

Gardens have the potential to play an important role in supporting biodiversity, particularly in urban areas where they can constitute about 25% of the land area and most of the available green space. That acknowledged, it is perhaps surprising that there are very few scientific assessments of the biodiversity of gardens, maybe because they are not seen to be worthy of significant attention compared to the countryside beyond? A notable exception is the research programme entitled '*Biodiversity in Urban Gardens in Sheffield*' ([www.bugs.group.shef.ac.uk](http://www.bugs.group.shef.ac.uk)), which provides a fascinating insight into the wildlife value of our gardens.

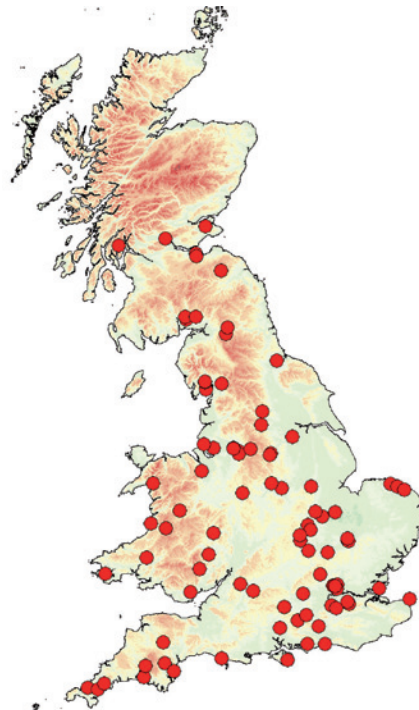
Aware that there is very little published on the bryophytes of gardens, I made a request to BBS members (in FB93 and 94) to undertake surveys to help fill the gap. This prompted a flurry of backyard activity of a kind that neighbours had rarely witnessed! Many BBS members kindly sifted through their flower borders, sorted through the gutters and picked at their walls to see what small green gems could be found. The resultant information sent to me was put into a database, with the intention of coupling this with various environmental datasets and then undertaking an analysis of species composition and how this varied with regard to environmental gradients. Unfortunately, work-life has developed in such a way that means I will not have the time to undertake such a full analysis for some time yet. Hence, this short article intends to present the basic results of the survey so that contributors and others are provided with some feedback.

#### Gardens surveyed

The map on the right shows the locations of the gardens for which bryophyte lists were received. This shows a reasonable spread of sample points across England, Wales and southern Scotland,

# Bryophytes of domestic gardens in Britain

Just over a year ago **Des Callaghan** asked members to get into their gardens and record the bryophytes they found. In this interim report, Des presents the basic data obtained.



but with some inevitable clustering (e.g. around the London and Cambridge areas). The average garden occupied an area of 500 m<sup>2</sup> (range = 30–12,000 m<sup>2</sup>) and was 75 years old (range = 9–450 years).

### Bryophytes recorded

Appendix 1 lists the bryophytes recorded in the 93 gardens, in descending order of frequency. An impressive 253 taxa were found (i.e. 24% of the extant British bryophyte flora!). However, species richness was highly skewed positively, with a few gardens supporting large numbers of species and most gardens being home to a more modest flora (median = 26 species per garden). In particular, Gordon Rothero's garden (in Argyll) held an astonishing 108 species, of which 46 were not found in any of the other gardens surveyed.

The commonest species encountered was *Tortula muralis* (Appendix 1) with an impressive frequency of occurrence of 96% (i.e. finding a garden where this species is absent is a real challenge). Other high-frequency species included *Brachythecium rutabulum* (95%), *Bryum capillare* (94%) and *Kindbergia prae-longa* (90%). At the opposite end of the spectrum, one nationally rare species was recorded, *Grimmia tergestina* in Pete Martin's Cotswold garden, as well as two nationally scarce species, *Bryum intermedium* (in Nick Hodgett's Lincolnshire garden) and *Fissidens crispus* (= *limbatus*) (in Jean Paton's Cornwall garden). A few new records for individual vice-counties were also added.

A total of 2,730 records were generated during the survey, all of which have been passed onto the national Biological Records Centre for incorporation into their bryophyte database. I hope that people found the survey enjoyable and that the results presented here help to illuminate an interesting corner of bryological knowledge.



△ *Tortula muralis*. Des Callaghan

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Appendix 1. Bryophytes recorded and their frequency of occurrence.

