

AN ANNOTATED CHECK-LIST OF THE BRYOPHYTES OF SHROPSHIRE

This check-list summarizes the occurrence and distributional status of bryophytes in Shropshire (vice-county 40), as known in December 2010, with the aim of encouraging botanists to add new records and improve our understanding of Shropshire's bryodiversity.

Any check-list is likely to become out of date following publication, but failure to publicize current knowledge stifles interest in the subject and development of it. Indeed, there is no better way of encouraging additional interest than to publish an *interim* report, and in the same spirit that Richard de Gylpyn Benson brought out his check-list of Shropshire mosses more than a century ago, this latterday list is an invitation to render it out of date with fresh discoveries. Benson (1893) listed 228 species of moss known from the county, and many species and other taxa have been discovered since then:-

STATUS IN SHROPSHIRE	MOSSES	LIVERWORTS AND HORNWORTS	TOTALS
Ratified since 1960	394	125	519
Not ratified since 1960	17	4	21
Reported but never ratified	19	10	29
Totals	430	139	569

Thus, Shropshire is now known to possess a little over half the British bryoflora.

Since the beginning of 2000, 101 species have become first vice-county records or have been "debracketed" (i.e. correctly identified species which had not been vouched from the vice-county since before 1960, and accepted into BBSUK at the National Museum and Gallery of Wales in Cardiff). 64 of these species (44 mosses and 20 liverworts or hornworts) were recorded and vouched for the county for the first time:-

MOSSES	LIVERWORTS
Amblystegium confervoides	Barbilophozia atlantica
Anomobryum concinnatum	Barbilophozia kunzeana
Barbula convoluta var. sardoa	Cephalozia pleniceps
Bryum creberrimum	Cladopodiella francisci
Bryum ruderales	Cololejeunea minutissima
Campylopus subulatus	Colura calyptrifolia
Dicranella crispa	Conocephalum salebrosum
Dicranum leioneuron	Fossombronia caespitiformis
Dicranum scottianum	Fossombronia foveolata
Didymodon tomaculosus	Fossombronia incurva
Ditrichum flexicaule	Gymnomitrium obtusum
Ditrichum pusillum (NB: vc 39)	Jamesoniella undulifolia
Ephemerum recurvifolium	Lejeunea lamacerina
Ephemerum serratum	Lepidozia cupressina
Fissidens celticus	Lophocolea semiteres

<i>Fissidens rivularis</i> <i>Fissidens rufulus</i> <i>Fontinalis squamosa</i> <i>Grimmia laevigata</i> <i>Hedwigia ciliata</i> <i>Hygroamblystegium humile</i> <i>Hyocomium armoricum</i> <i>Hypnum imponens</i> <i>Orthotrichum tenellum</i> <i>Plasteurhynchium striatulum</i> <i>Pohlia bulbifera</i> <i>Pohlia cruda</i> <i>Pohlia camptotrachela</i> <i>Pohlia drummondii</i> <i>Pterygoneurum ovatum</i> <i>Schistidium crassipilum</i> <i>Schistidium elegantulum</i> ssp. <i>elegantulum</i> <i>Seligeria pusilla</i> <i>Sphagnum teres</i> <i>Syntrichia virescens</i> <i>Tetradontium brownianum</i> <i>Thuidium assimile</i> <i>Tortella bambergeri</i> <i>Tortula amplexa</i> <i>Tortula freibergii</i> <i>Tortula marginata</i> <i>Tortula protobryoides</i> <i>Weissia longifolia</i> var. <i>angustifolia</i> <i>Weissia longifolia</i> var. <i>longifolia</i> <i>Weissia rostellata</i> <i>Weissia squarrosa</i>	<i>Nardia compressa</i> <i>Phaeoceros carolinianus</i> <i>Plagiochila britannica</i> <i>Riccardia palmata</i> <i>Scapania paludicola</i>
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In addition, the following 26 mosses and 10 liverworts have been vouchered from the county for the first time since 1960:-

MOSSES	LIVERWORTS
<i>Aloina ambigua</i>	<i>Cololejeunea rossettiana</i>
<i>Brachythecium mildeanum</i>	<i>Metzgeria conjugata</i>
<i>Bryum algovicum</i> var. <i>rutheanum</i>	<i>Metzgeria consanguinea</i>
<i>Bryum archangelicum</i>	<i>Microlejeunea ulicina</i>
<i>Bryum creberrimum</i>	<i>Plagiochila spinulosa</i>
<i>Bryum donianum</i>	<i>Saccogyna viticulosa</i>
<i>Campylophyllum calcareum</i>	<i>Scapania aspera</i>
<i>Dicranum fuscescens</i>	<i>Scapania gracilis</i>
<i>Didymodon acutus</i>	<i>Targionia hypophylla</i>

