





Top left: *Silene acaulis*, Keen of Hamar, Shetland (Ian Francis)

Above: *Sorbus aucuparia* (Rowan), Drumgreen, Glen Esk (John Edgington))

Left: *Fumaria densiflora*, St Andrews (Sandy Edwards)

Below: *Diapensia lapponica*, Fraoch-bheinn (Bert Barnett)



BSBI SCOTTISH NEWSLETTER

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Editor's note

It would be good to have more short notes contributed by members. These are welcome at any time during the year. The deadline for next year's edition will be 1st March.

A selection of entries taken in Scotland from the BSBI Photo Competition are on the page opposite and on the back cover, as well as the splendid shot of *Saxifraga oppositifolia* (Purple Saxifrage) by Roy Sexton on the front. Photos submitted by some VCRs along with their reports can be seen on Dropbox, and those from Jim McIntosh's report on the BSBI website, where a downloadable PDF version of the entire Newsletter will be made available shortly.

Joint BSBI/BSS Scottish Annual Meeting

Saturday 4th November 2017

Julia Wilson

Welcome

John Faulkner President of the BSBI opened the meeting which had attracted a record number of visitors (151) - probably the largest gathering of botanists in Scotland ever.

The BSBI Scottish Year and AGM

The business of the meeting proceeded with the AGM of BSBI Scotland, led by Robin Payne, BSBI Scottish Chair, with approval of the minutes of the last AGM and elections of Alan Walker, Lindsay Mackinlay and Aileen Meek to the BSBI Committee.

Jim McIntosh, BSBI Scottish Officer presented his report, highlighting some of the activities over the year:

- ◆ the Scottish Recording Conference at Kindrogan in March where there were major sessions on MapMate, Atlas 2020 and the BSBI Database,
- ◆ 5 million BSBI records have been supplied to the new NBN Atlas Scotland,
- ◆ three very successful plant ID workshops, led by Faith Anstey, were held in Glasgow and Edinburgh,
- ◆ a Scottish recording week was held in Torridon and a 'rough crew' weekend in Glen Affric,
- ◆ a huge amount of recording has been done for Atlas 2020,
- ◆ Jay MacKinnon replaces Jackie Muscott as Recorder for West Lothian, but no replacement has yet been found for Michael Braithwaite (Berwickshire); sadly, Ken Butler, the retired Recorder for Caithness has died recently,
- ◆ Jim has been doing much support work across the UK and Ireland. His funding from SNH expires in 2018. [*Happily, we have since heard that it will continue for at least another year (ed.)*]

Robin Payne presented the Scottish Chairman's report:

The Scottish Newsletter was published,

Eric Meek, who died in February will be greatly missed, he was a great contributor to the BSBI,

There is substantial concern about proposals for a golf course on the sand-dunes at Coul Links near Dornoch. The BSBI is providing data to reinforce the case against the proposal.

There have been numerous field meetings in 2017, and plans are in progress for 2018.

The BSS Report

Brian Ballinger, President of the BSS, reported that the BSS had held 9 lectures in Edinburgh and others in Dundee, Perth, Inverness and St Andrews (joint with other societies). Edinburgh lectures are now held jointly with the RBGE. The BSS produces a scientific journal (Plant Ecology & Diversity) and the BSS News. Thirteen field meetings have been held in 2017 and recording has continued for the BSS Urban Flora project, with about 20000 records entered to the BSS iRecord activity so far. Although the most frequent records are of very common species, analysis of data from Easter Ross VC 106 reveals 55 species of vascular plant which had been found in urban centres and nowhere else, and 32 species listed in the Rare Plants Register.

Sadly, Jane MacKintosh died this summer. She had been a member of BSS Council for many years and was co-ordinating editor for the BSS News.

Atlas 2020

Jim McIntosh presented progress on Atlas 2020, which aims to produce comprehensive maps for all native and introduced taxa occurring in the wild in Britain and Ireland, and to analyse and report on the changes since the last Atlas was produced.

For the Atlas, each hectad (10 x 10 km) is being subsampled by surveying 5 or more tetrads (2 x 2 km) within it. More than 90% of records added in the last year have been recorded at monad resolution or higher precision. Surveying in Scotland is an enormous challenge as it has 1/3 of the total land area of the UK, but only 12% of the BSBI membership.

Outputs of the Atlas 2020 will be a book which will interleave results from the Atlas 2020 with interpretation of the data, an online Atlas and Smartphone App, a summary for policy makers and possibly a print-on-demand book.

Much data has been added to the BSBI database and the number of records entered for years since 2000 now exceeds all the records entered prior to that date. However, the checking of records is lagging behind data entry and there is some catching up to be done. Jim presented some preliminary data showing the species which have increased and decreased in the number of hectads in which they are recorded. *Crassula tillaea* has increased from 4 to 65 hectads since 2000, while *Galeopsis speciosa* has declined from 406 to

166 hectads.

If you would like to help with recording, please contact your Vice County Recorder. Jim is planning a workshop in Spring for intermediate botanists to help them become confident recorders.

Threatened plants in Britain and Ireland

Pete Stroh, BSBI's Scientific Officer, introduced the Threatened Plants Project, which aims to improve knowledge concerning the abundance of threatened species and their ecological and management requirements, to quantify losses since 1970, understand the main threats and provide a baseline for future surveys. Fifty species were selected for the survey, covering a wide range of habitats and geographic areas and ecological and climatic conditions.

A principal coordinate analysis was done of the key ecological and climatic requirements of all GB and Irish species and the threatened species placed in the context of this. Field surveys have been used to follow up previous records. Only 51% of plant populations were re-found (varying from 18% for *Ranunculus arvensis* to 87% for *Sibbaldia procumbens*). Species declines in lowlands were greater than in uplands. The main threats were considered to be lack of suitable management and agricultural intensification. Populations were more likely to be re-found in SSSI's than in unprotected sites (though re-finding rates even in SSSI's were only 65%).

Lunch-time workshops

Hour-long workshops were held as follows (most ran twice to meet demand)

After the Atlas: BSBI post-2020: Peter Stroh

Fern ID: Heather McHaffie

ID help with confusable species-pairs: Douglas McKean

Conifer ID: Matt Parratt

Pondweeds: Claudia Ferguson-Smyth

Willows: Les Tucker

Winter tree ID: Max Coleman

The workshops were much appreciated by everyone attending, and the leaders are thanked warmly for the effort they put in.

Afternoon short talks

Marsh Saxifrage in Scotland - *Aline Finger* RBGE

Aline presented her work on the extent of clonal reproduction in *Saxifraga hirculus* in Scotland. This species occurs in wet base-rich flushes and mires and has been lost from lowland habitats due to land use change, but persists in five locations in Scotland at altitudes from 300 - 750 m.

Leaves were collected from transects across the sites and analysed using microsatellite genetic markers. Sites differed enormously in their genetic variation. Small sites of < 10m² tended to be of low genetic diversity. However, while some large sites could be highly diverse, others were not.

The results suggest that clonal reproduction is important in Scottish populations of this species, and that population size is not necessarily a proxy for genetic diversity.

Discovery of a Scottish Monkeyflower - *Mario Vallejo-Marin, University of Stirling*
Mimulus guttatus was imported as a botanical curiosity in the 1812 and cultivated as a garden plant. Horticulturalists produced hybrids with this species. By the 1830's, records of its escape into the wild were appearing, and it is now widely distributed in wet habitats in Britain and Ireland.

Studies conducted in the Shetland Isles revealed a polyploid population containing tetraploids with 56 chromosomes compared with the diploid which has 28 chromosomes. Molecular analyses indicate that northern populations in Shetland are genetically distinct from more southerly populations and that the new tetraploids have arisen in a population where both northern and southern diploid genetic types occur. The tetraploids tend to have larger flowers and leaves than the diploids.

Polyploidisation has played a part in the evolutionary history of *Mimulus* over the last 30 million years. Our data show that it is still occurring in populations today.

Plant Monitoring and Conservation in Stirling - *Roy Sexton, Scottish Wildlife Trust*
Roy presented some of the work of the Stirling and Clacks SWT Group. Most of their projects involve monitoring the status of either habitats or species which are considered as being of conservation concern in local Biodiversity Action Plans. This involves finding the species or habitat, recording species numbers or conducting detailed mapping, monitoring and taking action if the species or habitat is threatened.

Over the last 17 years they have built up a portfolio of over 60 sites and species that are monitored. If plant numbers decline by more than 70%, action is taken. Many examples were presented of where species had been under threat due to invasive species, changes in management or land-use, and where new species-rich sites in need of protection have been found. Liaison with land owners and local organisations has been successful in many cases in reversing species loss, but this is not always the case.

Main Lecture: Mountain Flowers - Guest Speaker *Michael Scott*
(author of 'Mountain Flowers' published by Bloomsbury ISBN 978-1-4729-2982-2 in 2016)

This talk was dedicated to Ken Butler, the former vice county recorder for Caithness, who was a great champion of the Plantlife Reserve at Munsary. Mike also paid tribute to the people who had sparked his interest in botany, especially Charles Gimingham of Aberdeen University and the student field courses which were run at Bettyhill, and Grant Roger, of the Nature Conservancy, who ran a course on mountain flowers at the Kindrogan Field Centre. He also highlighted the influence of the Raven and Walters' Mountain Flowers book in the Collins New Naturalist series, first published in 1956 and still relevant today.

His talk brought together themes of plant distribution, ecology, and threatened habitat, combined with the fun and comradeship of shared interests in botany. He referred to an early attempt to relocate *Schoenus ferrugineus* which was threatened by rising waters at the 1940s hydro-electric scheme at Loch Tummel. Relocation to new habitats failed probably because it was not recognised at the time that the original loch-side habitat which they attempted to replicate was not representative of its general habitat in Europe and that the Loch Tummel plants were outliers and probably already struggling for survival.

The BSBI species maps and database are a wonderful resource and enable the most species-rich areas to be identified and highlight the odd distribution of some species, raising questions as to what are the limiting factors in the distribution of some of them. Records of field meetings provide invaluable information and can at the same time convey the feeling of the meeting - new finds, confirmation of old records and the fun of working together in a group.

Many challenges remain to record, understand and conserve our mountain flora.

Photographic Competition

The day closed with the announcement of the results of the photographic competition which was judged by popular vote. The winners were Chris Jeffrey whose photograph of Henbane (*Hyoscyamus niger*) at Lindisfarne was the most popular in the 'Archaeophyte' category and Heather Kelly whose photograph of Greater Knapweed (*Centaurea scabiosa*) on the Fife coast won the 'Plants in the Landscape' category.

The categories for the 2018 competition will be 'Plants and People' and 'Plants and Pollinators'. Entries should be sent to Natalie Harmsworth, as last year. Please check details of required format on the BSBI website.

Scottish Officer Report for 2017

Jim McIntosh

Atlas 2020 Recording

Scottish Recorders had a very busy year recording for Atlas 2020. Despite the poor weather, over 258,000 records were collected in 2017 - and digitised and uploaded to the BSBI Database. This is only the second time that we have gathered more than a quarter of a million records in a single year.

Two recording weeks plugged gaps in under-recorded areas and made major contributions to that amazing total. Angus Hannah organised a very successful week in Cowal, during which some 4,850 records were collected by him, Carl Farmer, Gordon Rothero and BSBI members. Another recording week in Torridon, organised by the West Ross Recorder, Duncan Donald and me, with 14 BSBI members, resulted in 4,400 records. We are planning three recording weeks per year in the final two years of Atlas 2020. As well as recording, a huge amount of mutual learning goes on during these recording weeks. No amount of money could possibly pay for commercial courses that provide the same amount of training (and fun). So, look out for the adverts and please respond. We need all the help we can get in these final, critical years of Atlas 2020!

At long last we got the Rough Crew idea off the ground in Scotland. A small group of intrepid botanists joined some equally intrepid lepidopterists and had an excellent weekend in a very remote (but deluxe) bothy in Glen Affric thanks to Adam Fraser & Trees for Life. 2,500 plant records were collected over the long weekend including a new hectad record for *Dryas octopetala* (Mountain Avens), a new population of *Melampyrum sylvaticum* (Small Cow-wheat) and the re-discovery of *Phleum alpinum* (Alpine Cat's-tail) after 56 years. We hope to organise more Rough Crew events in 2018.

Ian Green collected an astonishing 22,000 records in his vice-county (Moray), which must be a record, while Andy Amphlett collected 11,000 records in his neighbouring vice-county of Easternness. Both Stephen Bungard and Angus Hannah also made significant contributions to neighbouring vice-counties. If Recorders who feel they are on top of Atlas coverage in their own Counties would like to help neighbours, please do get in touch with them (or me). Several members also made outstanding Atlas contributions. For example, Audrey & Bob Turner collected over 5,000 records in Moray, Easternness and nearby counties. Many recorders would warmly welcome such contributions from BSBI members and if you are able to help please offer to do so.