Species	No. of gardens	Frequency (%)			
<i>Tortula muralis</i> var. <i>muralis</i>	89	96	<i>Cratoneuron filicinum</i>	18	19
<i>Brachythecium rutabulum</i>	88	95	<i>Didymodon fallax</i>	18	19
<i>Bryum capillare</i> var. <i>capillare</i>	87	94	<i>Didymodon sinuosus</i>	18	19
<i>Kindbergia praelonga</i>	84	90	<i>Metzgeria furcata</i>	18	19
<i>Grimmia pulvinata</i>	77	83	<i>Dicranella heteromalla</i>	17	18
<i>Ceratodon purpureus</i>	75	81	<i>Bryum radiculosum</i>	16	17
<i>Amblystegium serpens</i> var. <i>serpens</i>	69	74	<i>Didymodon luridus</i>	16	17
<i>Bryum argenteum</i>	69	74	<i>Didymodon vinealis</i>	16	17
<i>Rhynchostegium confertum</i>	66	71	<i>Leptobryum pyriforme</i>	16	17
<i>Calliergonella cuspidata</i>	65	70	<i>Frullania dilatata</i>	15	16
<i>Schistidium crassipilum</i>	65	70	<i>Mnium hornum</i>	15	16
<i>Barbula convoluta</i>	63	68	<i>Sciuro-hypnum populeum</i>	14	15
<i>Barbula unguiculata</i>	63	68	<i>Pseudocrossidium hornschiianum</i>	14	15
<i>Rhytidiadelphus squarrosus</i>	62	67	<i>Hypnum cupressiforme</i> var. <i>resupinatum</i>	13	14
<i>Bryum dichotomum</i>	54	58	<i>Polytrichastrum formosum</i>	13	14
<i>Hypnum cupressiforme</i>	51	55	<i>Ulota bruchii</i>	13	14
<i>Fissidens taxifolius</i> var. <i>taxifolius</i>	50	54	<i>Bryum rudendale</i>	12	13
<i>Funaria hygrometrica</i>	47	51	<i>Dicranella staphylina</i>	12	13
<i>Lunularia cruciata</i>	46	49	<i>Isothecium myosuroides</i> var. <i>myosuroides</i>	12	13
<i>Didymodon insulanus</i>	44	47	<i>Thuidium tamariscinum</i>	12	13
<i>Orthotrichum diaphanum</i>	41	44	<i>Hypnum andoi</i>	11	12
<i>Oxyrrhynchium hians</i>	40	43	<i>Brachythecium velutinum</i>	10	11
<i>Lophocolea bidentata</i>	40	43	<i>Rhynchostegiella tenella</i>	10	11
<i>Homalothecium sericeum</i>	38	41	<i>Dicranella schreberiana</i>	9	10
<i>Syntrichia intermedia</i>	35	38	<i>Polytrichum juniperinum</i>	9	10
<i>Atrichum undulatum</i> var. <i>undulatum</i>	34	37	<i>Racomitrium aciculare</i>	9	10
<i>Plagiomnium undulatum</i>	34	37	<i>Zygodon viridissimus</i> var. <i>viridissimus</i>	9	10
<i>Campylopus introflexus</i>	32	34	<i>Fissidens incurvus</i>	8	9
<i>Syntrichia ruralis</i>	32	34	<i>Pseudotaxiphyllum elegans</i>	8	9
<i>Didymodon rigidulus</i>	30	32	<i>Weisia controversa</i> var. <i>controversa</i>	8	9
<i>Fissidens bryoides</i>	30	32	<i>Cirriphyllum piliferum</i>	7	8
<i>Bryum rubens</i>	28	30	<i>Dicranella varia</i>	7	8
<i>Marchantia polymorpha</i> subsp. <i>rudenalis</i>	28	30	<i>Ditrichum cylindricum</i>	7	8
<i>Orthotrichum affine</i>	27	29	<i>Fissidens viridulus</i>	7	8
<i>Orthotrichum anomalum</i>	27	29	<i>Orthotrichum lyellii</i>	7	8
<i>Phascum cuspidatum</i> var. <i>cuspidatum</i>	24	26	<i>Bryum caespiticium</i>	6	6
<i>Tortula truncata</i>	21	23	<i>Cryphaea heteromalla</i>	6	6
<i>Barbula sardoia</i>	20	22	<i>Didymodon nicholsonii</i>	6	6
<i>Dicranoweisia cirrata</i>	20	22	<i>Grimmia trichophylla</i>	6	6
<i>Bryoerythrophyllum recurvirostrum</i>	19	20	<i>Lophocolea heterophylla</i>	6	6