Didymodon spadiceus Grimmia orbicularis Orthotrichum striatum Philonotis caespitosa Plagiothecium latebricola Plasteurhynchium striatulum Polytrichastrum alpinum Polytrichastrum longisetum Pylaisia polyantha Racomitrium affine Racomitrium aquaticum Racomitrium ericoides Racomitrium sudeticum Rhabdoweisia crispata Rhynchostegiella curviseta Schistidium apocarpum Seligeria donniana Tetraplodon mnioides Tortula marginata Tortula protobryoides	Tritomaria exsectiformis
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The following 21 bryophytes were recorded and vouched from Shropshire before 1960, but have not been vouched since. Vouchers are therefore required:-

MOSSES	LIVERWORTS
Antitrichia curtipendula	Blepharostoma trichophyllum
Atrichum undulatum var. gracilisetum	Frullania fragilifolia
Bryum bornholmense	Marsupella funckii
Bryum canariense var. provinciale	Tritomaria exsecta
Conardia compacta	
Dichodontium flavescens	
Hypnum lacunosum var. tectorum	
Mnium marginatum	
Neckera pumila	
Orthodontium gracile	
Orthotrichum rupestre	
Plagiobryum zieri	

Platydictya jungermannioides Rhabdoweisia fugax Splachnum ampullaceum Tomentypnum nitens Tortula wilsonii	
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These species - for which no vouchers have been collected since 1960 and lodged in the herbarium of the British Bryological Society (BBSUK) at the National Museum and Gallery of Wales in Cardiff, and whose present or recent occurrence in Shropshire is therefore regarded as unconfirmed - are cited in curved brackets () in the annotated list. Nevertheless, some of these species have been recorded since 1960, and may very likely turn up again. If you find any of these bracketed species, please ask for the identity of your gathering to be confirmed by the British Bryological Society's referee for that genus. Then send the record to Shropshire's vice-county recorder for bryophytes, and the voucher to the BBS's Recorder for mosses or liverworts (as appropriate) for incorporation in the Society's herbarium. These new records are published in the Society's bulletin, *Field Bryology*.

As the saying goes, a record is only as good as the vouched specimen, and no correctly determined vouchers of any age are known for the following 27 taxa reported from Shropshire, whose names and status in Shropshire appear in the annotated list between square brackets []:-

MOSSES	LIVERWORTS
Aloina rigida	Anthoceros punctatus
Bryoerythrophyllum ferruginascens	Cephaloziella stellulifera
Bryum calophyllum	Marsupella emarginata var. pearsonii
Bryum pseudotriquetrum var. bimum	Mylia taylorii
Campyliadelphus elodes	Phaeoceros laevis
Campylopus setifolius	Preissia quadrata
Ctenidium molluscum var. condensatum	Scapania curta
Dicranella subulata	Scapania scandica
Dicranodontium denudatum	Solenostoma sphaerocarpa
Gymnostomum calcareum	
Hygrohypnum eugyrium	
Racomitrium canescens	
Schistidium strictum	
Sphagnum austinii	
Sphagnum girgensohnii	
Sphagnum subsecundum	
Sphagnum warnstorffii	
Weissia controversa var. densifolia	

The occurrence of these species in Shropshire is regarded as having never been confirmed. If you find any species listed in square brackets in this check-list, please follow the same procedure as for those listed in curved brackets.

Excluded from the annotated check-list are a few unvouched species reported from Shropshire, whose occurrence in the county would represent a surprisingly disjunct extension to their known ranges, and which are therefore very unlikely to have been correctly identified.

