soil in rut beside path, Wolves Wood, Hadleigh, TM04 (25), Strauss.
- 64.9 *Fossombronia incurva*, with *Ceratodon*, *Gymnocolea inflata*, *Riccia glauca*, *Riccia sorocarpa* and other bryophytes in old gravel-pit workings, Sevenoaks Wildfowl Reserve, TQ55 (16), Hendey, conf. Paton; on damp, partly bare, compressed sand of pathway in dunes with very short vegetation, E of Portballintrae, C94 (H39), Holyoak 99-242; on small bare patches in very short grassland of little-used trackway in dunes, Ballymaclary NNR, C73 (H40), Holyoak 99-204.
- 66.2 *Pellia neesiana*, on moist humic soil near stream in shade of deciduous trees, near Altalacky River, NW of Moneyneany, H79 (H40), Holyoak 99-721.
- 68.1 *Moerckia hibernica*, in wet hollow, damp valley mire, ca 255 m alt., near Piper's Knowe, below Alemoor Reservoir, NT41 (79), Long & Corner 28363; on small areas of partly bare damp sand in dune slack, Bunduff, G75 (H28), Holyoak 99-746.
- 70.1 *Aneura pinguis*, damp calcareous clayey ground, on W side of motorway, near Newbridge, (H19), Kelly.
- 72.1 *Riccardia multifida*, among *Fissidens osmundoides* in weakly base-rich flush on moorland slope, ca 250-300 m alt., Two Mile River, Carlingford Mountain, J11 (H31), Blockeel 28/166.
- 72.2 *Riccardia chamedryfolia*, on flat wet grassy ground, upper part of Dalkey Quarry, Dalkey, O22 (H21), Kelly.
- 72.4 *Riccardia palmata*, on leaf litter in bog, SW of Dozmary Pool, Bodmin Moor, SX17 (2), Paton & Holyoak 8084; dense turfs on decorticated logs, Lady Park Wood NNR, SO51 (35), Bosanquet; on rotting log in oak woodland, ca 90 m alt., Owennashad River, just N of Drumbar Bridge, Lismore, S00 (H6), Blockeel 28/208.
- 73.1 *Metzgeria fruticulosa*, on *Salix*, Rixton, SJ69 (59), 1996, Holness (LIV), comm. Lowell; on *Salix* in scrubby woodland on bank of stream, ca 35 m alt., N bank of Polymounty River, Ballyknockcrumpin, S73 (H13), Blockeel 28/306.
- 73.2 *Metzgeria temperata*, on willow in wet woodland, near St Helens, SJ59 (59), Lowell *et al.*
- 73.3 *Metzgeria furcata*, on bole of sycamore, ca 55 m alt., Tollymore Forest Park, ca 4 km W of Newcastle, J33 (H38), Blockeel 28/332.
- 74.1 *Apometzgeria pubescens*, with mosses on top of boulders near stream below waterfall in entrance to ravine, Umbra, C73 (H40), Holyoak 99-101.
- 77A.1 *Athalamia hyalina*, on open soil on ledges of N-facing limestone crag, 530 m alt., Craig Leek SSSI, Braemar, NO19 (92), Rothero 99020, new to the British Isles.

- 80.1 *Reboulia hemisphaerica*, soil ledges under limestone blocks, crumbling limestone slope, ca 560 m alt., N slope of Craig Leek, near Braemar, NO19 (92), Long & Rothero 28271.
- 82.1 *Marchantia polymorpha* a subsp. *polymorpha*, on rocks in West Beck, by footbridge at Beck Hole, near Goathland, NZ80 (62), Blackburn; boggy margin of loch, ca 300 m alt., S margin of Clearburn Loch, Buccleuch, NT31 (79), Long & Corner 28377; b subsp. *ruderalis*, on disturbed ground by path at edge of lake, 50 m alt., Belton House, near Grantham, SK93 (53), Blockeel 28/120; in pots at garden centre, Irton, near Scarborough, TA08 (62), Blackburn; on burnt ground on peaty soil among *Rhododendron*, near Blackburn Lake, Craggside, Rothbury, NU00 (68), Blockeel 28/354; on churchyard path, ca 30 m alt., Poltalloch, Kilmartin, NR89 (98), Pool.
- 84.1 *Riccia cavernosa*, on sandy mud of dried shallow pool in old sand quarry at edge of dunes, SW of Carrickart, C13 (H35), Holyoak 99-758; on damp mud of drained reservoir, with sparse herbaceous vegetation, Copeland Reservoir, J49 (H39), Holyoak 99-848.
- 84.4 *Riccia fluitans*, pond in corner of wet field, ca 1 km W of Oola, R84 (H8), Reynolds; abundant in Lough Agoule, W of Ballingarry, R33 (H8), Reynolds.
- 84.10 *Riccia subbifurca*, on thin compressed soil on stony track in *Picea* plantation, Garvagh Forest, C81 (H40), Holyoak 99-296.
- 85.1 *Anthoceros punctatus*, with *Pellia epiphylla* on roadside bank at edge of wood, on SW side of road, 20 m alt., 1 mile SE of Westfield, TQ81 (14), 1968, Finch; on vertical bank of path through spoil heap, Blaen Bran Reservoir, ST29 (35), Bosanquet; Davyhulme, Manchester, SJ79 (59), Locksley; Beara, Castletownbere, (H3), 1998, Labeij.
- 86.1 *Phaeoceros laevis*, in a very wet patch of woodland, just west of Tenby, SN10 (45), Hambly & Holmes.

Contributors of hepatic records in 1999

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MUSCI

G.P. ROTHERO

- 1.3 *Sphagnum papillosum*, 570 m alt., Ulchon Valley, Llanveyndc, SO22 (36), 1989, Port; hummock in shallow lowland bog, Swanholme, Lincoln, SK96 (53), 1987, Hodgetts 694; on peaty bank in *Schoenus* flush, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/168.
- 1.4 *Sphagnum palustre* a var. *palustre*, in *Juncus* flush on moorland, 350 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/182.
- 1.5 *Sphagnum magellanicum*, in bog with *S. palustre*, Burnham Beeches, N end of Upper Pond, SU98 (24), 1993, O'Leary & Bates; in bog, 1 km N of Blane Bridge, between Glin and Athea, R13 (H8), 1992, Wiltshire, conf. Eddy.

- 1.7 *Sphagnum teres*, in flushed area of mire, 360 m alt., Blackslade Ford, Widecombe in the Moor, SX77 (3), Pool; below Brynceinion, Chwefru valley, Llanfihangel Brynpabuan, SN95 (42), Woods.
- 1.9 *Sphagnum girgensohnii*, on bank above track in woodland, Banagher Glen, C60 (H40), Holyoak 99-636.
- 1.10 *Sphagnum russowii*, in valley mire, Glen Moss, Kilmalcolm, NS36 (76), 1988, Hodgetts; in ungrazed, grassy heath on N-facing hillside, Lyde, Rendall, HY31 (111), 1997, McCance, conf. Newton.
- 1.11 *Sphagnum quinquefarium*, Bedw Caemelyn, Carngefalt, SN96 (42), Woods; on steep wooded bank, 350 m alt., Hermanlaw Burn, Yarrow, NT21 (79), 1976, Corner; on ground on edge of coniferous plantation, Binevenagh Forest, C63 (H40), Holyoak 99-583.
- 1.13 *Sphagnum capillifolium* a subsp. *capillifolium*, on wet, sloping moorland, 270 m alt., Black Tor, Aune Valley, SX66 (3), Pool, conf. Hill; on soil in *Juncus* marsh, 20 m alt., Lower Green, Astley, ST79 (59), Gregory, det. Hill; b subsp. *rubellum*, edge of gravelly flush on slope above stream, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/171.
- 1.15 *Sphagnum subnitens* a var. *subnitens*, in very wet birch/willow valley woodland, Dunwich Heath, TM46 (25), 1988, Strauss; on damp peaty bank amongst rocks, 200 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/158.
- 1.17 *Sphagnum molle*, low hummock in wet heathland, SE of Brynberian, SN13 (45), Holyoak 99-946.
- 1.21 *Sphagnum inundatum*, on damp, sandy soil in birch woodland, Bradfield Woods, TL95 (26), 1991, Strauss, det. Hill; on bank above stream, 425 m alt., Cefn Hill, Dorstone, SO23 (36), 1989, Port, det. Hill.
- 1.22 *Sphagnum denticulatum*, among dwarf shrubs on moist, rocky stream bank, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/169.
- 1.25 *Sphagnum tenellum*, on flushed peat, 610 m alt., Ettrick Pen, SW ridge, NT10 (79), Corner.
- 1.30 *Sphagnum fallax* b subsp. *isoviitae*, at edge of forestry plantation, Cloonahard, S of Ballykahill, R14 (H8), 1992, Wiltshire, det. Eddy.
- 1.32 *Sphagnum angustifolium*, on steep, N-facing slope in open, heathy pine woodland, 480 m alt., Upper Glen Quoich, Mar Lodge estate, NO09 (92), Rothero 99247; at base of sandstone escarpment with *Luzula sylvatica*, *Vaccinium myrtillus*, 250 m alt., Carricknagower Scarp, Lough Navar Forest, H05 (H33), Porley 1526, det. Hill.
- 2.1 *Andreaea alpina*, on NE-facing, siliceous rock cliffs, Cregiau Duon, Abergwesyn, SN85 (42), 1995, Woods; on steep basalt at base of crag, 490 m alt., Mullaghmore, NW side, C70 (H40), Holyoak 99-681.
- 2.2 *Andreaea rupestris* a var. *rupestris*, on boulder below crags, 520 m alt., Crow Craigs, Daer Head, NS90 (77), 1993, Corner; on boulder on moorland slope, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/163.
- 2.6 *Andreaea rothii* a subsp. *rothii*, on boulder on moorland slope, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/162; b subsp. *falcata*, on boulder below crags, 520 m alt., Crow Craigs, Daer Head, NS90 (77), 1993, Corner; on open rock on ridge, 580 m alt., Dart Mountain, W side, H69 (H36), Holyoak 99-691.
- 3.1 *Pogonatum nanum*, on exposed mud on steep embankment next to burn, Gladhouse, R South Esk, Moorfoot Hills, NT35 (83), Dixon; on mineral soil on rocky outcrop by stream, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/173.