Grateful thanks are due to all Recorders and members involved in these initiatives.

Recorder Network Support

Twenty-six recorders participated in a very successful residential weekend Recording Workshop at Kindrogan FSC in March. Progress with Atlas 2020, data validation, MapMate and making our data public were all on the programme. All the presentations are still available on the Scottish Conferences webpage.

Every New Year we ask for Annual Reports for the previous year from Recorders. I respond to each one individually and the reports are collated and published here (p.29ff.) and on the BSBI Scotland page. Take a look - it is fascinating to read about the great diversity of botanical endeavour across Scotland.

The Scottish Officer continues to produce the monthly BSBI *eNews* - which is targeted at everyone in the BSBI recording community. It is a move away from a one-to-one support to a more efficient one-to-many approach - and many of the topics raised in the *eNews* are in response to individual queries.

The Recorder vacancy that resulted after Jackie Muscott retired in West Lothian was advertised, and is now filled by Jay Mackinnon, who is currently getting to grips with the role. There was no response to the vacancy advert for Berwickshire. However, Michael Braithwaite, the retired recorder, did much work to catalogue and archive his County paperwork during the year, leaving just five small boxes of paperwork and files which I collected and will store at RBGE until a successor is found. If you are interested in being the recorder for a small, very well recorded and documented county in the south of Scotland - please let me know.

Training

Our training programme for complete beginners continued in Scotland in 2017 with two one-day Plant Family Workshops; one at Irvine and the other in Glasgow. A total of 36 beginners participated and really enjoyed the events. Two follow-up field days were arranged for past and present Plant Family students.

An innovation this year was a new grasses workshop that aimed to help those with a basic knowledge of field botany but who had yet to get to grips with grasses. Places were snapped up quickly, such is the interest in these more difficult groups.

Thanks are due to Faith Anstey, the main organiser, all the volunteers who helped and to our partners this year - Plantlife Scotland, Eglinton Country Park, Historic Environment Scotland and Glasgow Museums.

Scottish Annual Meeting 2017

[See pages 2ff. for a fuller account] We had a great mix of exhibits, short talks and mini-workshops. One of the main complaints was that we had too much in the programme and that the day wasn't long enough - though others said that it was too long! Feedback was particularly positive about the mini-workshops, with remarks such as "very useful, enjoyable and educational" and "packed with information and enthusiasm". In 2017 there was a choice of two out of seven workshops: Introductions to ferns, willows, pondweeds, conifers, identifying trees in winter, a session in the herbarium looking at difficult species pairs and a discussion session on Post Atlas projects. If you missed it, all the exhibition abstracts and presentations are still available on the Scottish Annual Meeting webpage.

BSBI Data on the NBN Atlas Scotland

During the year, five million Scottish BSBI records were made publicly available on the NBN Atlas Scotland, up to and including 2012, at full resolution complete with recorder and site names. The data includes one million records that had been digitised as part of the SNH funded Scottish Computerisation Project. It is freely available for non-commercial use and there is provision to protect sensitive species and populations. This a great step forward in making our data freely available to conservationists, researchers, land managers - and botanists. In early 2018, we will replace that dataset with an updated version up to and including 2013 records.

Site Condition Monitoring

BSBI volunteers have undertaken about one third of SNH's entire vascular plant site condition monitoring programme since its inception. The volunteers have enjoyed the challenge of re-finding old records of rare plant populations and making detailed ecological records of them. The records collected are of some of our rarest species and make a valuable contribution to the BSBI dataset.

For the first time in 13 years no work was done on Site Condition Monitoring in 2017 and just one site has been identified for BSBI volunteers' help in 2018 (Pentland Skerries). SNH are currently pausing their Site Condition Monitoring programme to review and plan ahead.

Thanks

We are very grateful to SNH and RBGE who support the BSBI in Scotland. Thanks are due to all the BSBI Recorders, members and volunteers who contributed so magnificently to the BSBI's work in 2017. I look forward to seeing you in 2018!

Jim McIntosh, BSBI Scottish Officer, March 2018

Past aesthetic roadside plantings

David Welch

In this article I muse on some unusual occurrences of bushes and small trees on roadsides in NE Scotland, and I suggest that local lairds may have done plantings, although I have not searched estate archives to confirm these speculations. These occurrences are by fences or in hedges, and sometimes they constitute hedges, but I am here considering just fruit trees and ornamentals, and not the main hedgerow species.

I'll start with a single pear tree that I have known on a roadside in Memsie, inland from Fraserburgh, since 1990. It has small globose fruit, slightly pear-shaped and turning pink in September, and is more a bush than a tree, being c. 4 m tall. I consider it is *Pyrus pyraster*, and in the 2002 Atlas it had a dot isolated by over 90 miles from the next nearest one, which could be a domestic pear, *Pyrus communis*. That changed last summer when Andy Amphlett found a few "wild pears" near Nairn, but different to mine; which set me thinking again on how the Memsie pear had appeared in a line of hawthorn bushes.

A few miles to the south-west, lines of mature crab apples (*Malus sylvestris*) extend for roughly 600 m on three sides of a field on the Fren draught estate. Slightly to the north on the road passing this field, there is a line of old rose bushes which Roger Maskew confirmed as *Rosa x biturigensis* (*pimpinellifolia x rubiginosa*) (hybrid sweet briars); these have clearly been planted along with hawthorns. On the same road 5 kilometres to the south there is another *x biturigensis* bush, now isolated and solitary, which is perhaps a relic of a longer row or maybe a natural spread.

There are also many crab apples in planted hedges along lanes west of Peterhead, but these are mixed with normal hedge species.

Bullace bushes (*Prunus domestica ssp insititia*) are much less common than sloes (*Prunus spinosa*) in the NE. But I know three roadside rows that have obviously been planted: one along a lane just outside Marykirk; one in Leslie opposite Leslie Castle; and one by a curtilage inland from Inverallochy.

Around Blairs in Kincardineshire there are unusual plantings near the one-time mansion house that was later developed into a Roman Catholic seminary. Two spindle trees (*Euonymus europaeus*) are in a hedge along a road that passes close to the fine RC chapel, and I wonder if they were used to provide altar decorations. A little to the south in the hedgerow are two quite tall trees which I think are *Juniperus rigida* (temple juniper) and maybe they provided ingredients for incense.

Cherry plum (*Prunus cerasifera*) has scattered occurrences by roads and tracks in the NE; some seem to be isolated plantings by farmers to beautify their entrance roads, but in Durris this species has been used by the Forestry Commission as part of roadside landscaping to soften the impact of a Sitka plantation.

Lastly the wayfaring tree (*Viburnum lantana*). This is not so much an ornamental species as a distinctive one in its large oval leaves, creamy umbels and red and black berries; I reckon landowners knowledgeable in botany planted it or sowed it along estate routes. In North Aberdeenshire I know just a single old bush in the Gight woods. But this is on a track marked in the woods on the 1860s 6-inch OS maps, and could have been on a long excursion route for the Earls of Aberdeen living in Haddo House several miles to the south-east; the 4th earl was certainly interested in plants and a large book of his pressed specimens is now held in the Aberdeen University herbarium (ABD).

In Kincardineshire there are several occurrences of wayfaring trees in Maryculter parish along routes from the Kingcausie mansion to a hilltop tower named Boswell's Monument. This was erected in 1860 on the death of John Irvine Boswell, an improving laird of Kingcausie who "transformed the natural barrenness of the estate". Sisters of Boswell were "keen plant hunters" (Allen 1986 (p.55)) and one of their daughters married a notable botanist, John Thomas Syme (later Boswell-Syme), and specimens of his from Kingcausie are also in ABD. These specimens date from 1847 to 1882, so there was prolonged interest in the flora on this substantial estate.

Reference

Allen, D. E. (1986) *The Botanists*.

LATE LATE NEWS

Bluebells of Scotland

Since going to press, a discovery has been reported which should not pass unnoticed. A variety of Bluebell thought to be extinct south of the border has been spotted by a sharp-eyed English botanist. A few specimens were reported there last year, but were thought to have been extirpated. However, it is believed to be widely distributed in Scotland, where an informal poll of botanists suggested that it is more attractive than the commoner type. A spokesperson for the Bluebell Preservation Society said that it is important to widen the local gene-pool, and added that this variety resembles *H. catalonica*, and has none of the undesirable characteristics of *H. hispanica*. It would seem to be a welcome addition to the Scottish flora. Unfortunately, it cannot appear on the internet. [Editor]

A new character to help identify species in the *Dryopteris affinis* complex (recently drawn to my attention by Tony Church)

Angus Hannah

Photos showing pinnules of typical specimens of the three species plus *D. filix-mas* are on the inside back cover.

The ferns of the Dryopteris affinis complex (scaly males) have caused many difficulties to recorders, and are inconsistently recorded across Scotland. It is hoped that use of an additional character can make identification a bit less difficult, at least in some cases, and help towards more systematic and accurate recording of these difficult taxa.

Pinnule venation can help to distinguish the three common members of the *Dryopteris affinis* aggregate, *D. affinis subsp affinis*, *D. borrieri* and *D. cambrensis subsp. cambrensis*. Viewing a pinnule against the light through a hand-lens can often suggest a diagnosis, or help to confirm one already indicated by other characters. A similar effect is achieved with condensed bottom lighting through a binocular microscope at x20, so any specimens collected can be studied or photographed at leisure. The method only works using fresh material. A single (infertile) pinna should be removed from the lower part of the frond and viewed with the upper surface towards the eye (in sunshine it is necessary to shade the pinnule while viewing). Attention should be focused on pinnules close to the rachis.

In *affinis subsp. affinis* all the secondary and tertiary (lateral) veins of the pinnule, as well as the slightly broader central vein, will appear perfectly translucent and of consistent breadth throughout their length, to the margin of the lamina. This character state is consistent in *affinis* at all ages, and is therefore especially useful in determining juvenile plants, something which is impossible by other characters as these are insufficiently manifested at that stage.

In most forms of *borrieri* by contrast (and also in *fil-mas*), when a pinnule is similarly viewed only the main vein along the midrib is conspicuous and partially translucent, and even it is usually obscure in the distal quarter of the pinnule; the lateral veins appear variable in width and become almost opaque in parts, and so are much less obvious. At higher magnification it is apparent that this results from rows of green cells running parallel to the vein inside the margin and narrowing the area of translucent cells to such an extent that in places the lateral veins are scarcely visible with a hand lens. Lateral veins appear to reach the margin less consistently in these taxa, but the micro-

scope shows this to be largely an impression resulting from their opacity. Sometimes the lateral veins broaden out into an obovate translucent area towards the margin of the lamina. *Borreri* is a complex taxon with several variants, but the common forms do not have lobes on the pinnule margins (cf. *cambrensis* below) and lateral veins seldom fork more than once or twice at most before reaching the margin.

In *cambrensis* subsp. *cambrensis* (the usual taxon) the veining is somewhat intermediate between that of *affinis* and *borreri*, in that the lateral veins are fairly clear right to the edge of the pinnule, but are generally narrower and do not have the pure translucency of *affinis*. As in *borreri* there is often a broader translucent area in the vein near the pinnule margin. Because the pinnules are usually more lobed than in the other taxa, the lateral veins of *cambrensis* appear more curved and are more inclined to fork; particularly on pinnules adjacent to the rachis the lowest lobe may have up to a dozen tertiary veins reaching the margin. Sometimes *affinis* has a lobe in this position, but seldom with more than half a dozen tertiary veins, and these are always more easily seen than those of *cambrensis*. Some forms of *borreri* also have a lobe here, but the overall form of the pinnule is usually distinctive. The basal (*i.e.* nearest rachis) basioscopic (downward pointing) pinnule in *cambrensis* is usually stalked and cordate at the base, in contrast to that of *affinis*, which is usually partially adnate on the side away from the rachis.

As with all critical taxa, no single character should be relied on for identification, but taken along with such as pinnule outline, stipe thickness and scaliness, and frond stiffness and glossiness as well as indusium characters in season, venation can be very helpful in making a determination.

Acknowledgement:

My thanks to Tony Church for showing me this character and guiding me through some of the subtleties of these taxa, which he knows far better than I do.

Tony has very kindly offered to comment informally on any specimens sent to him. He needs one entire, fresh infertile pinna from near the base of the frond (in addition, a fertile one from the same frond is helpful if available). Seal in a plastic bag with grid-ref written on it and include your e-mail address for reply. Post (second class is fine) to: Island Bank Cottage, Lamlash, Isle of Arran KA27 8LG.