Many more species have never been recorded from Shropshire, but may conceivably occur in the county:-

MOSSES	LIVERWORTS
Bartramia halleriana	Anastrophyllum minutum
Brachydontium trichodes	Aneura 'maxima'
Bryum gemmilucens	Calypogeia integristipula
Bryum riparium	Cephaloziella turneri
Bryum sauteri	Haplomitrium hookeri
Bryum tenuisetum	Jungermannia exsertifolia ssp. cordifolia
Bryum torquescens	Lejeunea patens
Campylostelium saxicola	Lepidozia pearsonii
Dicranum flagellare	Lophozia incisa
Distichium inclinatum	Marchantia polymorpha ssp. montivagans
Ditrichum flexicaule	Pallavicinia lyellii
Ditrichum lineare	Plagiochila bifaria
Ditrichum pusillum	Plagiochila exigua
Entosthodon attenuatus	Plagiochila punctata
Entosthodon pulchellus	Scapania subalpina
Fissidens bryoides var. caespitans	Scapania umbrosa
Grimmia decipiens	Solenostoma obovatum
Grimmia dissimulata	Solenostoma paroicum
Grimmia funalis	Sphaerocarpos michelii
Grimmia hartmanii	Sphaerocarpos texanus
Grimmia lisae	
Grimmia longirostris	
Grimmia ovalis	
Grimmia torquata	
Gymnostomum viridulum	
Habrodon perpusillus	
Herzogiella seligeri	
Heterocladium wulfsbergii	
Isopterygiopsis pulchella	
Isothecium holtii	
Leptodontium gemmascens	
Orthothecium intricatum	
Plagiopus oederianus	
Pohlia flexuosa	

Rhabdoweisia crenulata Platyhypnidium lusitanicum Rhytidiadelphus subpinnatus Seligeria pusilla Sematophyllum substrumosum Splachnum sphaericum Thuidium recognitum Tortella nitida Tortula cuneifolia Ulota coarctata Ulota drummondii Warnstorfia sarmentosa	
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The annotated check-list compares the distributional status of each species in the county with its post-1950 distributional status in Great Britain (excluding Ireland), as published in the three-volume *Atlas of the Bryophytes of Britain and Ireland* (1991-94). The status of species within Shropshire is assessed using older records as well, because there has not yet been sufficient recent recording to allow evaluation of the current status of species within the county. Only by cumulating all records – recent and old alike – does a representative picture emerge of the status of species in Shropshire. Indeed, botanists in the late 19th and early 20th centuries contributed as substantially as their successors have in recent years to our knowledge of what occurs (or used to occur) where in Shropshire.

Distributional status is graded as follows:-

		Status in Britain (number of hectads)	Status in Shropshire (number of hectads)
Ubiquitous	U	1000 or more	30 or more
Widespread	W	500-999	15-29
Local	L	250-499	6-14
Scarce	S	50-249	3-5
Rare	R	1-49	1-2

Details of records are cited for species which are rare or scarce in Shropshire (those known to occur or to have previously occurred in not more than five hectads). If you find a species which is scarce or rare (nationally or locally or both), please back up your record with a voucher. Many of the four-figure grid references cited in the list signify approximate locations, rather than the square kilometre in which the plants were found.

SOURCES OF RECORDS

This check-list incorporates many previously unpublished records from the Biological Records Centre at Monkswood up to 1990, from Natural England at Attingham Park, databases kept by Nick Hodgetts, A.J. Lockton, and Shropshire Wildlife Trust, archival material at Ludlow Museum, and from Ron Shoubridge's file which he compiled while vice-county recorder for bryophytes in the 1980s and 1990s. The check-list also incorporates recent records, some of which have been published in *Field Bryology*, the *BBS Bulletin*, the *Journal of Bryology*, or more ambiguously in the three-volume *Atlas*.

The bryological herbarium in Ludlow Museum contains mosses (but no liverworts) donated by W.P. Hamilton in 1910, and includes Salopian material gathered by himself, R. de G. Benson, J.B. Duncan, W.H. Painter and A.W. Weyman, with vouchers for most species then known to occur in Shropshire. Records of rare and scarce species represented by vouchers at Shrewsbury are incorporated into this list, although the determinations have not been checked. Ludlow Museum also contains a draft manuscript Flora of mosses and liverworts found in Shropshire before 1910, in a similar format to that of the manuscript for vascular plants at Shrewsbury Library.

Shropshire Archives (the local Record Office) in Shrewsbury contains a manuscript catalogue of plants (including bryophytes) transcribed from manuscripts prepared by the Reverend Edward Williams. After he died, Williams's botanical manuscripts passed into the possession of Lord Berwick at Attingham Hall, and William Leighton (the Shrewsbury botanist) was permitted to have a copy, which he later gave to Shrewsbury Museum, whence it passed to Shropshire Archives. Williams mentions 117 mosses and 23 liverworts and hornworts; his is the first and by far the earliest annotated list of Shropshire bryophytes. Shropshire Archives also contains two volumes compiled by R. de G. Benson: one contains gatherings both from within and beyond Shropshire; the other is an annotated list of mosses collected in Shropshire. Another early paper was that of 1873 by Robert Anslow.