Bryophytes in domestic gardens in Britain

<i>Pohlia nutans</i>	6	6
<i>Racomitrium heterostichum</i>	6	6
<i>Schistidium apocarpum</i>	6	6
<i>Pseudoscleropodium purum</i>	6	6
<i>Zygodon conoideus</i> var. <i>conoideus</i>	6	6
<i>Brachythecium albicans</i>	5	5
<i>Brachythecium rivulare</i>	5	5
<i>Dicranum scoparium</i>	5	5
<i>Oxyrrhynchium pumilum</i>	5	5
<i>Metzgeria violacea</i>	5	5
<i>Microlejeunea ulicina</i>	5	5
<i>Plagiomnium affine</i>	5	5
<i>Pleuridium acuminatum</i>	5	5
<i>Pogonatum aloides</i>	5	5
<i>Polytrichum commune</i> var. <i>commune</i>	5	5
<i>Rhizomnium punctatum</i>	5	5
<i>Thamnobryum alopecurum</i>	5	5
<i>Ulota phyllantha</i>	5	5
<i>Conocephalum conicum</i>	4	4
<i>Isothecium alopecuroides</i>	4	4
<i>Orthodontium lineare</i>	4	4
<i>Orthotrichum cupulatum</i> var. <i>cupulatum</i>	4	4
<i>Orthotrichum pulchellum</i>	4	4
<i>Plagiochila porelloides</i>	4	4
<i>Plagiomnium rostratum</i>	4	4
<i>Pseudephemerum nitidum</i>	4	4
<i>Rhynchostegium murale</i>	4	4
<i>Syntrichia laevipila</i>	4	4
<i>Syntrichia papillosa</i>	4	4
<i>Syntrichia virescens</i>	4	4
<i>Ulota crispa</i>	4	4
<i>Sciuro-hypnum plumosum</i>	3	3
<i>Bryum subapiculatum</i>	3	3
<i>Cololejeunea minutissima</i>	3	3
<i>Ctenidium molluscum</i> var. <i>molluscum</i>	3	3
<i>Didymodon tophaceus</i>	3	3
<i>Diplophyllum albicans</i>	3	3
<i>Encalypta streptocarpa</i>	3	3
<i>Cirriphyllum crassinervium</i>	3	3
<i>Eurhynchium striatum</i>	3	3
<i>Hypnum cupressiforme</i> var. <i>lacunosum</i>	3	3
<i>Hypnum julandicum</i>	3	3
<i>Leptodictyum riparium</i>	3	3
<i>Marchantia polymorpha</i> subsp. <i>polymorpha</i>	3	3
<i>Metzgeria consanguinea</i>	3	3
<i>Physcomitrium pyriforme</i>	3	3
<i>Polytrichum piliferum</i>	3	3
<i>Pseudocrossidium revolutum</i>	3	3
<i>Ptychomitrium polyphyllum</i>	3	3
<i>Racomitrium fasciculare</i>	3	3
<i>Platyhypnidium riparioides</i>	3	3
<i>Rhytidiadelphus loreus</i>	3	3
<i>Riccia sorocarpa</i>	3	3
<i>Syntrichia latifolia</i>	3	3
<i>Bryum pallescens</i>	2	2
<i>Bryum violaceum</i>	2	2
<i>Calyptogeia fissa</i>	2	2
<i>Campylopus flexuosus</i>	2	2
<i>Campylopus pyriformis</i>	2	2
<i>Ephemerum serratum</i> var. <i>minutissimum</i>	2	2
<i>Fontinalis antipyretica</i> var. <i>antipyretica</i>	2	2
<i>Frullania tamarisci</i>	2	2
<i>Hygrohypnum luridum</i> var. <i>luridum</i>	2	2
<i>Hylocomium splendens</i>	2	2
<i>Hyocomium armoricum</i>	2	2
<i>Lejeunea cavifolia</i>	2	2
<i>Marsupella emarginata</i> var. <i>emarginata</i>	2	2
<i>Microbryum davallianum</i>	2	2
<i>Neckera complanata</i>	2	2
<i>Neckera pumila</i>	2	2
<i>Pellia endiviifolia</i>	2	2
<i>Plagiothecium denticulatum</i> var. <i>denticulatum</i>	2	2
<i>Plagiothecium nemorale</i>	2	2
<i>Pleurozium schreberi</i>	2	2
<i>Pogonatum urnigerum</i>	2	2
<i>Pohlia camptotrachela</i>	2	2
<i>Pohlia wahlenbergii</i> var. <i>wahlenbergii</i>	2	2
<i>Scapania undulata</i>	2	2
<i>Schistidium rivulare</i>	2	2
<i>Tortula modica</i>	2	2
<i>Ulota crispa</i> s.l.	2	2
<i>Anastrepta orcadensis</i>	1	1
<i>Andreaea rupestris</i>	1	1