BSBI Scottish Newsletter Crossword No. 2

by *Cruciada*

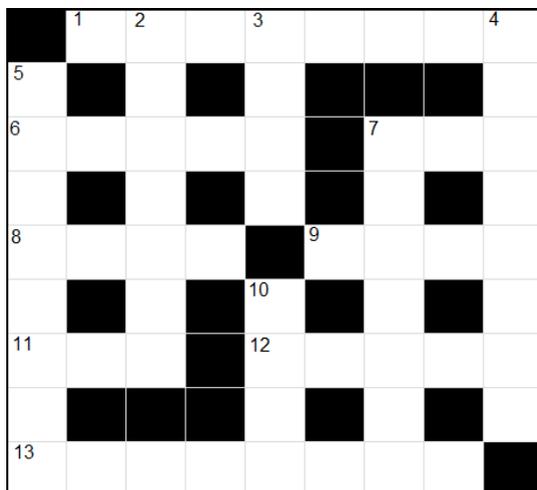
Angus asked for a slightly more difficult crossword, so here is one in a 9x9 grid. And as it seems that the revamped BSBI News has no more use for such trivia as crosswords, some feedback on this one would be useful to see if a 13x13 would be acceptable next year? (e-mails to editor, please)

ACROSS

1. Heard laughing complaint about single-seeded portion of fruit (8)
6. *Cardamine* that's specifically bitter discovered in morning by an artist (5)
7. If you turn to right, you will see Douglas, perhaps (3)
8. Live at home in Glenfarg Inn, just short of mountain (4)
9. *Conyza* is one of the banes of this creature's life! (4)
11. *Secale* sounds sardonic (3)
12. Settle into pad at new habitat - as adventive species may (5)
13. Sneezewort will heartily heal after a sudden shiver (8)

DOWN

2. 'Waterwort' translated from the language of science into Early English (7)
3. One sitting on woad, briefly (4)
4. Assemble, then pair, corolla and calyx (8)
5. Dr Sumner embraces first emergence of wintercress (8)
7. Possibly give file a go for gathering leaves (7)
10. Parasitic swelling established for good and all (4)



Solution on
page 51

Exhibit Abstracts: BSBI / BSS Scottish Annual Meeting 2017

The Natural History of Upper Teesdale project 2017/18 **Steve Gater**

Backed by generous funding from the Heritage Lottery Fund, Durham Wildlife Trust is running a project with three elements that may appeal to attendees.

Though south of the border, the magnificent flora of Upper Teesdale has many parallels with vegetation in the wilder parts of Scotland. The 'Teesdale assemblage' is widely renowned for its ice-age relic that even the building of the largely unwanted Cow Green reservoir in the midst of key habitats has not destroyed - yet. As elsewhere, pressures on habitat and wildlife from increasing human activity and demand put rare species at further risk. Are there parallels with similar species in Scotland? How effective are active conservation measures for these rarities? What does research tell us about what is needed?

This project brings together existing and new authors to review and update the content and format of 'The Natural History of Upper Teesdale', last published and edited by Dr Margaret Bradshaw MBE in 2003. Margaret is responsible for rewriting two chapters on flora, using data from her continuing surveys and information culled from other work. Chapters also cover heritage, geology, fauna, climate and weather, freshwater biology and conservation. The book will inform talks, guided walks and school-based activity. As editor of the new, 5th edition, of the book I welcome your comments, data, photographs that may inform this new edition, as well as general interest and queries.

Botanical Highlights from Dumfriesshire in 2017 (v.c.72) **Chris Miles**

Specimens: -

Melilotus altissimus (Tall Melilot) - A first record for this species in Dumfriesshire was quickly followed by a second. *Radiola linoides* (Allseed), the first record for Dumfriesshire for at least 120 years (currently listed as extinct in the RPR). *Filago vulgaris* (Common Cudweed), this is only the second record since the nineteenth century for this species in Dumfriesshire. *Calamagrostis canescens* (Purple Small-reed) is from one of only 2 sites currently known in Dumfriesshire. *Parentucella viscosa* (Yellow Bartsia), last seen by Anna White in 2002 in the south of Dumfries.

Photographs: -

Equisetum pratense (Shady Horsetail), this is a new species for the Moffat Hills. *Scleranthus annuus* (Annual Knawel) found in two places on forest tracks, near Ae village and south of Lockerbie, these are the first records for

32 years. *Hymenophyllum wilsonii* (Wilson's Filmy-fern), last recorded at this site by Rod Corner in 1968. *Frangula alnus* (Alder Buckthorn), a first record for Dumfriesshire, on the edge of a plantation on peatland so almost certainly planted. *Lathraea squamaria* (Toothwort), some re-finds and extensions to range recorded for this species this year. This specimen from Gilnockie is a new location on the Esk just north of Canonbie.

Extinct in Kircudbrightshire (v.c.73) – or are they?

David Hawker

The county does not have a long or extensive history of records in literature. Just 12 records predate 1810. After two brief spells in the mid-1800s not much recording was done until fieldwork for the first Atlas in the 1950s. Consequently, there is a long list of species recorded in the 19th and 20th centuries which have not been recorded since - many of which were thought to be extinct in the vice-county. However, over the past four decades several of them have been re-found after recording gaps of between 56 and 172 years!

For example, *Vicia tetrasperma* (Smooth Tare) recorded in 1837 but then not again until 148 years later in 1985 and *Althaea officinalis* (Marsh Mallow) was first recorded in 1843 but then not until 172 years later in 2015. Other recent discoveries have been of *Persicaria vivipara* (Alpine Bistort) first recorded in 1959 and not again until 2015, and *Datura stramonium* (Thorn-apple) first recorded in 1897 then not until August 2017 (by Anna White).

Interestingly some discoveries have been made very close to the original sites variously suggesting long establishment and successful regeneration, or survival from a persistent seedbank and few repeat visits to these sites!

Peeblesshire Plants 2017 (v.c.78)

Luke Gaskell

I have again attempted to record in the less visited squares across Peeblesshire and I am exhibiting some of the new records made this season.

Milium effusum (Wood Millet) from Netherurd house policies. This grass was probably planted as food for game birds before the house was acquired by the Scouts and Guides.

Calamagrostis epigejos (Wood Small-reed): Found in a former Forestry Commission spruce plantation. The wet site has been replanted with mixed broad-leaves and *C. epigejos* may have arrived with the new trees.

Trifolium resupinatum (Reversed Clover). Flowers of this clover appear to be upside down with the keel above the standard. It is a Southern European species which is unlikely to do well in Scotland but is sometimes included in agricultural mixes.

Malva pusilla (Small Mallow): A probable seed impurity, there was a single plant growing in a field of swedes near Lyne. It is rare with only one record for

Scotland in the current date class.

Pilosella caespitosa (Yellow Fox-and-cubs) illustrates how persistent some non-natives can be. It was recorded at this single site near Peebles town dump up to 1978. Since then the dump has been closed and the area extensively landscaped with shrubs and trees. Housing and a re-cycling centre have been built and the Fox-and cubs has re-appeared on a verge. It doesn't seem to be spreading but it is not going away either.

Interesting finds in Selkirk and Roxburgh (v.c.79 & 80) RWM Corner

Selkirk, v.c.79

Calamagrostis x gracilescens (*C. canescens* x *stricta*, Purple x Narrow Small-reed), a further large scattered population of this rare hybrid grass was found to the east of Clearburn Loch.

Myosotis stolonifera (Pale Forget-me-not), from the upper Douglas Burn, Yarrow. Limited to the south-east corner of Scotland reaching as far north as the Pentlands. Relatively common in v.c.79 but less so in v.c.80.

Sisymbrium orientale (Eastern Rocket), in an area of sown grass just inside v.c. 79. L. W. Gaskell 2017. First v.c. record since Miss Hayward's of 1909.

The following were seen at Bowhill on the BSBI Selkirk meeting:

Brachypodium pinnatum (Tor-grass), a strong trackside colony first noted in 1994. It appears to be the commoner ssp. *rupestre* which has hairless upper leaf surfaces.

Festuca heterophylla (Various-leaved Festuca), an introduced densely tufted woodland grass with both fine basal leaves and broader culm leaves. The hairy apices of the ovaries are diagnostic.

Lepidium didymum (Lesser Swine-cress), an annual species of disturbed ground of casual occurrence. Not seen in the vice-county since Ida Hayward's record of 1908.

Roxburgh, v.c.80

Polygonum rurivagum (Cornfield Knotgrass), a second vice-county record from a stubble field at Jedfoot.

Denholm's Flora through the ages (leaflet) (v.c.80) Michael Braithwaite

The range of plants cultivated in Denholm has changed from generation to generation and some of those which have found a home 'over the garden wall' are so well naturalised that it is hard to recognise that they were ever cultivated. The leaflet exhibited was prepared for an exhibition of the village's history to present light-hearted accounts of five of these incomers in the hope of giving an insight into their histories in the village.

Highlights and Progress in Midlothian (v.c.83)

Barbara Sumner

The highlight of 2017 was a new species for v.c.83, *Blackstonia perfoliata* (Yellow-wort). A few plants were spotted on the eastern sea wall at Leith Docks on 28th May by Stuart Maxwell, on a TWIC/RBGE excursion. On 18th June Stuart found hundreds more plants further along the wall. Had they come from East Lothian, or further afield? Another highlight is the discovery of a second plant of the rare hybrid spleenwort, *Asplenium x murbeckii* (*A. ruta-muraria x septentrionale*) at a new site on Arthur's Seat, not far from the first site. Although small on 1st March 2009, when found by David Soden, the new plant now has >20 fronds (photos exhibited).

Progress towards Atlas 2020 is shown by a coverage map (in monads), and by distribution maps for selected taxa (showing presence in monads). Distribution pre-2000 is compared with distribution from 2000 to 2017. *Hyacinthoides non-scripta* (Bluebell) has apparently occupied fewer monads from 2000 to 2017, whereas *H. x massartiana* (*H. non-scripta x H. hispanica*) has become more widespread. *Silene dioica* (Red Champion) appears unchanged, but *S. vulgaris* (Bladder Champion) has decreased. In contrast, *S. latifolia* (White Champion) and *S. x hampeana* (Pink Champion) have increased. Are these local or general trends?

Records for Fife and Kinross (v.c.85)

Sandy Edwards

Trifolium incarnatum subsp. incarnatum (Crimson Clover) is a new record for vc85 (Fife & Kinross). Crimson clover used to be widely grown as a protein-rich forage crop for cattle and other livestock. In Great Britain it was mostly grown in the south as it is less successful in northern regions. It is commonly grazed by domestic and wild ruminants. In the wild it can typically be found in forest margins, fields and roadsides, but in Scotland, and particularly in the north, it is rarely found (only 3 other records north of the Forth-Clyde line).

Cymbalaria pallida (Italian Toadflax), an overlooked plant? It was first recorded in vc85, Fife & Kinross, two years ago as a small patch in a wall in Craighrothie village. This *Cymbalaria* is not trailing and forms a small clump with large flowers. Its habitat is the same as *Cymbalaria muralis* (Ivy-leaved Toadflax) but it only seems to appear as a few very small plants. All these areas have a very large population of *C. muralis* as do many old walls and sides of buildings, so unless everywhere is searched *C. pallida* is probably missed. This year two more sites were found, both incidentally whilst out on a walk, at Cupar and Ladybank, a matter of scrutinising walls as you pass by!

Frangula alnus (Alder Buckthorn) Is it native in Scotland? Philip Sansum

Many Scottish recorders will be unfamiliar with Alder Buckthorn (Rhamnaceae: *Frangula alnus* Mill.). In Scotland it is a scarce plant of damp,

acidic (and often peaty) soils. Its habitats include lochshore carr, scrub on the margins of raised bogs and valley mires, wet heath and open woodland. The native distribution of this small, 'seldom recognised' (to quote the forester, H. L. Edlin) tree is said to have been masked by historical planting and the species has conventionally been regarded as 'introduced' in Scotland.

This exhibit aims to draw the attention of Scottish recorders to the plant, raise the question of its status and identify a need for more information. Currently, evidence against *Frangula alnus* being a rare native on some of its Scottish sites seems inadequate and this may have implications for its treatment and that of its habitats.

Eighteen years of vegetation change in a tall-herb community free from large herbivores at Ben Lawers (v.c.88) Dan Watson, NTS

The NVC type U17 tall herb community is an important refugia for rare upland calcicoles but is usually restricted to cliff ledges because of grazing. In 2000 a fence was erected around Creag an Lochain (Ben Lawers) to remove large herbivores from an extensive montane site containing outcrops rich in tall herbs. Vegetation data collected in 1999 during a baseline survey of plots in the ground below the crags has been compared with a re-survey in 2017.

Species diversity has not changed although total species richness has declined slightly and tall herb species richness has risen. There has been an expansion in the cover of tall herbs from 4% to 34%, smaller increases in the cover of bryophytes and small herbs, a reduction in bare ground and a large decrease in grass cover by 26%. The community composition has shifted significantly from species typical of upland grassland NVC habitats CG10, CG11 and U4 towards those found in U17 tall herb communities. Grazing tolerant grasses and low-growing or rosette-forming herbs which require gaps in the vegetation have declined, while tall and shade-tolerant species have increased. Competition for light, rather than resilience to herbivory, now has a major influence on the vegetation.