Thomas Laflin's herbarium and notebooks, which contain many Salopian records from 1946-1970 are at the herbarium at Cambridge Botanic Gardens, and Ludlow Museum has an electronic copy of Laflin's records. The herbarium at Ludlow Museum contains bryophytes collected in Shropshire by Ron Shoubridge since the 1980s and by Mark Lawley since the 1990s.

This check-list contains details of some of the gatherings incorporated into the bryological herbarium at the Royal Botanic Gardens Edinburgh (which includes J.B. Duncan's herbarium). I have also incorporated records from NMW and BBSUK at Cardiff. However, Augustin Ley's herbarium at Birmingham University and the bryological collections at the Natural History Museum in London (e.g. R. de G. Benson) have not been examined with a view to incorporating records from Shropshire in this check-list. These herbaria may be expected to yield additional records, as well as additional details of records cited in this list.

Some first records from the vice-county of Shropshire were published by the British Bryological Society in their *Reports* until 1947 (records from these *Reports* have not been abstracted for inclusion in this check-list), then in the *Transactions of the British*

Bryological Society until 1971, in the *Journal of Bryology* from 1972 until 1974, and thereafter in the Society's *Bulletin*. The Society's meetings at Oswestry in 1960 (*Transactions* 4: 177-180), Ludlow in 1979 (*Bulletin* 35: 3-4), and Ellesmere in 1992 (*Bulletin* 61: 2-5) produced rushes of first vice-county records. Many earlier records were published annually in the Caradoc and Severn Valley Field Club's 'Record of the Bare Facts' during the late 19th and first part of the 20th centuries.

Individual authorities are cited in preference to organizations whenever the details are known. The following abbreviations are used to denote individual botanists and sources of records:-

AJL	A.J. Lockton's database	J. Bryol.	Journal of Bryology
ARP	A.R. Perry	JGD	J.G. Duckett
Atlas	<i>Atlas of the Bryophytes of Britain and Ireland</i> (1991-94)	LDL	Ludlow Museum
AWW	A.W. Weyman	MEN	M.E. Newton
BB	Border Bryologists	MJW	M.J. Wigginton
BBS	British Bryological Society	ML	M. Lawley
BBSUK	herbarium of BBS at NMGW Cardiff	NGH	N.G. Hodgetts
BRC	Biological Records Centre, Wallingford	NMGW	National Museum and Gallery of Wales
Bull. BBS	Bulletin of the British Bryological Society	RBF	Record of the Bare Facts
CAS	C.A. Sinker	NMW	herbarium of National Museum of Wales at NMGW Cardiff
CGE	Cambridge Botanic Garden herbarium	RDP	R.D. Porley
E	Herbarium at Royal Botanic Gardens, Edinburgh	RFS	R.F. Shoubridge
EN	English Nature	RGB	R. de G. Benson
EW	E. Williams	SWT	Shropshire Wildlife Trust
FB	Field Bryology	TBBS	Transactions of the British Bryological Society
FSC	Field Studies Council	TL	Thomas Laflin
JBD	J.B. Duncan	WPH	W.P. Hamilton

FIELD-BRYOLOGY IN SHROPSHIRE TODAY

The Border Bryologists regularly meet in the Welsh Marches. Details of the programme can be obtained from the British Bryological Society's recorder for Shropshire (vice-county 40) who is currently Mark Lawley, 12A Castleview Terrace, Ludlow, Shropshire SY8 2NG; e-mail m.lawley@virgin.net

Please send records (old or new) of bryophytes to the British Bryological Society's vice-county recorder, including the name of the plant and of the site where it was found (and

grid reference), the habitat in and substrate on which it grew, and the date of collection. The recording of bryophytes in Shropshire is no longer grid-based, but site-based, as lists of species found in a tetrad or hectad have negligible interest or value. If you are unsure of the identity of a plant, or have identified an uncommon species, please submit a voucher with your record. Particularly obstinate collections can be referred to the BBS's panel of referees. Recording cards are available from the vice-county recorder; these are very useful in the field when compiling a list of species for a site.

The vice-county recorder will pass your records on to the central Biological Records Centre at Wallingford, where they will be incorporated into the national computerized database. Members of the public with access to the internet can examine this database on the National Biodiversity Network (NBN) by sailing through cyberspace at www.SearchNBN.net, where information about each species and maps of their distributions in Britain show how local records fit into the national picture. In addition, a pass-word gains access to records from particular sites.

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