- 3.3 *Pogonatum urnigerum*, on rocky bank of stream, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/350.
- 4.1 *Polytrichum alpinum*, on disused forestry track in conifer plantation, Halfway Forest, Llywel, SN83 (42), Woods.
- 4.2 *Polytrichum longisetum*, on disturbed peat at edge of bog, bog NNE of Hillend Reservoir near Caldercruix, NS86 (77), Bell, det. Chamberlain.
- 4.8 *Polytrichum strictum*, below Brynceinion, Chwefru valley, Llanfihangel Brynpabuan, SN95 (42), Woods.
- 6.3 *Atrichum undulatum*, on bare soil under beech tree in plantation, 100 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/186.
- 7.1 *Tetraphis pellucida*, on old log at edge of stream, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/347.
- 9.1 *Diphyscium foliosum*, on thin layer of sandy soil in rock crevice on stream bank, 80 m alt., Lismore, Owennashad R just N of Drummer Bridge, S00 (H6), Blockeel 28/210; on thin humus on rock wall of stream gully, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/178.
- 10.1 *Buxbaumia aphylla*, on shallow soil on bank with *Polytrichum piliferum*, *Dicranum scoparium*, *Hypnum cupressiforme* s.l., Burfa Bank, SO26 (43), Lawley.
- 10.2 *Buxbaumia viridis*, on rotten log with *Nowellia*, *Dicranum scoparium*, *Pohlia nutans*, 350 m alt., Kindrogan Crag, NO06 (89), Rothero (no voucher but photo lodged with Recorder for Mosses).
- 11.1 *Archidium alternifolium*, growing in channel on edge of path, 110 m alt., Brinsop Hall, Westthoughton, SD60 (59), 1998, Gregory; on damp track E of quarry, Linlithgow golf course by Union Canal, NS97 (84), Chamberlain; on damp compressed sand of pathway in dunes, E of Portballintrae, C94 (H39), Holyoak 99-240; on gravelly edge of track, Binevenagh Lake, N end, C63 (H40), Holyoak 99-579.
- 12.1 *Pleuridium acuminatum*, on bare soil in grass ley, E of Linlithgow Loch, NT09 (84), Chamberlain; on soil bank above stream in woodland clearing, Downhill Forest, C73 (H40), Holyoak 99-213.
- 12.2 *Pleuridium subulatum*, on sandy/loam soil in stubble field, 80 m alt., Maddocks Farm, Orrell, SD50 (59), Gregory, det. Blockeel.
- 13.1 *Pseudephemerum nitidum*, on mud of dried reservoir, Copeland Reservoir, J49 (H39), Holyoak 99-885.
- 14.1 *Ditrichum cylindricum*, on mud at edge of reservoir, North Woodburn Reservoir, J39 (H39), Holyoak 99-865.
- 14.4 *Ditrichum lineare*, on open gravelly area amongst mine spoil, 140 m alt., Allihies old copper mines, V54 (H3), Long 28498.
- 14.9 *Ditrichum flexicaule*, in chalk grassland, 130 m alt., Porton Down, SU23 (8), Stern.
- 16.1 *Distichium capillaceum*, on vat waste, Nob End, Bolton, SD70 (59), 1995, Lowell 1266.
- 16.2 *Distichium inclinatum*, Craiglockhart, Edinburgh, NT27 (83 in ()), 1850, Greville Herbarium (E), det. Smith; on floor of old chalk quarry, White Rocks, E of Portrush, C94 (H39), Holyoak 99-617; in short, patchy vegetation on damp sand in dune slack, Ballymaclary NNR, C63 (H40), Holyoak 99-196.
- 20.2 *Rhabdoweisia crispata*, on soil-covered rock ledges, compartment 5, Nant Irfon NNR, Abergwesyn, SN85 (42), 1981, Woods.
- 23.1 *Dichodontium pellucidum*, on wet rock wall of gully, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/177; in sand amongst rocks by stream, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/339.

- 25.1 *Dicranella palustris*, on wet rock ledge by stream, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/174.
- 25.5 *Dicranella subulata*, Carlin Gill, western Howgills, SD69 (65), Raistrick.
- 25.7 *Dicranella staphylina*, on soil in corner of wheat field, 10 m alt., High Newton-by-the-Sea, NU22 (68), Blockeel 28/356; on bare soil at edge of path, 8 m alt., R Barrow, near canal, 1 km NW of Saint Mullins, S73 (H13), Blockeel 28/326; on mud of drained reservoir, Copeland Reservoir, J49 (H39), Holyoak 99-849; on bare silty mud among grasses on bank of large ditch, Umbra, C73 (H40), Holyoak 99-110.
- 29.5 *Dicranum majus*, in birchwood on lowland heath, 30 m alt., Linwood Warren, TF18 (54), Lammiman & Rieser; on the ground in mixed woodland, 60 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/344.
- 29.7 *Dicranum bergeri*, in flushed areas at margin of bog below limestone scree, 340 m alt., Craig Leek, Braemar, NO19 (92), Long & Rothero 99046.
- 29.12 *Dicranum tauricum*, on large rotting log, 70 m alt., Crawl Wood, Newton Ferrers, SX54 (3), Pool.
- 30.3 *Dicranodontium denudatum*, on fallen log with *Campylopus flexuosus*, 250 m alt., Dane Valley, near Gradbach, SJ96 (39), Blockeel 28/365.
- 31.1 *Campylopus subulatus*, on soil on gravel on road near cattle-grid, NW of Dart Mountain, H59 (H36), Holyoak 99-705A.
- 31.4 *Campylopus fragilis*, in rock crevice on bouldery moorland slope, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/164.
- 31.7 *Campylopus setifolius*, with ericaceous shrubs among rocks on bank of stream, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/167.
- 31.9 *Campylopus atrovirens* a var. *atrovirens*, on rocks, 560 m alt., Earncraig Hill, W side, NS90 (77), 1993, Corner; on wet rock by path to Loch Avon, 860 m alt., Allt Coire Raibert, Cairn Gorm, NJ00 (94), 1996, Amphlett.
- 33.1 *Leucobryum glaucum*, hummock in short grassland below basalt crags, Binevenagh, C63 (H40), Holyoak 99-587.
- 33.2 *Leucobryum juniperoideum*, in woodland, 75 m alt., SE side of River Rothay between Rydal and Grasmere, NY30 (69), Dobson; on bank under *Rhododendron* in N-facing oak woodland, 70 m alt., Lismore, by junction of Glenakeefe R & Owennashad R, S00 (H6), Blockeel 28/195; on humus on bank, 20 m alt., path through copse, R Barrow, Saint Mullins, S73 (H13), Blockeel 28/330.
- 34.2 *Fissidens viridulus*, on chalky soil on bank of cut-off channel, 7 m alt., Blackdyke farm, Hockwold, TL68 (28), 1997, Stevenson.
- 34.4 *Fissidens pusillus*, on chalky clay bank by road, Bridge Street, Lower Melford, TL84 (26), 1997, Fisk, det. Smith; on shaded limestone rocks, The Slaughter, Symonds Yat, SO51 (34), 1965, Paton (E); on damp wall, 20 m alt., Abbey Dore, W wall of Abbey, SO33 (36), Martin & Sleath; on small bits of calcareous sandstone on bank, River Tilt near Twizel Bridge, Coldstream, NT84 (68), 1963, Paton (E); on boulder at edge of stream, 30 m alt., Pollymounty River, N bank, Ballyknockcrumpin, S73 (H13), Blockeel 28/310.
- 34.5 *Fissidens gracilifolius*, on sandstone face in deep ravine, 30 m alt., Dunglass Dean, NT77 (81), Long 28942.
- 34.6 *Fissidens incurvus*, on soil overlying sandstone, Lymphoy Burn, Water of Leith, Currie, Edinburgh, NT16 (83), Chamberlain; on dry soil under chalk block on wooded slope, Murlough Bay, D14 (H39), Holyoak 99-766; on steep soil bank of small ditch partly shaded by woodland, Downhill Forest, C73 (H40), Holyoak 99-275.