***Sedum villosum* L. on Ben Lawers (v.c.88) Dan Watson, NTS**

Sedum villosum (Hairy Stonecrop) is Nationally Scarce and Near Threatened, with declines attributed to drainage, burning, under- and over-grazing and possibly atmospheric pollution. A survey of this plant at Ben Lawers in 2017 aimed to re-find old records and make new ones. It was found to have disappeared from a number of locations but there were also a number of new records. However, it became evident that extant populations are all at a high altitude and mostly in areas of long snow-lie whereas many of those not re-found were at lower altitudes and less likely to be in areas of long snow-lie. The lowest population found was discovered to be higher than any other rec-

orded *S. villosum* in Britain. The evidence that climate change is responsible for the losses on Ben Lawers raises the possibility that the plants here may be of a different ecotype.

***Cirsium x wankelii* (*C. heterophyllum x palustre*), a distinctive hybrid
(v.c.89 & 90) John Edgington**

In July 2017 Fred Rumsey showed me this hybrid between perennial *Cirsium heterophyllum* (Melancholy Thistle) and biennial *C. palustre* (Marsh Thistle) at Kindrogan Field Centre, where it has been known for many years, behaving as a perennial but otherwise intermediate in stem, leaf and inflorescence characters. The differences are so distinct that in August I had no difficulty in finding two colonies of *C. x wankelii* in damp birch wood (NVC W11c) beside the River North Esk in Angus (v.c.90). Both parents were abundant, as was *Filipendula ulmaria* (Meadowsweet), *Conopodium major* (Pignut) and *Melampyrum pratense* (Common Cow-wheat). In the past *C. x wankelii* was recorded quite widely in Scotland, but there are rather few records this century, with only half-a-dozen or so since 2010. It seems to be largely absent from northern England (the southern part of *C. heterophyllum*'s range). According to Kevin Walker in *The hybrid flora*, *C. x wankelii* is partially fertile and may be overlooked. It should be searched for wherever the two parents grow together.

Photographs of whole plants, samples of basal leaves, and a table comparing the hybrid and its parents are shown.

New help with Scaly-male ID (from Tony Church) Angus Hannah

Specimens and photographs demonstrated an additional character to help with identification in the *Dryopteris affinis* complex. The technique can confirm *D. affinis subsp. affinis*, and offers some help with the other taxa. It is especially useful for otherwise indeterminate young plants.

Pinnule venation viewed through a lens against the light provides valuable diagnostic information. A single infertile pinna from the lower part of the frond should be viewed with the upper surface towards the eye. In *affinis subsp. affinis* the pinnule midrib and all lateral veins appear perfectly translucent and of consistent breadth to the margin of the lamina. In *borreri* and *filix-mas* only the midrib is semi-translucent, and often becomes obscure towards the tip; lateral veins are hard to see for much of their length because rows of green cells within reduce the area of translucency. *Cambrensis* is intermediate in these respects, but laterals usually appear to reach the margin, often broadening out there into an obovate translucent area.

[See photos on inside back cover and note on page 12 for more details]

Towards a handbook of Scottish Brambles

Angus Hannah

Most recorders tick off *Rubus fruticosus* agg. and then ignore brambles for the rest of the day. Why? Because they believe they are too difficult and best left to experts. I do not agree. Only about 30 species are frequent anywhere in Scotland, and with a little help any competent recorder can learn to identify the handful common in their own area. This exhibit looks at ways to overcome the obstacles which discourage folk from making a start.

Lack of a Scottish handbook, or online equivalent, is a major hindrance. Eedes and Newton's monograph is 30 years old, expensive and difficult to obtain, illustrates less than a third of species, and is 80% irrelevant in Scotland. So, what can be done instead?

The following are exhibited:

1. Sample pages towards a reference guide to Scottish Rubi, with text and photos illustrating diagnostic features for each taxon.
2. A spreadsheet of confusable species pairs, listing distinguishing characters, for use in the field.
3. A card for completion in the field on encountering an unidentified bush, to complement or substitute for photos.
4. A reference spreadsheet of character states for all Scottish taxa.

Recording Strategy – a summary of the experience of one recorder

Brian Ballinger

Winter/Summer: Ten sites were visited in winter and summer and supplementary winter recording appeared to be worthwhile.

Monad/Tetrad: A survey of 4 sites suggested that an examination of one monad may yield more than a visit of the same duration to the corresponding tetrad.

Duration of Visit: 2 shorter visits to 4 sites indicated that more species may be found than on a single visit to the same sites of the same total duration.

There and Back: 6 linear sites were recorded and extra species were seen when returning to the starting point.

Notebook or Form: Four locations were assessed for a half hour using a notebook and recording sheet alternately and more species were recorded in the notebook.

Single or Group: A retrospective review of one monad which had been recorded by several single recorders and groups suggested the groups may spot more taxa.

These projects report the limited experience of one recorder and others may

obtain different results. I suggest that it is important to assess our recording methods.

West Sutherland (v.c.108)

Ian Evans and Gwen Richards

Recording during 2017 focused on the eastern part of the vice-county, from a temporary base at Tongue. This yielded some 3500 records from remote monads, with a further 1400+ from nearer home. Noteworthy finds have included the following:

Probable *Salix phylicifolia* (Tea-leaved Willow) on an island in Loch Urigill (NC2409); if confirmed, the first recent record for v.c.108.

A flourishing population of *Goodyera repens* (Creeping Lady's-tresses) at Tongue (NC5959) previously recorded in that vicinity in 1897 and 1958.

Large stands of *Vicia sylvatica* (Wood Vetch) on the sandy cliffs at Melvich Bay (NC8865).

A new site for *Lemna gibba* (Gibbous Duckweed) in a 'natural' pool on the outskirts of Lochinver (NC0822).

Phil Smith also provided photographs of hybrid orchids found at Faraid Head (NC3970) and Oldshoremore (NC1959/2059), together with other records.

Thanks also to Bill Badger, Stephen Moran and Ro Scott for their contributions.

Vivipary in *Holcus lanatus*

John Grace

We report the appearance of a pseudoviviparous form of *Holcus lanatus* in Scotland. Although there are many cases of pseudovivipary in the Poaceae, the only previous report in *Holcus* is from Arber (1934) who found a specimen in a hedge at Lyme Regis, Dorset.

***Baldellia* (Lesser Water-plantain) species/subspecies** **Richard Marriot**

The differences between the two species/subspecies of *Baldellia* (*B. ranunculoides* subsp. *ranunculoides* and *B. ranunculoides* subsp. *repens*) are shown with drawings, photos and live specimens. The two taxa are considered to be separate species by Arrigo et al (2010) with differing ecology and different life strategies. They have recently undergone a serious decline across their whole range and are classed as "Near threatened" in GB and "Vulnerable" in England. The U.K. has a significant responsibility for their conservation; so it is important to identify them as to their individual taxa - be it species or subspecies. So far in Scotland *repens* has proved to be the rarer taxon, being found only in the Tay catchment, with an 1893 well-documented report from the Beaully River (possibly still present 1947).

Deergrass identification:

Jeremy Roberts

Two distinct species, *Trichophorum germanicum* (Common Deergrass) and *T. cespitosum* s.s. (Northern Deergrass), but a troublesome, abundant hybrid, *T. x foersteri* (Hybrid Deergrass)

If you have found indisputable Northern Deergrass, then the hybrid is very likely to be also present. Northern Deergrass occurs in wetter sites, often in runnels in deep peats of valley, basin, and raised mires. However, it occurs also in a very different habitat, calcareous seepages, in northern England, central and northwest Scotland, as so far known. The hybrid can be abundant and dominant across various types of mires. Common Deergrass is usual on shallower peats, e.g. typical blanket bogs, and often very sparse out on pristine deep-peat mires, occurring on the margins. It can invade damaged and drained mires, as Northern Deergrass declines or disappears.

The Hybrid Deergrass is completely sterile, so that by mid-summer all stems have distinctively 'bare tops' with only bristles and filaments remaining. Plants with ripening nuts must therefore be one or other species - and these can be readily separated by the great difference in upper leaf-sheath opening dimensions and angles. (Aborted heads of either species tend to retain the glumes much longer than does the hybrid, which may be a pointer.)

Fruit-set is however very variable. In the absence of nuts, you must look more closely at all available features. A stem section will usually confirm the identification, with the size of sub-stomatal pits and the presence/absence and sizes of patches of clear tissue in the green areas being critical. Visit this website for a full exposition, downloadable explanatory diagrams, and field guides: <http://www.edencroft2.co.uk>

Hybrid Ivies

Alison Rutherford

Vigorous hunting failed to find a hybrid ivy for the 'Hybrid Flora' despite a US researcher publishing her finds in 2005.

The same hybrid Irish Ivy (*Hedera hibernica* 'Hibernica group' x Common Ivy *H. helix*) was found in the Soroksar Botanical Garden, Budapest, now named *H. x soroksarensis*.

Hugh McAllister saw a likely cross between Irish Ivy and Algerian Ivy, *H. algeriensis*, in California in 2013. In 2015 he spotted a colony over gravestones near Liverpool Anglican Cathedral. It is named *H. x sepulcralis* (graveyard ivy).

Living samples of the hybrids and the species are displayed.

Taraxacology: trending on social media!

Leslie Tucker

May 3rd 2017, heading west for BSBI's annual 'Dandyfest' in Rothesay, I paused at Aberfeldy for a 150th anniversary meeting of PSNS. BBC Radio Scotland reporter Mark Stephen caught me studying wayside *Taraxacum* (Dandelion, P-a-bed) flowers and elicited *ad hoc* observations. Of course, he also gathered other members' diverse contributions; but, the subsequent Out of Doors broadcast most spectacularly promoted taraxacology. Weeks later, digitally-adept relatives revealed many favourable on-line comments: print-out displayed.

On Bute we encountered pastoral landscapes remarkably lacking *T.* section *Ruderalia* (D. Weed Sorts); consequently, nicer species typical of biodiverse, wild, habitats were prominent, like *T. celticum* (Celtic D.) and *T. saxorum* (Rocks' D.). Jizzes fixed, more were identified back home later, in unkempt herbage on Dundee Riverside - all new records for Scotland!

Background to Facebook photo includes *T. polyodon* (Common D.): "terminal lobe on early (outer) leaves ... small and triangular, ... later (inner) ... larger, dentate and divided: ... heterophyllous." Diagnostically, whilst *T. saxorum* (Rocks' D.) leaves stay patently and laxly dissected - homophyllous, *T. celticum* (Celtic D.) lobes attenuate, "narrow ... forward-pointing", contrariwise.

Pot plants and herbarium specimens exhibit distinctions; but more coherently descriptive terms are needed.

Edible Mountain Plants

Alan Walker

The obvious example of an edible plant to be found on moorlands and mountains of Britain and Ireland is the *Vaccinium myrtillus* (Bilberry) but what about the other ". . . berry" plants that botanists and hill walkers come across? Are cowberries different from crowberries, are either of them edible, and so on? This poster provides photographs and text to show the easily recognised differences between fruits, flowers and leaves of bilberry, cowberry (*Vaccinium vitis-idaea*), crowberry (*Empetrum nigrum*), bearberry (*Arctostaphylos uva-ursi*), and cloudberry (*Rubus chamaemorus*). Some of these species grow so prolifically in parts of their range in Europe that they are part of the local cuisine, so a few tasting notes are provided, but no recipes.

New data on the distribution of polyploid *Campanula rotundifolia* in Britain & Ireland

Julia Wilson and Chris Jeffree

There are two cytotypes of *Campanula rotundifolia* in Britain and Ireland. Broadly, these are eastern tetraploids (68 chromosomes) and western hexaploids (102 chromosomes), that correspond with *C. rotundifolia* subsp. *rotun-*

difolia and subsp. *montana* respectively (Stace 2010). This year, about 250 new samples have added detail to the Scottish distribution maps and identified extensive new hexaploid populations in VC 106 and 107.

Our molecular studies demonstrate that most hexaploids on the Scottish mainland and islands, western England and Wales, and Ireland are similar to each other and distinct from the British tetraploids. This indicates that establishment of these hexaploid populations preceded separation of these land masses by sea level rise c 16000 years BP. Invasion of tetraploids from the continent could have continued until about 8000 years BP, when Britain was finally isolated from Europe by sea-level rise.

The two cytotypes do not usually co-exist, possibly because the patterns laid down by post-glacial colonization events 8 - 16000 years ago are now maintained by geographic isolation and reproductive barriers, but climatic or geological factors may also be involved. However, hexaploids from the lead mining areas of Alston, Teesdale and Wensleydale in England and Wanlockhead in Scotland co-exist with tetraploids and are genetically similar to them. These hexaploids should probably be considered as distinct from *C. rotundifolia* subsp. *montana*.