<i>Aneura pinguis</i>	1	1
<i>Anomodon viticulosus</i>	1	1
<i>Anthoceros punctatus</i>	1	1
<i>Aphanolejeunea microscopica</i>	1	1
<i>Aulacomnium palustre</i>	1	1
<i>Barbilophozia attenuata</i>	1	1
<i>Barbilophozia barbata</i>	1	1
<i>Barbilophozia floerkei</i>	1	1
<i>Blepharostoma trichophyllum</i>	1	1
<i>Blindia acuta</i>	1	1
<i>Breutelia chrysocoma</i>	1	1
<i>Bryum donianum</i>	1	1
<i>Bryum intermedium</i>	1	1
<i>Bryum klinggraeffii</i>	1	1
<i>Bryum moravicum</i>	1	1
<i>Bryum pseudotriquetrum</i>	1	1
<i>Calypogeia muelleriana</i>	1	1
<i>Campylopus atrovirens</i>	1	1
<i>Campylopus fragilis</i>	1	1
<i>Cephalozia bicuspidata</i>	1	1
<i>Cephalozia divaricata</i>	1	1
<i>Climacium dendroides</i>	1	1
<i>Colura calyptrifolia</i>	1	1
<i>Dichodontium pellucidum</i>	1	1
<i>Dicranum majus</i>	1	1
<i>Didymodon umbrosus</i>	1	1
<i>Ditrichum heteromallum</i>	1	1
<i>Drepanocladus aduncus</i>	1	1
<i>Entosthodon attenuatus</i>	1	1
<i>Oxyrrhynchium speciosum</i>	1	1
<i>Fissidens adiantoides</i>	1	1
<i>Fissidens crispus</i>	1	1
<i>Fontinalis squamosa</i>	1	1
<i>Fossombronina</i> sp.	1	1
<i>Frullania teneriffae</i>	1	1
<i>Grimmia tergestina</i>	1	1
<i>Gyroweisia tenuis</i>	1	1
<i>Heterocladium heteropterum</i> var. <i>heteropterum</i>	1	1
<i>Hookeria lucens</i>	1	1
<i>Hygrohypnum ochraceum</i>	1	1
<i>Jungermannia atrovirens</i>	1	1
<i>Solenostoma gracillimum</i>	1	1
<i>Solenostoma obovatum</i>	1	1
<i>Lejeunea lamacerina</i>	1	1
<i>Lejeunea patens</i>	1	1

<i>Lepidozia reptans</i>	1	1
<i>Leskea polycarpa</i>	1	1
<i>Lophocolea bispinosa</i>	1	1
<i>Lophocolea semiteres</i>	1	1
<i>Lophozia incisa</i>	1	1
<i>Lophozia ventricosa</i>	1	1
<i>Nardia scalaris</i>	1	1
<i>Neckera crispa</i>	1	1
<i>Orthotrichum rupestre</i>	1	1
<i>Orthotrichum tenellum</i>	1	1
<i>Pellia epiphylla</i>	1	1
<i>Phaeoceros laevis</i>	1	1
<i>Plagiochila asplenioides</i>	1	1
<i>Plagiothecium curvifolium</i>	1	1
<i>Plagiothecium undulatum</i>	1	1
<i>Pleuroidium subulatum</i>	1	1
<i>Pohlia melanodon</i>	1	1
<i>Polytrichastrum longisetum</i>	1	1
<i>Ptilidium ciliare</i>	1	1
<i>Racomitrium aquaticum</i>	1	1
<i>Radula complanata</i>	1	1
<i>Rhynchostegium megapolitanum</i>	1	1
<i>Rhytidiadelphus triquetrus</i>	1	1
<i>Riccardia chamedryfolia</i>	1	1
<i>Riccia glauca</i>	1	1
<i>Riccia subbifurca</i>	1	1
<i>Sanionia uncinata</i>	1	1
<i>Scapania gracilis</i>	1	1
<i>Scapania nemorea</i>	1	1
<i>Scleropodium cespitans</i>	1	1
<i>Sphagnum capillifolium</i> subsp. <i>rubellum</i>	1	1
<i>Sphagnum fallax</i>	1	1
<i>Sphagnum girgensohnii</i>	1	1
<i>Sphagnum palustre</i> var. <i>palustre</i>	1	1
<i>Sphagnum quinquefarium</i>	1	1
<i>Sphagnum subnitens</i>	1	1
<i>Tortella tortuosa</i>	1	1
<i>Tortula marginata</i>	1	1
<i>Tortula subulata</i> var. <i>subulata</i>	1	1
<i>Trichostomum tenuirostre</i>	1	1
<i>Warnstorfia fluitans</i>	1	1
<i>Weissia controversa</i> var. <i>densifolia</i>	1	1
<i>Weissia longifolia</i> var. <i>longifolia</i>	1	1
<i>Zygodon rupestris</i>	1	1
<i>Zygodon viridisissimus</i> var. <i>stirtonii</i>	1	1