- 34.7 *Fissidens bryoides*, on bare vertical bank, 20 m alt., path through copse, R Barrow, Saint Mullins, S73 (H13), Blockeel 28/329; on shaded bank by path, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/353.
- 34.9 *Fissidens rivularis*, on boulders in stream at water level, 67 m alt., Ballymacart River at Ballymacart Bridge, 3 km W of Mine Head, X28 (H6), Blockeel & Wrench, 28/214.
- 34.11 *Fissidens crassipes*, at water level at base of bridge pier, 8 m alt., R Bride, Tallowbridge, Tallow, W99 (H6), Blockeel 28/257.
- 34.16 *Fissidens osmundoides*, in flush above car park, 500 m alt., Black Hill, Olchon Valley, SO23 (36), Sleath; in stony, weakly base-rich flush on moorland slope by stream, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/165.
- 34.17 *Fissidens taxifolius* b var. *pallidicaulis*, on damp soil on shale cliff, R Wye below Estwyn Brook confluence, Llysynam, SO05 (42), Woods, det. Smith; in wet rock crevice near waterfall, 100 m alt., Mallyan Spout, Goathland, NZ80 (62), Blockeel 28/102; in wet crevice of SW-facing crags in ravine, 75 m alt., Falls of Kirkaig, on Assynt side of river, NC11 (108), Rothero 99062.
- 34.18 *Fissidens dubius*, in crevices of rocky bank of stream, 150 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/150.
- 34.19 *Fissidens adianthoides*, on shaded rock face by waterfall, Linlithgow golf course, in small quarry, NS97 (84), Chamberlain.
- 35.1 *Octodiceras fontanum*, at waterline on masonry of canal, Ashton Canal, Ashton-under-Lyne, SJ99 (59), Earl.
- 36.3 *Encalypta rhaptoparpa*, on crumbling basalt rock on open slope, 450 m alt., Benbradagh, just N of summit, C71 (H40), Holyoak 99-671.
- 37.1 *Eucladium verticillatum*, on shaded, old brick bridge over stream, Kimberley Park, Kimberley, TG00 (27), Mott & Strauss.
- 38.3 *Weissia rutilans*, on gravelly soil in lower quarry, Craigiehill, Dalmeny, NT17 (84), Chamberlain.
- 38.5 *Weissia brachycarpa* b var. *obliqua*, on gravelly soil on lip of quarry, Craigiehill, Dalmeny, NT17 (84), Chamberlain.
- 38.7 *Weissia rostellata*, on exposed mud at edge of reservoir, North Woodburn Reservoir, J39 (H39), Holyoak 99-866.
- 38.12 *Weissia longifolia* a var. *longifolia*, in mown grassland amongst graves, Ramsgate cemetery, TR36 (15), 1992, Watling; on bare soil in field 'set-aside', Hawstead, TL85 (26), 1998, Fisk, det. Chamberlain; in abandoned arable field, 3 m alt., Bawsey Drain, Gaywood, Kings Lynn, TF62 (28), Stevenson; b var. *angustifolia*, on bank on N side of island, Goat Island, cliffs E of Seaton, SY28 (3), 1969, Paton (E).
- 39.1 *Tortella tortuosa*, in crevices of rocky bank of stream, 150 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/151.
- 39.8 *Tortella flavovirens* a var. *flavovirens*, in sandy ground, Battery Point, The Needles, SZ28 (10), Stern; in sandy soil over limestone at upper limit of tides, S end of White Creek, Arnside, SD47 (69), Blewitt; on bare soil in turf close to the sea, Cramond Island, S shore, NT17 (83), Chamberlain; on soil in crevices of basalt rock on exposed grassy headland, Portstewart, C83 (H40), Holyoak 99-176.
- 40.1 *Trichostomum brachydontium*, in stony flush on moorland slope, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/170.
- 40.3 *Trichostomum tenuirostre* a var. *tenuirostre*, on wet rock at edge of stream, 200 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/156.

- 43.1 *Paraleptodontium recurvifolium*, in flushed turf at base of crags with *Ctenidium molluscum*, 920 m alt., Shelterstone Crag, towards Pinnacle Gully, NJ01 (94), Rothero.
- 44.1 *Dialytrichia mucronata*, on concrete blocks in spillway, R Stour, Long Telford, TL84 (26), Fisk.
- 45.1 *Pseudocrossidium hornschurchianum*, among grasses on partly bare slope beside path in dunes, E of Portrush, C84 (H39), Holyoak 99-237; on disturbed sandy ground at edge of track in dunes, Magilligan Point, C63 (H40), Holyoak 99-134.
- 45.2 *Pseudocrossidium revolutum*, on mortar of stone bridge, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/352.
- 48.1 *Hymenostylium recurvirostrum*, on N-facing sandstone escarpment, 300 m alt., Letter Scarp, Lough Navar Forest, H05 (H33), Porley.
- 49.1 *Anoetangium aestivum*, on wet, weakly base-rich rocks in gully on crags, 570 m alt., Lough Coumfea, Comeragh Mountains, S20 (H6), Blockeel 28/238.
- 50.1 *Gyroweisia tenuis*, on shaded oolitic limestone on N side of church, 32 m alt., Elsing church, TG01 (27), 1994, Stevenson.
- 51.2 *Gymnostomum calcareum*, under overhang on crumbling limestone slope, 560 m alt., Craig Leek, Braemar, NO19 (92), Long & Rothero 28269, conf. Whitehouse.
- 51.3 *Gymnostomum aeruginosum*, on \pm basic sandstone escarpment, 300 m alt., Bolusty Beg Scarp, Lough Navar Forest, H05 (H33), Porley.
- 54.3 *Didymodon rigidulus*, on mortared wall of the Hermitage, 55 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/341.
- 54.4 *Didymodon nicholsonii*, on tarmac road, Weir Wood Reservoir, near E end, 1 mile W of Forest Row, TQ43 (14), Stern.
- 54.8 *Didymodon vinealis*, on bare sandy flats contaminated by outflow from old copper mine, 2 m alt., Ballydonegan Strand, Allihies, V54 (H3), Long 28513; on wall by lagoon, E side of Broad Lough, N of Wicklow, T39 (H20), 1997, Long 27346 (E); on sandy gravel of path at base of building, Magilligan Point, Martello Tower, C63 (H40), Holyoak 99-137.
- 54.10 *Didymodon luridus*, on concrete block in river, River Lugg, SO36 (43), Lawley, det. Chamberlain; in silt on embankment wall by river, 10 m alt., River Suir, N bank, Kilsheelan, S22 (H7), Blockeel 28/187.
- 54.13 *Didymodon tophaceus*, on \pm base-rich ledge on N-facing sandstone escarpment, 280 m alt., Braade ASSI, Lough Navar Forest, H05 (H33), Porley 2037.
- 58.2 *Aloina rigida*, on edge of track in woodland, Wangford Warren, Lakenheath, TL78 (26), Fisk, det. Chamberlain.
- 58.3 *Aloina aloides*, on open calcareous soil by track in quarry, old quarry south of Cwm Clydach NNR, SO21 (42), Rothero 99112.
- 59.1 *Leptobarbula berica*, on brickwork at base of N wall of church, Medmenham church, SU88 (24), O'Leary, det. Whitehouse.
- 60.1 *Tortula subulata* b var. *angustata*, on sandstone rock ledge, 300 m alt., Hasty Bank near Stokesley, NZ50 (62), 1998, Blackburn, det. Chamberlain.
- 60.5 *Tortula marginata*, on damp, shaded masonry on N side of Hall, Speke Hall, SD48 (59), Lowell & Smith; on decomposing mortar of derelict building, 10 m alt., Saint Mullins, banks of R Barrow, S73 (H13), Blockeel 28/315.
- 60.15 *Tortula modica*, on soil on limestone rock, Chwar Blaen Onneu, near Llangynidr, SO11 (42), 1981, Woods; Hesketh New Marsh, Dib Road, SD43 (59), 1998, Earl.
- 60.16 *Tortula truncata*, on damp mud of drained reservoir, Copeland Reservoir, J49 (H39), Holyoak 99-845.