BSBI / Plantlife Plant Families Workshops 2017

Faith Anstey

We held three workshops this year, including two Plant Families with the same format as before, at Eglinton Country Park and Glasgow Museums Resource Centre. We had mainly new tutors this year, but the format is well enough established that they had no difficulty in doing the same great job as ever in teaching and motivating the participants; as always, the evaluation responses were overwhelmingly positive.

We also held a new Grasses workshop at Holyrood Education Centre aimed at people having a basic knowledge of field botany but not confident identifying grasses, one main problem being '*kleidophobia*' - a fear of keys! So the approach was to confine it to the 20 most common grasses of neutral grassland, using lots of hands-on practice and this proved very successful.

Next year we hope to hold two Plant Families and two Grasses workshops, in different parts of Scotland from before.

British Pteridological Society (for fern enthusiasts) Heather McHaffie

The British Pteridological Society has a Scottish group that both visits ferns in the wild and enjoys cultivating them in our gardens. A sign-up sheet is provided for people who are very welcome to join in our visits. Specimens and ID assistance are provided for some *Dryopteris* species.

Botanical Society of Scotland

Julia Wilson

The BSS is Scotland's national botanical society and promotes the study of non-flowering plants and algae, fungi and lichens as well as flowering plants. In this broad scope we are unique among British botanical societies.

We run a programme of monthly lectures from September - May, together with a summer programme of field meetings. We also publish a twice-yearly newsletter, BSS News, and a scientific journal, Plant Ecology & Diversity. Our current field project is the BSS Urban Flora project, in which we are recording wild plants occurring in urban Scotland.

Membership is open to anyone with an interest in plants, whether professional or amateur. Come to our stand to find out more about the Society and our activities, and purchase some botanical cards and gifts. Check out our website at <http://www.botanical-society-scotland.org.uk/> and our Facebook page.

BSS Urban Flora Survey - Kingussie and Aviemore

Chris Jeffree

BSS is studying naturalized plants growing in urban environments across Scotland with populations greater than 1000. A September survey by 14 members based at Insh in Inverness-shire recorded lists of between 70 and 110 species of higher plants as well as bryophytes and fungi, from individual sites in Kingussie and Aviemore. These sites are essentially ephemeral but can be relatively rich in species, reflecting plant successions from open ground following inevitable human disturbance due to site development.

Botanical Society of Britain and Ireland (BSBI)

Jim McIntosh

The BSBI is the leading organisation for amateur and professional botanists in Britain and Ireland.

- We promote the study of, and interest in, the British and Irish vascular plant flora
- We support and encourage, carry out and participate in research into the taxonomy, ecology, biogeography and conservation of our flora.

If you are not already a member of the BSBI - and would like to support and participate in our work - please join us! Pick up our membership leaflet and ask me, Jim McIntosh if you have any queries about joining. There is no better way to improve your field skills than by going on our field meetings & workshops. BSBI membership is also a great line in your CV if you are looking for related work.

A range of leaflets, including the most recent BSBI Annual Review and BSBI News are available to take away; and recent issues of BSBI Scottish News-

letter, New Journal of Botany and other BSBI publications are displayed. I would be pleased to supply promotional material to anyone who plans to go to events, such as conferences or workshops, which potential new members might attend. Check out the BSBI Scottish webpages on www.bsbi.org/scotland.

BSBI Photographic Competition

Natalie Harmsworth

A fantastic 117 entries to the 2017 BSBI Photographic Competition are on display. Vote for your favourites in each of the two categories: “Plants in the Landscape” and “Archaeophytes”. The winning photographers will be announced after the main talk and, if present, will be awarded their prizes. The winning photographs will be displayed at the prize giving and will also appear in future BSBI publications. [*See editor’s selection ‘best of the rest from Scotland’ on front and back covers*]

BSBI Plant Identification Table

Douglas McKean

A great opportunity to get expert help with identification with so many experts in the audience! Remember to bring your specimens and hand-lens!

BSBI New Year Plant Hunt

Louise Marsh

A summary of what we have learned from six years of BSBI’s New Year Plant Hunt, which takes place across Britain and Ireland. We flag up under-recorded areas in Scotland and reveal the dates for New Year Plant Hunt 2018.

The BSBI / iRecord plant card:

Capturing data from square-bashing online

Oliver Pescott

This poster will introduce a new interface to iRecord, developed by the BRC with BSBI input. The format of the data entry system is designed to capture the results of “square-bashing” or similar activities. Options for capturing indicators of survey effort and plant status are also integrated into the system.

Three years of the NPMS in Scotland

Oliver Pescott

This poster will overview the impressive efforts of Scottish plant surveyors in contributing to our knowledge of Scottish habitats and plants through the BSBI/CEH/JNCC/Plantlife National Plant Monitoring Scheme.

Plantlife Scotland and NPMS (National Plant Monitoring Scheme)

Robin Payne

Contact - scotland@plantlife.org.uk and (01786) 478509.

RBGE Library Lorna Mitchell, Head of Library, Archives & Publications

The Library of the Royal Botanic Garden Edinburgh (RBGE) is Scotland's national reference collection for specialist botanical and horticultural resources. With more than 60,000 books, the earliest of which dates back to the 15th century, 150,000 journal volumes, maps, nursery catalogues, botanical art, photographs and *hortus sicci* the RBGE Library is one of this country's largest research libraries. Subjects covered include systematic botany, floras, plant biodiversity and conservation, economic botany, medicinal plants, botanical illustration, plant collecting and botanical history and biography.

The RBGE Archives holds manuscripts, images and photographs relating to the history of the Garden from its beginnings in 1670 to the recent past. The collection also includes correspondence and diaries relating to plant collecting in India and China in the 19th and 20th centuries, for example papers relating to George Forrest and Joseph Rock.

The Library is open for anyone to use on a reference-only basis from 10am to 4pm, Monday to Friday. Access to the Archives and Special Collections (Rare Books collection, Illustrations, Nursery Catalogues, etc) is by appointment. The Library catalogue is available to search at <https://rbge.koha-ptfs.co.uk/> and a collection-level listing of the Archives can be found at <http://atom.rbge.info/>.

RBGE Herbarium Elspeth Haston, Deputy Herbarium Curator

The Herbarium of RBGE currently houses 3 million specimens, of which we estimate that over 500,000 were collected in Britain and Ireland. These specimens are an incredible resource for botanists for a wide range of scientific research and we have many researchers from UK and from around the world coming to work with the collections. They represent over 300 years of plant and fungal diversity, including many rare or extinct species. We welcome more Scottish botanists to use these collections and we are also working to make them more accessible through digitisation. There are now over 100,000 specimens catalogued from Britain and Ireland of which nearly 26,000 have been imaged. They are available on the Herbarium Catalogue at <http://data.rbge.org.uk/herb>. If you are interested in coming to use the collections please contact us at herbarium@rbge.org.uk. You can also follow us on Twitter @RBGE_Herbarium.

Scottish Natural Heritage: Habitat Map of Scotland Iain Macdonald

This recently produced map is displayed.

Annual Reports from Vice-county Recorders 2017

Dumfriesshire (vc72) *Chris Miles*

Good progress was made with Atlas 2020 with 6500 records entered. More than 50 records were collected from 38 tetrads, 29 of which were monads. Smaller numbers of records were also gathered from 110 other monads including some significant refinds and new species. Progress has continued to focus on those hectads where either less than 70% of all species recorded have been recorded post-2000 (now 8 between 65% and 70%, and 3 below 65%) or where the percentage of species refound is below 70%.

Some significant finds in 2017 were displayed at the Scottish Annual Meeting. The first find for 120 years of *Radiola linoides* (Allseed) and *Frangula alnus* (Alder Buckthorn) were particularly good. Two new sites for *Gnaphalium sylvaticum* (Heath Cudweed) was also significant as was a new *Equisetum pratense* (Shady Horsetail) population in the Moffat Hills.

New to Dumfriesshire this year were *Melilotus altissimus* (Tall Melilot); one population in a natural site across the Solway from Cumbrian populations, *Crassula tillaea* (Mossy Stonecrop) on 2 lay-bys a long way from its nearest record, and *Senecio inaequidens* (Narrow-leaved Ragwort) as a casual.

I finally tackled my collection of *Hieracium* from the last 15 years and then had David McCosh look at them. He determined one new species for the VC, *Hieracium beebyanum* (Beeby's Hawkweed), and some good refinds/gaps filled.

I supported the Identifying Plant Families workshop in May and will run this in Dumfries in 2018. Also in 2018, I am planning to start a local recording group for Dumfriesshire.

Kirkcudbrightshire (vc73) *David Hawker*

Despite a decidedly cool, wet year, c.130 monads were recorded in 25 hectads, mainly in the south & central parts of the VC. c.7500 records were entered into MapMate, from many contributors - especially Nick Stewart, the Kirkcudbrightshire Botany Group (KBG), several visiting VCRs and BSBI members - grateful thanks to all! Highlights were *Datura stramonium* (Thorn-apple), *Vicia tetrasperma* (Smooth Tare), *Teesdalia nudicaulis* (Shepherd's Cress), *Pyrola minor* (Common Wintergreen) at several new sites, *Carex magellanica* (Tall Bog-sedge), *Hymenophyllum wilsonii* (Wilson's Filmy-fern), *Seriphidium maritimum* (Sea Wormwood) (LR), *Carex punctata* (Dotted Sedge) (NS); non-natives *Galinsoga quadriradiata* (Shaggy-soldier) and *Solanum nigrum* (Black Nightshade) both at several urban sites, *Luzula luzuloides* (White Wood-rush) - 2nd VC record, and NCRs for *Phormium tenax* (New Zealand Flax), *Taxus x media* (hybrid Yew) and *Allium roseum* (Rosy

Garlic).

The Kirkcudbrightshire Botany Group held 13 meetings between March-October - the 2018 programme is in preparation. Following a KBG field visit, the MOD Kirkcudbright Training Centre's RPR was updated, with new sites for *Centaureum littorale* (Seaside Centaury) (NS), *Polygonum oxyspermum raii* (Ray's Knotgrass) (NS), *Ligusticum scoticum* (Scots Lovage) (LS), and *Sherardia arvensis* (Field Madder) (LR). The group surveyed RSPB Mersehead's recent land acquisition, monitoring one of only two *Thelypteris palustris* (Marsh Fern) colonies in Scotland and recording all species. A report was submitted to support development of a site management plan. A fern training day for the local Community Woodlands Trust attracted 15 people, mainly volunteers.

Ayrshire (vc75) Dave Lang

With two recording trips per month and some people outwith our core group now submitting additional records, we are starting to feel that at least there might be no embarrassing Ayrshire gaps in Atlas 2020.

We created more records in 2017 than in any year other than 2015 when we held the Ayrshire Atlas Recording Week. These included 10 new records for County Rare species - including some Red List species such as *Pseudorchis alba* (Small-white Orchid) and *Minuartia verna* (Spring Sandwort).

Disappointingly our advertised BSBI field weekend in 2017 was very poorly attended compared to previous Ayrshire field-meetings. Perhaps the unavoidable focus on Atlas square-bashing over particularly interesting sites put people off - something we will have to think about if we need help to fill in final gaps. It was still a success in terms of recording though, including the location's first record for *Paris quadrifolia* (Herb-Paris) in over 25 years.

In May, we were involved with the Identifying Plant Families Workshop at Eglinton Country Park - which I thought was a great success for participants and tutors alike.

As we've begun to get to grips with record validation on the Database, it has been frustrating to find many important detailed records of notable species that have been externally rejected as 'inferior duplicates' in favour of very general hectad date class records. We feel that it is important to retain grid references, dates and recorders for important records. We would therefore hope that we will be permitted to reinstate such records where appropriate.

Renfrewshire (vc 76) Keith Watson

There has been only a small amount of progress as regards species recording over the last year, with just under 2000 new records made or received. There is growing interest from local groups such as in Glasgow and the Inver-

clyde Pollinator group (a well-attended evening walk with the latter group took place in June), which will hopefully start to generate more active local recording in the near future.

The records from the Biobase database used for the Flora of Renfrewshire (2013) are still in the process of being transferred to the BSBI database, so that the data can be transferred to MapMate and can be used for editing, validation and the transferring in of more recent records.

Any local botanists who are interested in getting involved with Atlas recording in the coming year will be welcomed, so please get in touch!

Lanarkshire (vc77) *Michael Philip*

2017 has been a year of 'doing things differently' in Lanarkshire. We have developed a big network of people interested in field botany and got lots of 'boots on the ground'.

There are currently 58 people in our growing network. 28 were active within our programme of around 40 outings, while others contributed records of their own. As a result, over 15,000 records have been made and uploaded, including over 800 distinct taxa, in the year. 240 monads have had new records added.

This surge in activity means we can contemplate bringing every Lanarkshire hectad up to Atlas 2020 data thresholds by the end of 2019. We are enjoying recording in many of the unrecorded areas of the vice-county, but we are also very focused on doing the 'hard yards' of refinding 75% of the extraordinary (huge) species lists within the City of Glasgow (hectads NS56 & NS66). Steady progress is being made on all these fronts: we are a big team of enthusiastic and motivated people!

One especially interesting phenomenon was noted in the autumn: an epidemic spread of *Lactuca serriola* (Prickly Lettuce) in urban Glasgow. Before 2017, there were just 8 records of this taxon in vc77 (and just 18 elsewhere in Scotland) - but during recent months we have recorded it 53 times, in 23 different monads from Braehead to Cambuslang.

Another busy programme of outings is being developed for 2018 whilst all digitisation is complete to date: the main data challenge now is validation.

Peeblesshire (vc78) *Luke Gaskell*

4138 new records were made in 2017 at monad level or better with 32 monads surveyed. I am hopeful that all hectads in the VC will be adequately sampled by 2019. All the records have been digitised and a tentative start made with verifying them in the DDB. It has been a productive year with a good number of new records along with refinding some significant old records, and

a number of these were exhibited at the autumn meeting. Highlights of the native plants included *Gymnadenia borealis* (Heath Fragrant-orchid), new in the south of the VC. Additional sites were found for *Galium boreale* (Northern Bedstraw), *Rubus saxatilis* (Stone Bramble) and *Vicia sylvatica* (Wood Vetch), all uncommon in Peeblesshire, together with a new site for *Allium scorodoprasum* (Sand Leek), which had no records in this date class.

I have been recording well-established trees even though most of these will have been planted. New records included *Cornus mas* (Cornelian-cherry), *Crataegus x media* [*C.monogyna* x *C.laevigata*] and *Tilia x euchlora* (Caucasian Lime). Well-naturalised introductions included *Convallaria majalis* (Lily-of-the-valley) and *Milium effusum* (Wood Millet) in old policy woodland, while aliens with unpronounceable names *Campanula portenschlagiana* (Adria Bellflower) and *Campanula poscharskyana* (Trailing Bellflower) are well established on urban walls but have not previously been recorded.

In addition to recording in Peeblesshire and elsewhere in Scotland, I have given a talk at the TWIC autumn meeting, attended Scottish Borders Council meetings on Local Biodiversity Sites, and I lead Plant Identification field work for Napier University students.

Selkirkshire (vc79) Rod Corner & Jeff Waddell

Selkirkshire, often the neglected of the two vice-counties, received a special effort this year with a two-day BSBI recording meeting attended by 14 and an increase in informal recording. This resulted in the collection of 3,370 records in 2017, the highest annual total ever for the county. The Selkirkshire meeting recorded in nine under-recorded or not previously recorded tetrads and generated just under 2,000 records, a full report is given in the BSBI year-book.

Martin Moncreiff and Sarah Eno undertook recording in three tetrads collecting 330 records. Jeff and his informal botany group recorded in six tetrads adding about 1,000 records including *Thalictrum minus* (Lesser Meadow-rue) at its only county site. A particular effort this year was made to refind *Juniperus communis* (Common Juniper) at its native sites and this species was found in three tetrads, one healthily regenerating population on Bowerhope Law, St. Mary's Loch numbering about 24 bushes.

Roxburghshire (vc80) Rod Corner & Jeff Waddell

Fewer records were collected in Roxburghshire this year than usual, 3,458 records in total, due in part to focusing on Selkirkshire. Michael Braithwaite collected about 920 of these, mostly from villages and towns particularly Ancrum, Liliesleaf and Jedburgh. Luke Gaskell also made a significant contribu-

tion with about 500 records, mostly from St Boswells. Jeff hosted trips with his local informal botany group, covering about 11 tetrads in total during the year. Martin Moncrieff refound *Gagea lutea* (Yellow Star-of-Bethlehem) at Kelso after a gap of twelve years in the hectad and Jeff added *Scleranthus annuus* (Annual Knawel) new to the hectad at Frogden. Roger Manning found a new site for *Allium scorodoprasum* (Sand Leek) at Crookhouse, Morebattle as well as refinding it near Primside Mill. The curious introduced *Leucothoe fontanesiana* (Dog-hobble) was identified by John Poland on a remote forest trackside.

Rod has been validating all the vice-county records held by TWIC, uncovering good new records and some highly suspect ones and obvious errors, which have now been highlighted. Rod continued to attend TWIC meetings giving botanical input into the selection of Local Biodiversity Sites. He also updated some of the records of rarer species, which are in reasonably accessible sites, and is working on his flora of the two vice counties, making good progress.

Perhaps the most significant piece of work this year was Michael Braithwaite and Jeff's work to complete the entry of Michael's records to the Roxburghshire and Selkirkshire databases. Just over 30,000 records of Michael's have been collated and entered for the two counties, the bulk of which are from Roxburghshire. These datasets include surveys of the Burgh of Hawick, the A7 road verges and the disused Waverley rail line. Finally, Jeff has begun planning for a 2018 BSBI Atlas recording meeting, based in Kelso.

East Lothian (vc82) Helen Jackson

I was able to do more fieldwork this year, and found white-flowered *Geranium robertianum* (Herb-Robert) spreading from a neglected yard, and *Rumex x pratensis* (Curled Dock x Broad-leaved Dock), while recording in new monads. However, gap-filling expeditions were less successful – *Geum* (Avens) species had not produced a hybrid and *Zannichellia palustris* (Horned Pondweed) had gone.

I'm very grateful to everyone who has sent me records, which include *Viscum album* (Mistletoe), NCR, and *Orobanche minor* (Common Broomrape) – though only verbal news of this so far – a second VC record. Particular thanks go to Marion Moir who contributed >3000 records from 34 monads. *Carex x fulva* (Tawny Sedge x Long-stalked Yellow-sedge) is new.

East Lothian is actually better recorded than it appears, although more recording is needed of course. My main problem now is getting data entered and records, received in Excel, into MapMate, as I do not use a computer myself. Help that I've received with this has been much appreciated but

there is a lot more to do and I still need to extract some records from their original sources before they can be processed.

I was called upon to provide data on legally protected and notable species of conservation concern – mainly *Sinapis arvensis* (Charlock)! – within 2km of the Cockenzie Power Station site, for an ecological impact assessment. The Wildlife Information Centre's Spring Conference, the Scottish Annual Meeting, and BSBI Christmas Lunch have been good opportunities to keep in touch – and several people have offered help for 2018.

Midlothian (vc83) Barbara Sumner

In 2017, about 27 recorders have sent in 10,681 records, from roughly 175 monads in 16 hectads of Midlothian. More records are still to come. Some recorders undertook monad-recording, while others sent in casual records. Grateful thanks to all enthusiasts!

Gaps in monad-recording are mostly in hill districts, cattle districts, and at the edges of the vice-county. Bluebells need further scrutiny, and there are still rarities to refind. It is hoped to reduce the gaps with the help of volunteers.

Some botanical highlights were displayed in a poster shown at the Scottish Annual Meeting in November (see Abstract). Since then two further NCRs have been reported, *Ceratochloa carinata* (California Brome) at a field edge near Turnhouse, and *Saxifraga x polita* (False Londonpride) in a river gorge near Harburn.

Senecio inaequidens (Narrow-leaved Ragwort), was first recorded in Edinburgh in 2010, and has since spread around the city and beyond. By 2012 it had spread to Ratho, about 4 km west of the city by-pass. In 2017, dispersal has been spotted in a new direction, approximately 16 and 32 km south-east of the city by-pass, at Heriot and Bowland, on verges near the Borders Railway. Dispersal is probably helped by both road and rail traffic.

The VC recorder led botanical walks at the Duddingston Bioblitz (organised by the RSPB), contributed to surveys of Local Biodiversity Sites (LBSs) for The Wildlife Information Centre (TWIC), and continued to represent the BSBI on steering groups for LBSs, and for the Edinburgh LBAP.

Fife & Kinross (vc85) Sandy Edwards

Many photos have been put on Dropbox.

3190 records were collected in about 40 sites, mostly monads. There are a few gaps in West Fife, but these can be dealt with this year, some with visits with one or two people keen on recording.

The validation is going well and I now validate records as they are entered into MapMate. Field trips with a group of 6 people from St. Andrews took

place in order to practice using the Vegetative Key as well as some recording. In addition, record sheets were received from 4 people whose ID skills are reliable. I also tutored at the BSBI grass ID session at Holyrood as well as helping 4 students on the FSC online plant ID course, whilst I carried out work on a NPMS plot at Tentsmuir.

Liz Lavery and I tutored the University first year class for 3 afternoons on plant ID and the use of keys, and I assisted at a weekend to FSC Kindrogan with University honours students. I also advised the owner of the Anstruther estate on wildlife habitats as he is turning a lot of it over to wild areas and organic farming. Finally, I attend PSNS and BSBI committee meetings.

There were several significant finds during the year, including: *Trifolium incarnatum* (Crimson Clover) NCR (See SAM report), *Gentianella amarella* (& ssp *septentrionalis*) (Autumn Gentian & white form), *Cymbalaria pallida* (Italian Toadflax) (see SAM report), *Papaver argemone* (Prickly Poppy), *Rosa multiflora* (Multi-flowered Rose), *Valeriana pyrenaica* (Pyrenean Valerian), *Tulipa sylvestris* (Wild Tulip), *Trollius europaeus* (Globe-flower). The *Linnaea borealis* (Twinflower) found last year flowered profusely this year!

Stirling (vc86) Philip Sansum

8,700 records from 2017 fieldwork were digitised and added to the Stirlingshire database, with 19 individuals and 4 groups (Glasgow Botany Group, Glasgow Natural History Society, Lanarkshire BSBI Group, TWIC) being involved - thanks to all! Stirlingshire BSBI recorders also contributed vascular plant records to a Bioblitz at RSFS Cashel on Loch Lomondside and to recording in neighbouring parts of vc77 and vc87.

15 hectads had at least some 2017 recording and this resulted in 17 more tetrads reaching an 'adequately recorded' level in the current atlas period. A similar rate of increase is needed in 2018 and 2019 in order to meet Atlas 2020 targets and any botanist able to help is encouraged to do so. It is hoped to appoint a second recorder to assist in 2018 as the current VCR is no longer resident in Stirlingshire. The provision of pre-2017 records from the Scottish Saltmarsh Survey and from Ambrose Baker's NERC Hydroscape survey of central Scottish lochs this year is also gratefully acknowledged; both datasets give valuable help with Atlas 2020 coverage of under-recorded taxa and habitats in Stirlingshire.

An exciting discovery by Sarah Longrigg and Bill Parkes was two colonies of *Corallorhiza trifida* (Coralroot Orchid) in wet acid woodland near Glasgow. Clear-cut specimens of *Ranunculus fluitans* (River Water-crowfoot) were found by Matt Harding in the Bannock Burn - another pleasing native NCR. Various exotics, mostly in urban habitats, were also added to the county list. Other notables included the refinding of a fifty-year-old record of a colony of

Sedum villosum (Hairy Stonecrop) in the Campsies.

West Perthshire (vc87) *Liz Lavery & Jane Jones*

We made good progress recording for Atlas 2020. We led two PSNS meetings to under-recorded upland areas, Liz and Brian Ballinger led a BSS Urban Flora excursion to Alva and Tillicoultry, and, with a member of Woodland Trust staff, we recorded on Glen Finglas Estate.

Jane has entered over 4,000 records and Liz almost 8,000 with more still to enter. Thank you to everyone who has helped with recording in 2017! In particular, our thanks go to Matt Harding for a magnificent 4,055 records and to Adam Fraser for over 300 records. Also thanks to Richard Lansdown for a NCR, *Callitriche palustris* (Narrow-fruited Water-starwort) discovered while collecting for the Millennium Seed Bank. Jane has validated most of her records from 2008 onwards. Liz has yet to get going on this daunting task.

Overall tetrad coverage appears good, but is not so rosy on a monad basis. Help with gaps in remote inaccessible areas - the middle of the Ochil Hills, and the far north-west of the vice-county, would be much appreciated. Surveying lowland areas can also be difficult along busy country roads with no pavements or safe parking.

Beyond the Atlas, Liz and Jane have carried out vegetation monitoring near Callander for the Callander Development Trust. Jane is trying to raise the profile of alien plants in the Strathard area and encourage action by Forestry Commission Scotland and Loch Lomond & Trossachs National Park. Liz continues to work with TWIC monitoring LNCS for Clackmannanshire Council. Highlighting important habitats for conservation is a priority for us both. Our RPR, completed several years ago now, needs updating.