- 60.17 *Tortula protobryoides*, on thin humus on broken limestone slope, 220 m alt., Bunster Hill, Ilam, SK15 (39), Blockeel 28/001.
- 60.18 *Tortula acaulon* a var. *acaulon*, on bare soil at edge of path, 8 m alt., R Barrow, near canal, 1 km NW of Saint Mullins, S73 (H13), Blockeel 28/326; on thin soil on top of wall, White Park Bay, D04 (H39), Holyoak 99-604.
- 61.2 *Microbryum davallianum*, on disturbed soil on bank by track, White Park Bay, D04 (H39), Holyoak 99-607.
- 61.3 *Microbryum rectum*, on bare soil under beech trees, Moulton, Suffolk, TL76 (26), Fisk.
- 61.4 *Microbryum curvicolle*, on disturbed soil on ledges of broken, E-facing limestone crags, 480 m alt., Craig Leek, Braemar, NO11 (92), Rothero.
- 61.5 *Microbryum floerkeanum*, in stubble field, Raydon, Suffolk, TM04 (25), 1998, Fisk; on bare soil under beech trees, Moulton, Suffolk, TL76 (26), Fisk, det. Chamberlain.
- 62.1 *Hennediella stanfordensis*, on chalk soil in disused chalk pit, Offton, Suffolk, TM04 (25), 1998, Fisk *et al.*, det. Blockeel.
- 62.2 *Hennediella macrophylla*, on loamy soil by roots of willow near watercourse, 3 m alt., The Walks, Kings Lynn, TF61 (28), Stevenson, det. Whitehouse.
- 63.1 *Acaulon muticum*, on disturbed soil in rocky limestone grassland on SE-facing slope, 400 m alt., Craig Leek, Braemar, NO19 (92), Long & Rothero 28305.
- 65.1 *Syntrichia ruralis*, on upper rocks, 266 m alt., Tinnis Top, Yarrow, NT32 (79), 1992, Corner.
- 65.4 *Syntrichia intermedia*, on concrete wall by road, Faucheldean Bing, NT07 (84), Chamberlain; on S-facing basalt crags, 140 m alt., Windy Hill, C73 (H40), Holyoak 99-539.
- 65.6 *Syntrichia virescens*, on branch of elder on edge of dense scrub on bank above beck, 150 m alt., Crook Beck, Crook, NZ13 (66), Wharton, det. Blockeel.
- 65.7 *Syntrichia laevipila* a var. *laevipila*, on bark of *Salix cinerea* in open *Salix* scrub at landward edge of sand dunes, Umbra, C73 (H40), Holyoak 99-149; b var. *laevipilaeformis*, on *Fraxinus* near castle, Stutfall Castle, West Hythe, TR13 (15), 1963, Wilberforce, det. Watling.
- 65.8 *Syntrichia papillosa*, on branch of oak by track in pine wood, Wangford Warren, Lakenheath, TL78 (26), Fisk; on *Acer campestre* with *Zygodon conoideus*, *Metzgeria* spp and *Microlejeunea ulicina*, Dyffryn Wood near Penyclawd, SO40 (35), Bosanquet; on *Salix* on river bank, 8 m alt., R Bride, just W of Tallowbridge, Tallow, W99 (H6), Blockeel 28/267; on *Salix* by river, 5 m alt., Westport, L98 (H27), Long 28437.
- 65.9 *Syntrichia latifolia*, on alder by river, Tallow, W99 (H5), Wrench; at base of ash tree on river bank, 8 m alt., R Bride, just W of Tallowbridge, Tallow, W99 (H6), Blockeel 28/266; on alder by river, River Lagan, Drum, J36 (H38), Holyoak 99-870.
- 66.1 *Cinclidotus fontinaloides*, Redland Valley, Mainland, Orkney, HY31 (111), 1996, McCance; on sloping concrete at end of dam, South Woodburn Reservoirs, J38 (H39), Holyoak 99-893.
- 68.1 *Schistidium maritimum*, on sandstone block in splash zone just above mean high water, Hayburne Wyke Nature Reserve, TA09 (62), Ritson; on shale rocks on shore, Foynes Island, Shannon estuary, R25 (H8), 1992, Wiltshire; on basalt rock on grassy slope of low coastal headland, Portstewart, C83 (H40), Holyoak 99-175.
- 68.2 *Schistidium rivulare*, on tree roots in river, R Swale at Myton-on-Swale, SE46 (62), 1998, Blackburn; under bridge over Caher River, Mountcollins, SE of Abbeffeale, R11 (H8), Reynolds, det. Orange.

- 68.3 *Schistidium platyphyllum*, on limestone rocks in seasonal stream bed, Manifold Valley near Wetton, SK05 (39), 1987, Blockeel 16/021.
- 68.8 *Schistidium pruinosum*, on dry rocks in gully on steep wooded river bank, 95 m alt., River Tweed, Gateheugh, NT53 (81), Long 28302.
- 69.2 *Grimmia crinita*, small patch on unshaded, SE-facing, vertical concrete wall of settling tank in china-clay works, Treviscoe, SW95 (2), Holyoak 99-37.
- 69.5 *Grimmia montana*, in slate crevices, 100 m alt., Dinas Head, SN04 (45), Sleath.
- 69.14 *Grimmia incurva*, dense cushions on rocks in scree, 650 m alt., Stac na h'Iolaire, Strath Nethy, Cairngorms, NJ00 (96), Rothero 99123, conf. Porley.
- 69.16 *Grimmia orbicularis*, on unshaded top of old concrete wall of ruin of china clay dry, S of Treviscoe, SW95 (2), Holyoak 99-38.
- 69.18 *Grimmia funalis*, on boulder on margin of loch with *Grimmia curvata*, *Racomitrium* spp, 725 m alt., Loch Avon, midway along SE shore, Cairngorms, NJ00 (94), Rothero.
- 69.19 *Grimmia trichophylla*, on top of boulder on bank of stream, 350 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/185.
- 69.21 *Grimmia hartmanii*, on boulder on margin of loch with *Grimmia curvata*, *Racomitrium* spp, 725 m alt., Loch Avon, midway along SE shore, Cairngorms, NJ00 (94), Rothero; on basalt rocks of low wall by river, Garvagh Forest, C81 (H40), Holyoak 99-308.
- 69.22 *Grimmia austrofunalis*, delete 1, the specimen (boulders on cliffs, Sennen Cove, May 1967) is *Grimmia trichophylla*, det. & comm. Holyoak, conf. Smith; on slate roof of building adjoining church, 60 m alt., Homington, SW of Salisbury, SU12 (8), Stern, det. Smith.
- 69.23 *Grimmia decipiens*, on dolerite rock on exposed cliff top, E of Lough Fadden, D14 (H39), Holyoak 99-793.
- 70.2 *Racomitrium aciculare*, on boulder in stream, 350 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/184.
- 70.3 *Racomitrium aquaticum*, on exposed sandstone, 300 m alt., Merbach Hill, Bredwardine, SO34 (36), Lawley & Sleath; on damp shaded rock face, Linlithgow golf course, track on S side of Union Canal, NS97 (84), Chamberlain.
- 70.4 *Racomitrium fasciculare*, on ledge of brick capping on flint wall, Hengrave, Suffolk, TL86 (26), Fisk; on boulder on slope above stream, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/172.
- 70.5 *Racomitrium macounii* subsp. *alpinum*, on occasionally inundated, unshaded rock by river with *R. aciculare*, *Cladonia subcervicornis*, Afon Tryweryn above Llyn Celyn, SH83 (48), 1998, Orange 12082; on flushed area amongst rocks in area of late snow-lie, 1080 m alt., Feith Buidhe, Cairngorms, NH90 (94), Rothero 99234.
- 70.6 *Racomitrium sudeticum*, on rock on loch margin, 725 m alt., Loch Avon, Cairngorms, NJ00 (94), Rothero; on top of boulder by corrie lake, 530 m alt., Lough Coumfea, Comeragh Mountains, S20 (H6), Blockeel 28/231; on boulder on moorland slope, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/161.
- 70.7 *Racomitrium affine*, on tiled roof of churchyard building, Fifehead Magdalen, ST72 (9), 1971, Hill; on old tarmac at edge of car park, Bodweni, SW of Llandderfel, SH93 (48), Holyoak 99-468; on rocks by beck, 225 m alt., Lockwood Beck on Stranghow Moor, NZ61 (62), 1992, Blackburn.
- 70.8 *Racomitrium heterostichum*, abundant growth on red-brick wall on boundary of churchyard, Nacton churchyard, Ipswich, TG23 (25), Strauss; on sandstone rock, 500 m alt., Black Hill, Olchon Valley, SO23 (36), Sleath; on boulder on steep bank above stream, 390 m alt., Ettersgill, Teesdale, NY83 (66), 1993, Wharton; on unshaded