Mid-Perthshire (vc88) *Alistair Godfrey & Jim McIntosh*

Over 9,000 records were collected and digitised in 2017 in the county. Alistair is concentrating on tetrads that have never been recorded before - and recorded 11 previously unrecorded tetrads with good numbers of records in each. Two were covered with the Perthshire Society of Natural Science and one by Matt Harding. Jim has adopted a complementary strategy of concentrating on monads where the hectad re-recording rates are lowest, and several mountainous areas were surveyed - including Meall na Aighean, Beinn a' Chumhainn & Cam Chreag. At the latter site it was good to renew old records of *Cystopteris montana* (Mountain Bladder-fern) and *Woodsia alpina* (Alpine Woodsia) but sadly not *Bartsia alpina* (Alpine Bartsia) - despite looking very hard! We gratefully received contributions from Matt Harding, Geoffrey Hall, Liz Lavery, Dan Watson & Sarah Watts amongst others.

Seven excursions took place with the PSNS; the first led by David Chamber-

lain of the RBGE, recording bryophytes in a joint excursion for the Botanical Society of Scotland's Urban Flora Project. An excursion to Rannoch Moor marked the 150th anniversary of the PSNS. The PSNS includes several BSBI members and plant identification was a key aim of each excursion.

The 'Bluebell Wood' at Ballathie was recorded with the Woodland Trust prior to purchase. The Ben Lawers area was visited with Markus Ruhsam of the RBGE to collect seed of *Euphrasia scottica* (Scottish Eyebright) for the Millennium Seedbank. A few Host Survey forms were completed for the Euphrasia Study Group. Finally, Andy Thomas has been studying *Baldellia ranunculoides* (Lesser Water-plantain) ssp. *ranunculoides* and ssp. *repens*, and their habits and distribution. Andy was sent vc88 records and a visit to Glen Dochart with Richard Marriott confirmed ssp. *repens*.

East Perthshire (vc89) *Martin Robinson*

2,912 records were made in 2017, rather less than in 2016, owing mainly to health reasons in the latter part of summer. The records were made in 57 monads within 37 tetrads. The year lacked the high excitement of 2016, and we failed to find any more *Saxifraga hirculus* (Marsh Saxifrage) in the same area, or even any suitable habitat. Highlights were finding a second strong site of *Vicia tetrasperma* (Smooth Tare), over 30 plants of *Hammarbya paludosa* (Bog Orchid) at one of our three known sites, and two new sites for *Equisetum hyemale* (Rough Horsetail). The only three new VC species were all Dandelions: *Taraxacum lancastricense*, *T. sahalianum* and *T. stereodes*. After years of toil our dandelions are gradually coming into clearer focus, owing mainly to the dogged persistence of Les Tucker. *Viola canina* (Heath Dog-violet) recorded previously on the Cairnwell but queried, was confirmed at this, its highest-known site - 700 m.

The next edition of the Rare Plant Register will appear later in winter 2017/18. Fifteen records were added in 2017 and 6 updated. Three quite common species fall off the bottom and the Register is now beginning to reflect the true status of the VC's more notable plants. About 14,000 records have now been validated on the DDb and clearly there is a lot left to do.

Angus (vc90) *Robin Payne, Theo Loizou & Mark Tulley*

Atlas 2020 fieldwork continues to dominate the work of VCRs and much appreciated helpers - you know who you are! Areas covered included Glen Isla, Balintore, Glen Prosen and Glen Clova. Fieldwork started in April and carried on sporadically through the season with more than 3000 new records made during the year. During this fieldwork several new populations of *Meum athamanticum* (Spignel) were found, further confirmation of VC90's importance for this declining species.

Since the rediscovery in 2016 of *Hymenophyllum wilsonii* (Wilson's Filmy-fern), which was thought to be extinct in Angus, a second record from Corrie Fee was reported in 2017. A further search for this species, following up an old record in nearby Corlowie, was unsuccessful, but mutterings during the day of the words "haystack" and "needle" reflect the difficulties of searching large areas of possible habitat for historic records with no grid reference.

On the 13th June 2017, a joint meeting of the Dundee Naturalists Society and the Botanical Society of Scotland met at Arbroath cliffs and discovered a patch of *Crambe maritima* (Sea-kale), which is the first and only record for Angus. The presence of this species along the Angus coast is probably indicative of climate change.

In August a Bioblitz was held at the RSPB Loch of Kinnordy reserve. One of us (TL) attended and two monads were recorded. The locally rare grass *Catabrosa aquatica* (Whorl-grass) was re-confirmed at its only known extant site in Angus at Egno Moss. TL and Michael Morphy visited Rossie Wood in August where a moderate-sized population of *Ceratocarpus claviculata* (Climbing Corydalis) was noted. This forb is very local in Angus and Rossie Wood represents a new site for this species.

SNH Contractors carrying out monitoring of nationally rare and scarce plants in the Caenlochan and Clova area were assisted by the VCR (RP). Species monitored included *Saxifraga nivalis* (Alpine Saxifrage) *Woodsia ilvensis* (Oblong Woodsia) and *Woodsia alpina* (Alpine woodsia). Evidence of trampling to gain access to some well-known populations testifies to the continuing appeal of the alpine rarities of this area to visiting botanists.

Kincardine & North Aberdeenshire (vc91 & 93) David Welch

This was the first year in which tetrads took up the great bulk of my time, both recording them and dealing with the lists produced by other botanists. Notable contributors were David Elston and Judith Cox, and a very large data set was received from NE Scotland Biological Records Centre (NESBREC) including many post-2009 records of Ian Green. It is now apparent that 20% of the c. 800 tetrads in my two VCs have at least 100 species observed post-2009, with the mean number being c. 150 species in these 160 tetrads. The NESBREC recording was site-focused and often did not cover the full extent of tetrads, so these gaps need attention - filling them should raise tetrad mean number of species to close to 200. Only one tetrad so far has exceeded a count of 300.

Validation has also taken me considerable time; the NESBREC records for 2003-2009 were made by a variety of staff, including many short-term casuals, and I have been making use of the "needs checking" comment. Another bugbear has been the naming of the recording areas, with changes needed

so that users of the Ddb will not be misled into searching on the wrong side of hills. Andy Amphlett's expertise in manipulating Ddb records has much helped.

I led my usual SWT outing, this year to the Fyvie district. A highlight was a bed of old Aberdeenshire potato varieties in the Fyvie Castle walled garden, which held a good crop of weeds including *Lamium amplexicaule* (Henbit Dead-nettle), *Veronica peregrina* (American Speedwell) and *Veronica polita* (Grey Field-speedwell). I also debated with David Elston and other SWT members the identity of docks by the Castle lake - *Rumex conglomeratus* (Clustered Dock) v *Rumex sanguineus* (Wood Dock). And we added to Andy Amphlett's poplar investigation a sighting of *Populus balsamifera x trichocarpa* (Balsam Spire) planted west of Fyvie village. Another taxonomic debate with David Elston was on the identity of thistles at St Cyrus: *Carduus crispus* (Wetted Thistle) v *Carduus tenuiflorus* (Slender Thistle), and Mike Smedley (SNH) also contributed to this.

I am very happy to report that David Elston has agreed to join me as assistant recorder for both VCs; David has been botanising and recording in NE Scotland for over 25 years, and has a sharp eye for rarities besides his taxonomic skills.

New finds were very few, all aliens, but I saw good colonies of *Galium album* (Hedge Bedstraw) and *Cerastium arvense* (Field Mouse-ear) along a farm track west of Clatt, this not having been subject to council verge-cutting. I also carried out my every-other-year monitoring of the *Saxifraga hirculus* (Marsh saxifrage) at Silverford, and found that the water voles had gone since 2015, allowing flowering to recover to near-average level.

South Aberdeenshire (vc92) Ian Francis

It was immediately clear in February that the level of recording effort in 2017 would be substantially reduced following the sad death of Eric Meek, who annually visited many areas in VC92 and submitted many records. Nevertheless, several local botanists were active during the year, and some 3,100 records were logged. However, the main development in 2017 was the bulk import of the very impressive total of 128,000 records from the North-East Scotland Biological Records Centre (NESBReC), covering almost the entire current atlas period to date. This was the culmination of discussions about exchanging data between BSBI and NESBReC. NESBReC has been very active since its founding in 2000, and a major project has been surveys of much of eastern Aberdeenshire - often areas likely to be subject to development pressure - and using the 'Integrated Habitat Survey' system with target notes. These surveys were carried out by botanists including several current BSBI vice-county recorders, and the data quality is high. Surveys also extended

into the adjacent vice-counties 91, 93 and 94. These records from NESBReC have made a very significant contribution to the entire total for the atlas nationally. I am very grateful to those who facilitated this - Tom Humphrey, Andy Amphlett and Jim McIntosh, and Glenn Roberts and Konstantinos Sideros at NESBReC. The dataset now means that we have plant records from almost every tetrad in VC92, and gives a very valuable boost for the last two years of the recording period.

Banffshire (vc94) *Andy Amphlett*

Very little recording took place in vc94 in 2017; almost all my recording (c.10,000 records) was targeted at vc96. The most notable vc94 record was *Carum carvi* (Caraway), the first vc record since 1983. The location, the very exposed summit of the Bin of Cullen (320m AOD) seems bizarre, but a specimen was confirmed by Ian Green.

In total, just under 45,000 vc94 records were added to the DDb in 2017, 95% of them from a very large dataset provided by NESBReC, the Local Record Centre for NE Scotland. These were mainly from localities in the NE part of the vc, furthest from my home, so they were very welcome. I worked with VCRs to check and validate the whole dataset (>300,000 records, from vcs 91 - 94). I also worked on validation of vc108 records, in conjunction with its VCR.

Moray (vc95) *Ian Green*

Recording in 2017 over vc95 has been very good with 23,362 records put into MapMate and sent to the DDb so far (should get to at least 25,000). Most of the recording was done at monad level or better. The plan is to get all tetrads visited, which is looking very hopeful. Also, if possible, all monads will be visited as well, although there are still rather a lot to be visited. I also have been doing the validation as often as possible, but there is still lots to do.

Coverage for the Atlas 2020 is very good in vc95, with lots of species updated in 2017 for each hectad plus new species added to most hectads as well.

35 new species were added to vc95 in 2017, but only two are native species to Scotland, namely *Euphrasia heslop-harrisonii* (Heslop-Harrison's Eyebright) and *Salicornia fragilis* (Yellow Glasswort). I have also been surveying the vice-county for an atlas flora and this is going very well. I managed to get a few more recorders to go out in 2017 and do some recording, which was really good. I also did one field meeting for the Inverness Botany Group in vc95 plus three walks for the local botany group.

Easternness (vc96) *Adam Fraser*

It's been a busy year in VC96, with over 20k records collected from 41 hectads (233 tetrads), with the focus very much being on improving coverage for

Atlas 2020 and obtaining a good spread of records from across the vice-county. Significant contributions have been made by neighbouring VCRs, as well as several new volunteers in Strathspey (thanks all!). Some interesting NCRs include *Juncus ranarius* (Frog Rush) cropping up along the A9 and a population of *Solidago sempervirens* (Seaside Goldenrod) at Culbin Sands. Thanks to a small expedition to Glen Affric in late June, five botanists contributed 3000 records across six hectads in the glen, with dozens of new hectad records, including a first record of *Dryas octopetala* (Mountain Avens) for the Affric hills and some important 'refinds' including *Phleum alpinum* (Alpine Cat's-tail). Validation is now largely a job of keeping on top of new records, with the back-log much reduced thanks to assistance from Andy Amphlett. Plans for 2018 include a revisit to Glen Affric, some forays into remoter areas of the Monadhliath and continued efforts to improve coverage in under-recorded squares for Atlas 2020... and hopefully another 20k records...

Westernness (vc97) Ian Strachan & Ian Bonner

About 6,000 records for VC97 were made by the VCRs along with various other resident and visiting botanists, to whom we are very grateful - notably Faith Anstey, Jenny Rees, Liz MacDonald, Richard Marriott, Luke Gaskell and Jim McIntosh. These records come from more than 120 tetrads across the VC, of which 44 had at least 50 records made. In addition, a remarkable 5,000 records were collected by Adam Fraser alongside monitoring work on Locheil Estate. Some major gaps were filled in 2017 for the next Atlas, including a productive week spent by the VCRs (with helpers) in Ardgour and west Ardnamurchan. Other surveys focused on under-recorded areas such as south Morar, Beinn Teallach and Glenfinnan.

Highlights for 2017 include a NCR for *Ranunculus peltatus* (Pond Water-crowfoot), growing abundantly in a stream near Gairloch (Jon Mercer); and 2nd VC sites for *Lycopodium lagopus* (Hare's-foot Clubmoss), on Beinn Teallach (IS), and *Baldellia ranunculoides* (Lesser Water-plantain) in west Ardnamurchan (Richard Marriott).