- boulders and basalt outcrop on SW- to W-facing slope, 370 m alt., E of Binevenagh Lake, C63 (H40), Holyoak 99-250.
- 70.11 *Racomitrium ericoides*, in gravelly grassland on trackside, 400 m alt., Bloworth Crossing at head of Bransdale, NZ60 (62), Blackburn; on sandy shore of reservoir, 515 m alt., Lochan na Larige dam, Breadalbane Mountains, NN53 (88), 1998, Long 27852; on soil on gravel on road near cattle-grid, NW of Dart Mountain, H59 (H36), Holyoak 99-705B; in low vegetation on damp sand of bank by dune slack, E of Portrush, C84 (H39), Holyoak 99-238; on tarmac at edge of minor road, Windy Hill, C73 (H40), Holyoak 99-552.
- 74.1 *Blindia acuta*, on sloping surface of irrigated rock on steep bank of stream, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/159.
- 75.2 *Seligeria acutifolia*, patches on shaded limestone outcrop, 350 m alt., Black Mountain, SN61 (44), 1996, Graham; on base of chalk block on grassy hillside, 300 m alt., Benbradagh, SW slope, C71 (H40), Holyoak 99-672.
- 75.6 *Seligeria recurvata*, on rock, Rock of Woolbury, SO37 (40), Lawley.
- 75.8 *Seligeria calcarea*, on vertical side of chalk boulder near base of cliffs, White Park Bay, D04 (H39), Holyoak 99-615.
- 75.9 *Seligeria donniana*, on damp chalk below overhang by stream, N of Red Hall, J49 (H39), Holyoak 99-842.
- 76.1 *Brachydontium trichodes*, on wet rock face, Thievely Scout, SD82 (59), 1997, Lowell 2043, det. Newton.
- 79.1 *Entosthodon attenuatus*, in earthy crevice on rocky bank by stream, 150 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/149; on ledges of N-facing sandstone scarp, 280 m alt., Braade ASSI, Lough Navar Forest, H05 (H33), Porley 2038.
- 79.2 *Entosthodon fascicularis*, at edge of pool in disused pit, Shelley, TM03 (26), 1998, Fisk.
- 79.3 *Entosthodon obtusus*, ditch bank by road with *Cephalozia bicuspidata* and *Nardia scalaris*, Glen Douglas, S of Beinn Bhreac, NS39 (99), 1991, Pyner.
- 80.1 *Physcomitrium pyriforme*, on bare soil in grass ley, E of Linlithgow Loch, NT09 (84), Chamberlain; on soil in cattle pasture on flood plain, Tallow, X09 (H6), Wrench; on bare silty mud on bank of large ditch, Umbra, C73 (H40), Holyoak 99-108.
- 80.3 *Physcomitrium sphaericum*, on damp mud of drained reservoir in sparse herbaceous vegetation, Copeland Reservoir, J49 (H39), Holyoak 99-846.
- 81.1 *Aphanorhegma patens*, on bare mud in marshy field, 8 m alt., R Bride, 1 km E of Tallowbridge, Tallow, X09 (H6), Blockeel 28/253; on damp mud of drained reservoir, Copeland Reservoir, J49 (H39), Holyoak 99-844.
- 83.1 *Ephemerum recurvifolium*, on chalk and chalky soil, 9 m alt., old chalk pit, Blackdyke Farm, Hockwold, TL68 (28), 1997, Stevenson, det. Hodgetts.
- 83.2 *Ephemerum sessile*, on damp track, 115 m alt., Odstock Wood, Odstock, S of Salisbury, SU12 (8), Stern, det. Hodgetts; on nearly dry mud at edge of reservoir, South Woodburn Reservoirs, J38 (H39), Holyoak 99-875.
- 83.6 *Ephemerum spinulosum*, on mud exposed at edge of reservoir, North Woodburn Reservoir, J39 (H39), Holyoak 99-852, conf. Bryan.
- 86.2 *Tetraplodon mnioides*, on well-decayed remains of dead sheep in hollow in boulder scree, N side of Allt Goch in Elan village, SN96 (42), 1993, Woods; in block scree at base of crags, 250 m alt., Crow Craigs, Daer Head, NS90 (77), 1993, Corner; on forest track, 419 m alt., Wheelrig Head, Wauchope Forest, NT60 (80), 1990, Corner.
- 88.1 *Splachnum sphaericum*, on cow dung on moorland, 290 m alt., Cadshaw, Bolton, SD71 (59), 1997, Lowell, det. Hodgetts.

- 91.1 *Orthodontium lineare*, on rotting stump in pine plantation, 60 m alt., Fennor, ca 5 km W of Tramore, S50 (H6), Blockeel 28/297; in small quantity on N-facing sandstone scarp, 280 m alt., Braade ASSI, Lough Navar Forest, H05 (H33), Porley 2036; on old conifer stump, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/346; on rotting wood of fallen trunk at edge of ornamental woodland, Downhill, C73 (H40), Holyoak 99-215.
- 91.2 *Orthodontium gracile*, Hermitage Farm near Hodnet, SJ62 (40 in ()), 1892, Hamilton, det. Porley; on shaded, S-facing, sandstone wall by track in mixed woodland with *O. lineare* and *Tetraphis pellucida*, 160 m alt., Peckforton Hills, SJ55 (58), Hodgetts 3438, conf. Porley.
- 92.1 *Leptobryum pyriforme*, in plant pots in garden, Dingestow Court, Dingestow, SO40 (35), Bosanquet; on bare mud in marshy field, 8 m alt., R Bride, 1 km E of Talloowbridge, Tallow, X09 (H6), Blockeel 28/254; on ledge on N-facing sandstone escarpment, 280 m alt., Braade ASSI, Lough Navar Forest, H05 (H33), Porley 2042.
- 93.1 *Pohlia elongata* a subsp. *elongata* var. *elongata*, in damp crevice near base of N-facing granite crags, 850 m alt., Stacan Dubha crags, Loch Avon, Cairngorms, NJ00 (94), Rothero.
- 93.3 *Pohlia cruda*, on N-facing sandstone scarp, 300 m alt., Letter Scarp, Lough Navar Forest, H05 (H33), Porley 2039.
- 93.6 *Pohlia drummondii*, on damp track E of quarry, Linlithgow golf course, by Union Canal, NS97 (84), Chamberlain.
- 93.8 *Pohlia filum*, on damp sand near edge of pool, W of Foxhole, SW95 (2), Holyoak 99-47.
- 93.10 *Pohlia bulbifera*, on bare peaty soil on dried-out bed of overspill lake, 500 m alt., Coumalocha, Coumfea, Comeragh Mountains, S20 (H6), Blockeel 28/240.
- 93.13 *Pohlia campototrachela*, on gritty soil in wet tussocky ground in pasture, 230 m alt., Dane valley, ca 1.5 km NE of Danebridge, SJ96 (39), Blockeel 28/364; on damp soil by tarmac track, Banagher Glen, C60 (H40), Holyoak 99-638.
- 93.14 *Pohlia flexuosa*, on steep sandstone bank, Murlough Bay, D14 (H39), Holyoak 99-771.
- 93.19 *Pohlia wahlenbergii* a var. *wahlenbergii*, at edge of path on disused railway track, Raydon, Suffolk, TM04 (26), 1998, Fisk, det. Watson.
- 95.1 *Plagiobryum zieri*, 396 m alt., Dontiny Burn, Hartsgarth Burn, NY49 (80), 1975, Corner, conf. Long.
- 97.1 *Bryum marraii*, on bare calcareous mud at edge of pool in dune slack, The Snook, Holy Island, NU04 (68), Holyoak 99-1019.
- 97.13 *Bryum algovicum* var. *rutheanum*, on sandy slope at edge of dunes, W of Portstewart, C83 (H40), Holyoak 99-601.
- 97.15 *Bryum knowltonii*, on wet gravel, Colemanmoor gravel pit (22), 1955, Watson.
- 97.20 *Bryum capillare* a var. *capillare*, on old stump in amenity woodland, 55 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/331; b var. *rufifolium*, on basalt rock outcrop, 215 m alt., Hume Castle on N side, NT74 (81), Long 28293.
- 97.21 *Bryum elegans*, on spoil heap on old coal workings, Titterstone Clee Hill, near Cornbrooke, SO67 (40), Lawley, det. Watson.
- 97.25 *Bryum canariense*, on humus on rock ledge at base of limestone crag, 200 m alt., lower part of Wolfscote Dale, SK15 (57), Blockeel 28/006.
- 97.27 *Bryum pallescens*, in damp turf at edge of saltmarsh by galvanised iron fence, The Snook, Holy Island, NU14 (68), Holyoak 99-1017.

- 97.28 *Bryum pseudotriquetrum* a var. *pseudotriquetrum*, on wet rock ledge by stream, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/175; b var. *bimum*, in ditch by road with *Campylium stellatum*, Arne Heath, SY98 (9), 1972, Hill.
- 97.30 *Bryum caespitium*, on rather bare, sandy ground in semi-fixed dunes, Reen Sands, SW75 (1), 1995, Holyoak, conf. Watson.
- 97.34 *Bryum gemmiferum*, on china clay spoil on bank, NE of Foxhole, SW95 (2), Holyoak 99-45; on mud of dried reservoir, Copeland Reservoir, J49 (H39), Holyoak 99-891.
- 97.37 *Bryum dunense*, on mainly bare sandy slope in fixed dunes, E of Portrush, C84 (H39), Holyoak 99-239; on bare sandy slope of semi-fixed dune, Magilligan Point, C63 (H40), Holyoak 99-139.
- 97.38 *Bryum radiculosum*, on mortar of wall of old railway embankment, 55 m alt., Erewash Canal, New Eastwood, SK44 (56), Blockeel 28/388; top of concrete wall by reservoir, Dungonnell Dam, D11 (H39), Holyoak 99-822; in crevice of mortared stone wall, old burial ground, Downhill, C73 (H40), Holyoak 99-207.
- 97.40 *Bryum violaceum*, in stubble field on Old Red Sandstone, Blue Door Farm, Dingestow, SO40 (35), Bosanquet; in arable field, Euxton, SD51 (59), 1998, Lowell 2591; on bare soil at edge of path, 8 m alt., R Barrow, near canal, 1 km NW of Saint Mullins, S73 (H13), Blockeel 28/327.
- 97.41 *Bryum klinggraeffii*, on soil in overgrown pasture, 60 m alt., Ballymacart R at Ballymacart Bridge, 3 km W of Mine Head, X28 (H6), Blockeel 28/211; on mud of dried reservoir, Copeland Reservoir, J49 (H39), Holyoak 99-886.
- 97.44 *Bryum subapiculatum*, on soil in overgrown pasture, 60 m alt., Ballymacart R at Ballymacart Bridge, 3 km W of Mine Head, X28 (H6), Blockeel 28/211; on bare soil at edge of path, 8 m alt., R Barrow, near canal, 1 km NW of Saint Mullins, S73 (H13), Blockeel 28/327; on bare sandy slope of semi-fixed dune, Magilligan Point, C63 (H40), Holyoak 99-140.
- 97.46 *Bryum rubens*, on soil amongst gravel at edge of car park, White Park Bay, D04 (H39), Holyoak 99-606.
- 98.1 *Rhodobryum roseum*, on grassy ants' nest in chalk grassland, Fifield Down, Avebury, SU17 (7), 1989, Godfrey.
- 99.3 *Mnium thomsonii*, on \pm base-rich ledge on N-facing sandstone escarpment, 290 m alt., Culcarrick Scarp, Lough Navar Forest, H05 (H33), Porley 2130, conf. Hodgetts.
- 99.5 *Mnium marginatum* a var. *marginatum*, on rocky outcrop, old signalling tower, Hynish, Tíree, NL93 (103), Chamberlain.
- 100.1 *Cinclidium stygium*, in open area of wet calcareous flush, E of Crockavar, D21 (H39), Holyoak 99-779.
- 101.3 *Rhizomnium pseudopunctatum*, 297 m alt., Woodlaw Loch, NW of Hawick, NT41 (80), 1985, Corner; in wet area of calcareous flush on moorland, E of Crockavar, D21 (H39), Holyoak 99-779A.
- 9 102.1 *Plagiomnium cuspidatum*, on shaded ground under trees, Ramsgate cemetery, NW corner, TR36 (15), 1993, Watling, det. Orange; on damp bank on peaty/sandy soil at edge of fen woodland, Wheatfen, Surlingham, TG30 (27), Mott & Strauss, det. Orange.
- 102.4 *Plagiomnium elatum*, in \pm basic flush on N-facing slope, Sugarloaf, Abergavenny, SO21 (35), Woods & Motley; in short turf of dune slack with other bryophytes at edge of course, Benone, E of golf course, C73 (H40), Holyoak 99-80.
- 103.1 *Pseudobryum cinclidioides*, 320 m alt., Borthwich Water, SE side of Girnwood Loch, NT31 (80), 1970, Corner.

- 110.2 *Bartramia pomiformis*, on sandstone cliff by river in woodland, 140 m alt., Cheesden Brook, Heywood, SD81 (59), 1998, Lowell 2536; on ledges of N-facing sandstone scarp, 250 m alt., Meenameen Scarp, Lough Navar Forest, H05 (H33), Porley 2041.
- 112.4 *Philonotis caespitosa*, on soil over sandstone on stream bank, 330 m alt., Harnish Gill, Weardale, NY93 (66), 1997, Wharton, det. Blockeel.
- 112.5 *Philonotis fontana*, on wet rock ledge by waterfall, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/176.
- 112.6 *Philonotis tomentella*, cushions in wet crevice on steep granite crags, 880 m alt., Carn Etchachan, N-facing crags, Cairngorms, NJ00 (94), Rothero.
- 113.1 *Breutelia chrysocoma*, among moist rocks on bank of stream, 150 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/153.
- 115.2 *Amphidium mougeotii*, in rock crevice by stream, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/160; in crevice of large boulder on stream bank, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/351.
- 116.2 *Zygodon rupestris*, on bole of oak in grassy clearing, 60 m alt., Lismore, by junction of Glenakeefe R and Owennashad R, S00 (H6), Blockeel 28/198.
- 116.3 *Zygodon conoideus*, on birch by old path in ravine above falls, 200 m alt., Corrimony Falls, RSPB Corrimony Reserve, NH32 (96), Rothero 99248; with *Harpalejeunea* on branch of oak in N-facing woodland, 70 m alt., Lismore, by junction of Glenakeefe R and Owennashad R, S00 (H6), Blockeel 28/197; on sycamore in scrubby woodland, 30 m alt., Polymounty River, N bank, Ballyknockcrumpin, S73 (H13), Blockeel 28/303; on bole of sycamore with *Metzgeria furcata*, 55 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/333.
- 117.1 *Orthotrichum lyellii*, on branch of crack willow in wet woodland, 30 m alt., Leigh, wetland off Orchard Lane, SD60 (59), Gregory; on *Acer pseudoplatanus* beside track in deciduous woodland, Glenarm Forest at N end, D31 (H39), Holyoak 99-836; on ash tree at edge of deciduous plantation, Altalacky River, NW of Moneyeany, H79 (H40), Holyoak 99-718.
- 117.2 *Orthotrichum striatum*, on mature, sloping willow in carr, Norman Gwatkin NR, near Southwold, TM47 (25), 1998, Strauss; on lower branch of ash tree, R Usk, west of Buckland Farm, Bwlch, SO12 (42), 1983, Woods; on *Acer pseudoplatanus* beside track in deciduous woodland, Glenarm Forest at N end, D31 (H39), Holyoak 99-837; on hazel near edge of clearing, Banagher Glen, C60 (H40), Holyoak 99-641.
- 117.4 *Orthotrichum affine*, on bole of beech tree, 55 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/343; on bark of *Salix cinerea* in *Salix* scrub at edge of lough, Lough Guile, D02 (H39), Holyoak 99-136.
- 117.5 *Orthotrichum rupestre*, on top of basalt boulder on slope below crags, 260 m alt., Binevenagh, W slopes, C63, (H40), Holyoak 99-567A.
- 117.9 *Orthotrichum cupulatum* a var. *cupulatum*, on sandstone rock, 500 m alt., Black Hill, Olchon Valley, SO23 (36), Sleath; on chalk rock in disused quarry, E of Cranny Falls, D21 (H39), Holyoak 99-828; b var. *riparium*, concrete wall of weir, 200 m alt., R Arrow, Huntington, SO25 (36), 1994, Port; on stonework of dam retaining walls, 500 m alt., Grwyne Fawr Reservoir, Black Mountains, SO23 (42), Porley; on limestone rock near edge of river, 185 m alt., Iron Tors, Coldeaton, Dovedale, SK15 (57), Blockeel 28/016; at base of sycamore on bank of river, 5 m alt., R Barrow, near canal lock, 1 km NW of Saint Mullins, S73 (H13), Blockeel 28/320.
- 117.10 *Orthotrichum rivulare*, on lower part of trunk of alder, 8 m alt., R Bride, Littlegrace, ca 2 km W of Tallowbridge, W99 (H5), Blockeel & Wrench 28/262.

- 117.11 *Orthotrichum sprucei*, on willow in flood zone of river, Trent Port, near Marton, SK88 (54), Lammiman & Rieser; at the base of trunk of alder on bank of river, 8 m alt., R Bride, Littlegrace, 2 km W of Tallowbridge, Tallow, W99 (H5), Blockeel 28/260; on alder on bank of river, 8 m alt., Tallowbridge, Tallow, W99 (H6), Blockeel 28/259.
- 117.12 *Orthotrichum stramineum*, on branch of old elder with *O. diaphanum* and *O. affine*, 10 m alt., The Chase NR, Dagenham, TQ58 (18), Pyner; on willow branch at edge of fen woodland, Royden Fen, near Diss, TM17 (27), Strauss, det. Porley; on elm by waterfall, 140 m alt., Ledbeg River at Ledbeg cottage, NC22 (108), Rothero 99060.
- 117.13 *Orthotrichum tenellum*, on elder with *Cryphaea heteromalla*, *Leskea polycarpa*, *Bryum subelegans*, White Downs, N of Dorking Guildford road, TQ14 (17), 1995, Townsend 95/7; on large, horizontal branch of mature willow in ditch, Thelnetham Fen, TM07 (26), Strauss, det. Porley; on trunk of *Malus sylvestris* with *O. affine* and *O. diaphanum*, Pentregwn, Llanfihangel Nant Bran, SN93 (42), Woods; on *Salix* on river bank, 50 m alt., R Ure, S bank at West Tanfield, SE27 (64), Blockeel 28/137; on bole of sycamore on stream bank, 210 m alt., Bollihope Burn near White Kirkby, NZ03 (66), Wharton & Wharton, det. Blockeel; on ash on roadside, Strowan House, W of Crieff, NN82 (88), 1962, Perry, det. Blockeel; on willow by river, River Lagan, Drum, J36 (H38), Holyoak 99-871.
- 117.14 *Orthotrichum pallens*, bole of *Salix alba* in riverside wood, 140 m alt., R Wear near Wolsingham, NZ03 (66), Wharton & Wharton, det. Blockeel.
- 117.17 *Orthotrichum pulchellum*, on hazel on bank of stream, 30 m alt., Polymounty River, N bank, Ballyknockcrumpin, S73 (H13), Blockeel 28/304; on bark of *Salix cinerea* in *Salix* scrub at edge of lough, Lough Guile, D02 (H39), Holyoak 99-315.
- 118.4 *Ulota bruchii*, on *Salix*, Spring Wood, Chorley, SD51 (59), 1997, Gregory *et al.*; on twigs of rowan at base of sandstone escarpment, 300 m alt., Letter, Lough Navar Forest, H05 (H33), Porley 2040; on bole of beech tree, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/342.
- 118.7 *Ulota phyllantha*, on branch of willow in carr, Great Barton, by Barton Mere, TL96 (26), Fisk; on trunk of *Fraxinus*, Dyffryn Wood near Penyclawd, SO40 (35), Bosanquet; on elder, Wern Wood, Bredwardine, SO34 (36), Sleath; on ash tree with *Orthotrichum stramineum* and *O. lyellii*, 250 m alt., Herrock Hill, Lower Harpton, SO25 (36), 1994, Port.
- 119.1 *Hedwigia ciliata* a var. *ciliata*, on Torridonian sandstone rock on loch margin, 110 m alt., Loch Veyatie, N shore, Assynt, NC11 (108), Rothero 99076.
- 119.2 *Hedwigia stellata*, on low crag, 460 m alt., The Bog, N side, Wyth Burn, Thirlmere, NY21 (70), Corner; on rocks, 580 m alt., Ettrick Pen, W side, NT10 (79), Corner; on rock outcrop in grassland, Foynes Island, Shannon estuary, R25 (H8), 1992, Wiltshire; on boulder on open hillside, 30 m alt., Errisbeg, W of bog road, L64 (H16), Long 28447; on dolerite boulders on exposed slope above cliff, Murlough Bay, D14 (H39), Holyoak 99-768.
- 120.1 *Fontinalis antipyretica* b var. *gracilis*, on rock in quick-flowing river, Banagher Glen, C60 (H40), Holyoak 99-644.
- 120.2 *Fontinalis squamosa* a var. *squamosa*, on rocks in stream, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/337.
- 122.1 *Cryphaea heteromalla*, on elder in front of hedgerow, Brundish, TM26 (25), 1992, Strauss; on shaded elder at woodland edge, 120 m alt., Morkery Wood, SK91 (53), Hodgetts 3394; on bole of beech at edge of limestone quarry, 250 m alt., Leyburn Shawl, 2 km W of Leyburn, SE09 (65), Blockeel 28/134; on *Sambucus* bark beside

- path, 65 m alt., R Tweed, S side opposite Dryburgh Abbey, NT53 (80), 1970, Corner; on *Acer pseudoplatanus* beside track in deciduous woodland, Glenarm Forest at N end, D31 (H39), Holyoak 99-835.
- 123.1 *Leucodon sciuroides* a var. *sciuroides*, on ledge at base of church tower, Hopton, TL97 (26), Fisk; on base of elm, 168 m alt., Broomhill, Selkirk, NT42 (79), 1981, Corner; b var. *morensis*, on tall, unshaded, near-vertical wall of mortared stone beside road, Treviscoe, SW95 (2), Holyoak 99-39.
- 124.1 *Antitrichia curtipendula*, on decayed ash stump by stream in open woodland, 190 m alt., Penchford Barn, Otterburn military training area, NY99 (67), 1998, Wharton.
- 125.1 *Pterogonium gracile*, on boulders, 244 m alt., N side of St Mary's Loch, below road, NT22 (79), 1989, Corner.
- 128.2 *Neckera crispa*, on moist rock face on bank of stream, 150 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/152.
- 128.3 *Neckera pumila*, on sycamore in scrubby woodland, 30 m alt., Polymounty River, N bank, Ballyknockcrumpin, S73 (H13), Blockeel 28/302; on hazel near edge of clearing, Banagher Glen, C60 (H40), Holyoak 99-640.
- 128.4 *Neckera complanata*, on mortared wall of the Hermitage, 55 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/340.
- 129.1 *Homalia trichomanoides*, in crevices of limestone scree, 480 m alt., Craig Leek, Braemar, NO19 (92), Rothero.
- 130.1 *Thamnobryum alopecurum*, on rocks on bank of stream, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/349.
- 138.1 *Leskea polycarpa*, on alder by river, Tallow, W99 (H5), Wrench; on willow and alder on river bank, Drum, beside River Lagan, J36 (H38), Holyoak 99-868.
- 143.3 *Anomodon viticulosus*, on embankment wall by river, 4 m alt., Saint Mullins, banks of R Barrow, S73 (H13), Blockeel 28/318.
- 144.1 *Heterocladium heteropterum* b var. *flaccidum*, on stone on woodland floor on bank of stream, 30 m alt., Polymounty River, N bank, Ballyknockcrumpin, S73 (H13), Blockeel 28/312.
- 144.2 *Heterocladium wulfsbergii*, on rocks under trees on banks of river, S of Dogleap House, C62 (H40), Holyoak 99-625.
- 145.1 *Thuidium abietinum* b subsp. *hystricosum*, in very short vegetation close to road edge on damp, sandy machair, Garter Hill, F84 (H27), Holyoak 99-330, conf. Blockeel.
- 145.3 *Thuidium delicatulum*, in short grassland on fixed dunes, Benone, C73 (H40), Holyoak 99-530.
- 145.4 *Thuidium philibertii*, in short chalk turf, Aston Clinton Ragpits, SP81 (24), 1997, O'Leary & Bates; on N-facing bank in dunes, W of Portstewart, C83 (H40), Holyoak 99-603.
- 145.5 *Thuidium recognitum*, on dry sand in short grass on machair, Truska, L54 (H16), Holyoak 99-407.
- 147.1 *Palustriella commutata* a var. *commutata*, on shaded, wet rock face by waterfall, Linlithgow golf course, in small quarry, NS97 (84), Chamberlain; in base-rich flush on steep slope, 400 m alt., Coumshingaun, SW corner of corrie, Comeragh Mountains, S31 (H6), Blockeel 28/286; in base-rich seepage area among rocks, 160 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/155; b var. *falcata*, in stony, base-rich flush on moorland slope by stream, 300 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/180.

- 150.1 *Campylium stellatum* a var. *stellatum*, in base-rich flush on steep slope above stream, 350 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/181; b var. *protensum*, in short grassland at base of crag, Carrivemurphy, N slope, D22 (H39), Holyoak 99-825; on damp clay bank on hillside, 300 m alt., Benbradagh, SW slope, C71 (H40), Holyoak 99-673.
- 151.2 *Campyliadelphus elodes*, in damp, rocky, calcareous turf by loch, 240 m alt., Loch Mhaolach-coire, Inchnadampf, Assynt, NC21 (108), Rothero 99097.
- 152.1 *Campylophyllum calcareum*, on roadside bank, Old Newton, TM06 (26), Fisk.
- 153.1 *Amblystegium serpens* b var. *salinum*, on damp sand in low, sparse vegetation at edge of dune slack, Ballymaclary NNR, C63 (H40), Holyoak 99-287.
- 153.2 *Amblystegium fluviatile*, on rocks in steep stream in pasture, S of Dalry, by A737, NS24 (75), 1991, Pyner.
- 153.3 *Amblystegium tenax*, on concrete wall at edge of stream adjacent to bridge, Chilton Street, TL76 (26), Fisk, det. Blockeel; on basalt boulder in stream in woodland, Downhill Forest, C73 (H40), Holyoak 99-279.
- 154.1 *Leptodictyum riparium*, on log in overgrown ditch, 8 m alt., R Barrow, near canal, 1 km NW of Saint Mullins, S73 (H13), Blockeel 28/321.
- 155.1 *Conardia compacta*, on tufa, Downton Gorge, SO47 (36), Lawley, det. Blockeel.
- 156.1 *Warnstorfia fluitans*, in flooded pit in woodland with *Sphagnum fimbriatum*, *Polytrichum commune* and *Pleurozium schreberi*, Cobham Frith, Savernake, SU26 (7), 1993, Veall, det. Porley; in wet ground by drainage channel at edge of relict bog, 165 m alt., Monaneea Lake, 7 km N of Ardmore, X28 (H6), Blockeel 28/224.
- 156.2 *Warnstorfia exannulata*, in bottom of drainage channel by relict bog, 165 m alt., Monaneea Lake, 7 km N of Ardmore, X28 (H6), Blockeel 28/225.
- 157.1 *Drepanocladus polygamus*, record for 80 is an error, comm. Corner; replace with: in basic fen at W end of loch, 240 m alt., Whitmuir Loch, SE of Selkirk, NT42 (80), Corner; on damp bare soil close to stream, Sheskinmore Lough, G79 (H35), Holyoak 99-756.
- 157.2 *Drepanocladus aduncus*, in wet ground at edge of lake with *Hypericum elodes*, 165 m alt., Monaneea Lake, 7 km N of Ardmore, X28 (H6), Blockeel 28/223; submerged in small eutrophic pond, Sillagh House, Ballymore Eustace (H19), 1998, Wyse Jackson, det. Lockhart.
- 157.4 *Drepanocladus lycopodioides*, in damp hollow in dune slack, Ballymaclary NNR, C73 (H40), Holyoak 99-285.
- 157.5 *Drepanocladus revolvens*, on wet heath, Hayle Kimbro Pool, Lizard, SW61 (1), 1961, Paton 1977; in base-rich runnel, Winfrith Heath, SY88 (9), 1972, Hill; in acidic mire with *Sphagnum* species, Holt Lowes, Holt, TG03 (27), 1998, Strauss, conf. Blockeel; in flush on moorland, Bryn Refail, SH56 (49), 1969, Hill; on wet ground, Sportsman's Arms, Denbigh Moors, SH95 (50), 1972, Hill; in mire, Creag Mhor, Ruaig, Tíree, NM04 (103), Chamberlain, conf. Blockeel; in *Schoenus* fen, 40 m alt., Errisbeg, NW side of Lough Nalawney, L64 (H16), Long 28455; on wet peat in disturbed area of open blanket bog, Windy Hill, C73 (H40), Holyoak 99-547.
- 157.6 *Drepanocladus cossonii*, in \pm basic flush on N-facing slope, Abergavenny, N of Sugar Loaf, SO21 (35), Woods & Motley, conf. Blockeel; in flush, Catherton Common, SO67 (40), Sleath, conf. Blockeel; flush by reservoir, Moel Dywyll, SY88 (51), 1973, Hill; in grassy flush beside small burn, 440 m alt., above Corrie Feragie, Braemar, NO19 (92), 1998, Rothero; in base-rich flush, 5 m alt., Urvaig, near Caoles, Tíree, NM00 (103), Chamberlain, conf. Blockeel; in low vegetation of damp hollow in dune slack, Ballymaclary NNR, C63 (H40), Holyoak 99-288, conf. Blockeel.

- 158.1 *Hamatocaulis vernicosus*, in calcareous flush by path leading to Spout, Cautley Spout, near Sedbergh, SD69 (65), 1965, Halliday (LANC), det. Blockeel; Bavelaw Moss, Balerno, NT16 (83 in ()), 1909, McAndrew (E), det. Blockeel; in mesotrophic flush with *Sphagnum contortum*, *S. teres*, *S. warnstorffii*, *Carex nigra* and *Juncus acutiflorus*, 150 m alt., Meentygrannagh Bog, 2 km S of Altinierin, C00 (H35), Lockhart, conf. Blockeel.
- 161.3 *Hygrohypnum luridum* a var. *luridum*, in gully at base of church wall, Nacton churchyard, Ipswich, TM23 (25), 1995, Strauss; on horizontal, oolite gravestone, 48 m alt., parish churchyard, Hockering, TG01 (27), 1993, Stevenson.
- 161.5 *Hygrohypnum eugyrium*, on basalt boulder above water level in stream, E of Cranny Falls, D21 (H39), Holyoak 99-829.
- 164.4 *Calliargon giganteum*, in wet ground among tall herbs in mire, 60 m alt., Fennor, ca 5 km W of Tramore, S50 (H6), Blockeel 28/296.
- 166.1 *Isothecium myosuroides* a var. *myosuroides*, on shaded boulder in plantation, 120 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/148; b var. *brachythecioides*, on rocks of low, granite outcrop, 550 m alt., Glen Derry, Mar Lodge estate, Cairngorms, NO09 (92), Rothero 99246; on stable scree of basalt boulders on slope above coast, Giant's Causeway, C94 (H39), Holyoak 99-247; on basalt boulder below crags, 260 m alt., Binevenagh, W slopes, C63 (H40), Holyoak 99-564.
- 166.3 *Isothecium holtii*, on vertical face of boulder in splash zone of loch, 725 m alt., Loch Avon, SE shore, Cairngorms, NJ00 (94), Rothero 99151.
- 168.2 *Homalothecium lutescens*, in limestone grassland and scree, 480 m alt., Craig Leek, Braemar, NO19 (92), Rothero.
- 169.1 *Brachythecium albicans*, on bare sand and amongst short vegetation on bank in dunes, E of Portballintrae, C94 (H39), Holyoak 99-243.
- 169.3 *Brachythecium glareosum*, on slope on soft chalk in disused pit, Alderford, TG21 (27), Strauss & Mott, conf. Blockeel.
- 169.4 *Brachythecium salebrosum*, on a low decaying branch in wet woodland, Swanton Abbot, TG22 (27), 1997, Strauss & Bull, conf. Blockeel.
- 169.5 *Brachythecium mildeanum*, in newly sown pasture, Park Wood, Chrishall, TL43 (19), Hill.
- 172.3 *Rhynchostegium murale*, on chalk boulder at base of cliffs, White Park Bay, D04 (H39), Holyoak 99-616.
- 172.4 *Rhynchostegium confertum*, on bark of *Fraxinus* in scrub at edge of dunes and saltmarsh, W of Portstewart, C83 (H40), Holyoak 99-172.
- 173.3 *Eurhynchium striatulum*, on N side of bryophyte-rich limestone wall with *Isothecium alopecuroides*, 80 m alt., 100 m S of Holme Park quarry, SD57 (69), Raistrick.
- 173.7 *Eurhynchium hians*, on thin soil over rocks at edge of small pool beside path in garden, SW of Castlerock, C73 (H40), Holyoak 99-153.
- 173.8 *Eurhynchium schleicheri*, on soil over calcareous rock, Southstone Rock, SO76 (37), Lawley, conf. Blockeel.
- 173.10 *Eurhynchium crassinervium*, on mortared wall of bridge, 4 m alt., Saint Mullins, banks of R Barrow, S73 (H13), Blockeel 28/319.
- 174.3 *Rhynchostegiella curviseta*, on stonework of fallen bridge over stream in woodland, 1.5 km SE of Chiddingfold, SU93 (17), 1996, Townsend 96/1.
- 175.1 *Entodon concinnus*, in eroded limestone grassland on N-facing slope, 540 m alt., Craig Leek, Braemar, NO19 (92), Long & Rothero.
- 178.1 *Platydictya jungermannioides*, under overhang of limestone rock, Cwm Clydach NNR, E of Bryn-mawr, SO21 (42), Hill.

- 180.3 *Plagiothecium denticulatum* a var. *denticulatum*, on bank by track in woodland, 70 m alt., Lismore, by junction of Glenakeefe R and Owennashad R, S00 (H6), Blockeel 28/190; on steep bank above river in woodland, S of Dogleap House, C62 (H40), Holyoak 99-630.
- 180.8 *Plagiothecium platyphyllum*, in flush, 780 m alt., Coire nan Gabhair, N side of upper Glen Almond, NN73 (88), 1992, Corner.
- 180.10 *Plagiothecium succulentum*, on rocky bank of stream, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/335.
- 187.1 *Pylaisia polyantha*, tree bole by river, R Wear, Black Bank plantation, NZ03 (66), 1992, Wharton.
- 188.1 *Platygyrium repens*, on oak bole in woodland, Horton Wood, near Horton, SP85 (32), Higgs.
- 190.4 *Hypnum lacunosum* b var. *tectorum*, on sandy soil, Alum Bay, Chine, Isle of Wight, SZ38 (10), Matcham & Stern; on humus on rock ledge of limestone crag, Hall Dale, 2 km S of Alstonefield, SK15 (39), 1998, Blockeel 27/242; White Coppice, Rivington, SD61 (59), 1996, Lowell 1960, conf. Smith; on rocks, 160 m alt., High Dale, Mickleby, NZ81 (62), 1998, Blackburn; on floor of disused limestone quarry, 180 m alt., Frosterly, NZ03 (66), 1995, Wharton.
- 190.6 *Hypnum andoi*, on bole of birch in scrubby woodland, 30 m alt., Pollymounty River, N bank, Ballyknockcrumpin, S73 (H13), Blockeel 28/311; on fallen branch in mixed woodland, 50 m alt., Tollymore Forest park, 4 km W of Newcastle, J33 (H38), Blockeel 28/345; on hazel in scrub on N-facing slope, Sallagh Braes, D30 (H39), Holyoak 99-880; on trunk of *Betula* at edge of track in *Picea* plantation, Garvagh Forest, C81 (H40), Holyoak 99-291.
- 190.8 *Hypnum jutlandicum*, on heathy bank by track in conifer plantation, 50 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/145.
- 190.9 *Hypnum imponens*, growing over *Calluna* stems, 450 m alt., Falcon Clints, NY82 (66), 1996, Wharton.
- 190.11 *Hypnum lindbergii*, on thin, compressed soil on stony track in *Picea* plantation, Garvagh Forest, C81 (H40), Holyoak 99-299.
- 191.1 *Ptilium crista-castrensis*, under *Calluna*, 404 m alt., Douglas Burn, Yarrow, at junction of White and Long Grains, NT22 (79), 1982, Corner.
- 192.1 *Ctenidium molluscum* c var. *condensatum*, on steep flushed rock beside track in woodland, Banagher Glen, C60 (H40), Holyoak 99-647.
- 194.1 *Rhytidiadelphus triquetrus*, on grassy bank by track in conifer plantation, 50 m alt., Two Mile River, Carlingford, J11 (H31), Blockeel 28/144.
- 195.1 *Hylocomium brevirostre*, on chalky roadside bank with *Rhytidiadelphus triquetrus*, 90 m alt., Binbrook, TF19 (54), Lammiman & Rieser.

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CENSUS CATALOGUE DATA ON DISK

At its spring meeting this year, Council agreed that the vice-county distributions contained in the published *Census Catalogue* should be made available electronically. The data are in the format of comma-separated text files suitable for loading into a spreadsheet or database. There are two files: a distribution file containing taxa/vice-county occurrences, and a bryophyte names file. The files do not contain locality or collector information. A distribution file record looks like this:

"0810","778","L1.1","001","N"

where 0810 and 778 are BRC numbers (in this case for *Haplomitrium hookeri*), L1.1 is the *Census Catalogue* number, prefixed L for liverwort (likewise M is used for moss), 001 is the vice-county number (in this case West Cornwall), and N is the bracket marker (N = no bracket). The names file may be used to convert numbers to names. Clearly, in order to use the data, members will need some familiarity with PC applications. Be aware that the distribution file contains approximately 65,000 records.

The only condition of acquiring the files is that due acknowledgement is made to the BBS if the data are used in publications or other reports. Work is in progress to make the files available via the Society's web site. Members without access to the internet who would like a copy of the files on disk should send a floppy disk with a suitable stamped/addressed return envelope to me at the address below. Because they are too large to fit on a single 1.44MB disk, the files will be compressed using Winzip.

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