Most of the 2017 records have been digitised and submitted to the DDb, and c. 2000 have been validated. IS also digitised c. 5,000 records from 2010-16, including many important records for Ben Nevis SSSI from Site Condition Monitoring (2013) and the North Face survey (2014-16). The final report for the latter survey includes a remarkable 558 records for six Nationally Rare and ten Nationally Scarce species. Three talks were given locally on mountain plants, and further progress has been made on an RPR. Future plans for Atlas 2020 work include a week-long field meeting based at Kingie Lodge in July 2018, and extraction of records for upland sites from SNH and SWT reports.

Main Argyll (vc 98) *Carl Farmer*

During 2017, the number of records made in 2017 and added to the database was 12,468. A substantial number of pre-2017 records were also added at the same time. A week-long BSBI meeting in Cowal, organised by Angus Hannah, was very timely as this is the most under-recorded part of the vice-county. The meeting produced over 4000 tetrad records new to the 2010-19 date class. Angus has organised a week in another neglected part of Cowal for next year, based near Carrick Castle on Loch Goil, on June 9th -16th. I will try to prioritise other under-recorded hectads in the vc during 2018-19.

A few of the year's most interesting finds included: *Radiola linoides* (Allseed) was seen on the Cowal BSBI week, a long way from its only other known locality in the vice-county; a new site for *Cephalanthera lonigifolia* (Narrow-leaved Helleborine) was found by Teenie Wilson near Duror; Jim McIntosh found *Cornus suecica* (Dwarf Cornel) at a new Scottish altitudinal record of 940m on Beinn a'Bheithir; Dan Watson found *Scrophularia auriculata* (Water Figwort) in Glen Coe, not previously seen north of Oban in VC98; Pat Batty paid the VC's only *Carex buxbaumii* (Club Sedge) site its first visit since 1996 and sadly found the population to be in severe decline; Tony Church added many records for *Dryopteris affinis* *agg.* (Golden-scaled Male-fern) species and subspecies, including some rarely recorded kinds. Many thanks to all who contributed records!

Dunbartonshire (vc99) *Pam Murdoch*

2017 was not the best of years for recording in vc 99. A bad back led to a late start to the season and unhelpful weather to an early end! Nevertheless, over 5000 records were sent in. Recording focused again on monads with no existing post-2000 records, and 38 new monads were visited; return visits to a further 12 brought them up to an acceptable level as well. The tetrad map in the southern part of the vice-county is promising, with only 8 tetrads showing no records at all, and I hope to remedy this in the coming year. The more mountainous northern area has much improved coverage with only the far and inaccessible NW likely to remain totally unrecorded. The Luss Hills in the central area would benefit from the help of keen hill walkers willing to do a long circuit of the tops. Progress is steady but slow!

Interesting finds were few as many sites were not especially promising to start with. The presence of *Carex elongata* (Elongated Sedge) was confirmed in the two remaining sites I had still to visit. New for post-2000 records and rare in the vc were *Equisetum telmateia* (Great Horsetail) and *Aethusa cynapium* (Fool's Parsley). The most interesting records were those sent in by kind folk who got up into the mountains. I do thank them! Their help is invaluable. One or two folk each recording just one or two sites makes an

appreciable difference to the overall situation.

Clyde Isles (vc100) Angus Hannah

Other Atlas work being well forward, the year was mainly devoted to critical taxa. In May, John Richard's annual Dandelion Workshop came to Bute, even making Radio Scotland as an 'international dandyfest', thanks to a chance encounter with Les Tucker. With eight experts present, over 50 species were found, mostly NCRs, and a good time was had by all. In early September I organised a bramble and rose weekend, to introduce beginners in these groups to their joys and frustrations. We now have a small core of enthusiasts to take forward bramble studies in Scotland.

Latterly, I have been recording the segregates of the Scaly Male-ferns in Bute monads, using a new ID character discovered by Tony Church (see note on page 12). Tony also made significant finds including a second Arran site for *Dryopteris pseudodisjuncta* (no English name yet). Recorders should look out for this taxon which may be less rare than supposed.

I taught two courses at FSC Millport: grasses, sedges and rushes and a general one on the Cumbrae flora. My general recording was mainly in Ayrshire and Lanarkshire. A recording week I ran in West Cowal made 4500 records for an under-recorded area of vc98. 3120 records were also added to DDb for vc100, with over 98% of vc100 DDb records having now been validated. In addition, the *Isle of Bute Flora* is approaching completion: anticipated publication 2019.

Kintyre (vc101) Pat & Dave Batty

Recording started early in March and enabled a few missing tree and other species to be ticked off. We made use during the year of the lists of 'missing' species from the DDb to target certain areas and habitats. Despite the wet summer we continued to make progress with systematic coverage of the VC. All hectads have been visited and tetrads completed. We continue to be helped by the Kintyre Botany Group (KBG). Records for 2017 were digitised by the end of the year and a start was made in validating records. We also got to grips with the *Dryopteris affinis* (Golden-scaled Male-fern) group thanks to Tony Church, added many *Euphrasia* (Eyebrights) records thanks to Chris Metherell, and added some *Rosa* (Roses) records thanks to R Maskew.

Several species of interest were recorded. The KBG refound *Spiranthes romanoffiana* (Irish Lady's-tresses), after an absence of several years. We also found *Apium graveolens* (Wild Celery), on the coast, a first record for many years. We were lucky to see it in flower as most of the plants had been closely cropped by sheep. We had several records of *Ruppia maritima* (Beaked Tasselweed), including a large area at the Kennacraig ferry termi-

nal. There are few current records for *Ophioglossum vulgatum* (Adder's-tongue) for the VC, so a chance sighting by an acquaintance was welcome.

South Ebudes (vc102) Malcolm Ogilvie

There were further excellent efforts by visiting botanists on all three main islands.

Oli Pescott spent two weeks in July on Islay, based at the head of Loch Gruinart, making around 1000 records, including some rare or new aliens, such as *Sidalcea candida* (Prairie Mallow), *Malva moschata* (Musk-mallow) and *Sedum spurium* (Caucasian-stonecrop).

Simon Smart paid two visits to Jura. In June, five Norfolk botanists joined Oli and Simon for 5 days, mainly along the east coast. Their 3000 records included *Trientalis europaea* (Chickweed-wintergreen), new to the vice-county, and *Carex disticha* (Brown Sedge), new to Jura. Simon visited the north of Jura in September, covering 10 monads over 5 days, and making 620 records.

Kevin Walker, Pete Stroh, David Pearman, Owen Mountford and Simon Leach visited Colonsay and Oronsay in June, their fourth annual trip. Some 4,000 records (461 species) were collected from 53 monads. Highlights included *Carex paniculata* (Greater Tussock-sedge) on Oronsay, and a flourishing population of *Hammarbya paludosa* (Bog Orchid). In August, the RSPB staff on Oronsay found 101 spikes of *Spiranthes romanzoffiana* (Irish Lady's-tresses) at the major site; two new colonies (12 and 1 spikes, respectively) were discovered.

Orchid monitoring on Islay was mixed, some species flowering well, especially several hundred *Orchis mascula* (Early-purple Orchid) in one small area, and an excellent year for *Coeloglossum viride* (Frog Orchid), but *Cephalanthera longifolia* (Narrow-leaved Helleborine) was not found, the first blank since its discovery in 1998. Digitisation of records is almost up-to-date with validation about to be embarked upon.

Mid-Ebudes (vc103) Lynne Farrell

In 2017, I concentrated on tetrads for which there were only pre-2000 records, mainly the islands off the west coast of Mull - Iona, Inch Kenneth and the Dutchman's Cap. I contacted local Iona botanist, Joyce Watson, and invited her to join us. We found *Hymenophyllum wilsonii* (Wilson's Filmy-fern), which is new to Iona, with Joyce subsequently finding a second site. Also on Iona, I advised Emily Watkins, Mull & Iona NTS ranger, on possible windfarm developments on the island.

On Mull, I re-recorded 2 NPMS squares on Mull, whilst I visited Tobermory path with Jan Dunlop, NTS ranger, and marked out *Epipactis helleborine*

(Broad-leaved Helleborine) plants as the path was due to be resurfaced and made safer. I was also in contact with Steve Mithen, senior archaeologist at Reading University, who has been working on Mesolithic aspects and vegetational studies on the western islands of Scotland, and arranged to work with him on Mull in June 2018.

Many records from 2016 and 2017 were entered into MapMate but there are still a few to do, whilst only a little validation was done; however, I am waiting until I have entered all data from previous years. I also checked the records sent through from the National Trust for Scotland (this data being entered into Mapmate by NTS directly).

As the RPR was updated in 2016, there is no new version. Specimens were also sent to referees, with replies received from most now, including Nick Stewart. However, there are still some specimens to send off to referees.

About 12 new vice-county records were obtained, including some from the critical groups *Euphrasia* (Eyebrights) and *Hieracia* (Hawkweeds). Several other records are 'garden escapes' which are spreading into the wild. *Dactylorhiza x carnea* (*D. maculata* (Heath Spotted-orchid) x *D. incarnata* (Early Marsh-orchid)) was found and photographed by John Bowler, Tiree RSPB officer, and confirmed by Ian Denholm. This is the first record since 1941 when Heslop-Harrison recorded it at one site on Tiree and one on Coll.

North EbuDES (vc104) Stephen Bungard

Over 13,000 records were made in VC104 in 2017, including 226 new hectad records. There are only a handful of tetrads with >50% land now having zero post-1999 records, though there are quite a few with <50 such records. Skye Botany Group met five times and most meetings were aimed at poorly recorded tetrads. A new Skye Nature Group has been formed as a spin-off to look at non-plant things, but meetings inevitably provide plant records too.

All recent records are digitised with validation at a very early stage. Records from a 1987 survey of woodlands on Skye and Raasay were digitised giving a few new hectad and many new tetrad records. Talks were given to the Sleat Environment Group (*From Orchids to Invasives*) and SWT Skye Region Group (*Recent Botanical Finds in VC104*). Monthly articles on matters of local botanical interest continued to be written for *Am Bratach*, the Raasay Community Newsletter. Articles also appeared in BSBI News (*Extracting records from the Scottish Saltmarsh Survey* and *The Bishop's-cap fits on Skye*) and the BSS Newsletter (*On Being BSBI Recorder for VC104: Skye, Raasay & The Small Isles*).

In terms of records, *Mitella ovalis* (Bishop's-Cap or Oval-leaved Mitrewort) at Uig was thought to be new to the British Isles, but it subsequently transpired that a 2012 English record had not been entered into the DDb. Sixteen gar-

den escapes were new VC records, whilst *Lythrum portula* (Water-purslane) and *Juncus foliosus* (Leafy Rush) were new to Skye.

West Ross (vc105) Duncan Donald (photos on Dropbox)

My sincere gratitude to the many people who visited West Ross during 2017, with more than 10,600 records submitted! Three field meetings were held - a 'long weekend' based in Poolewe in June; a week-long Recorders' Meeting based in Torrison in July; and a 'day trip' by Inverness Botany Group in August, tackling a corner of Inverpolly - with >7,000 records collected, many from hitherto poorly-recorded areas. These will be reported in more detail elsewhere, but the following illustrate the many highlights: Creagan Ruadh enclosure remains remarkable, with *Polystichum lonchitis* (Holly-fern), *Pyrola media* (Intermediate Wintergreen) and sheets of *Orthilia secunda* (Serrated Wintergreen); *Dactylorhiza traunsteinerioides* var. *francis-drucei* (Narrow-leaved Marsh-orchid) was re-found on Slioch for the first time since its original British discovery there in 1935, and *Draba norvegica* (Rock Whitlow-grass) since 1981; *Festuca rubra* subsp. *juncea* (Red Fescue) was reported for the first time since Druce's 1929 *Flora*; *Gnaphalium sylvaticum* (Heath Cudweed) and *Isoetes echinospora* (Spring Quillwort), both now very local, were each found in two new sites; *Lycopodiella inundata* (Marsh Clubmoss) was re-recorded from most of its previous sites; and locally-rare *Salix phylicifolia* (Tea-leaved Willow) rediscovered on Applecross Peninsula for the first time since 1866! Individual recorders have also played a significant part, so many thanks to Judith Bullivant (new VC record for *Carex acutiformis* [Lesser Pond-sedge]), Stephen Bungard, Diana Gilbert, David Hawker, Jim McIntosh (first records from Baosbheinn since 1950s), Ian & Marion Moir, David Morris, Sandy Payne (updating *Melampyrum sylvaticum* [Small Cow-wheat] records), Julie Rose, Dan Watson and Peter Wortham.

East Ross (vc106) Brian Ballinger

I am very grateful for all the contributions made by Peter Wortham, Mary Dean and other recorders. I also really welcome receiving records, however ordinary-seeming, from visitors.

I am up to date with data entry and over 17,000 records have been made in 2017. Approximately 14% of records on the DDb await validation and I have also verified many record records for VC106. The Easter Ross Rare Plants Register and Checklist are available on the VC106 page of the BSBI website and also in pocket-size printed versions. We now have some records for most VC106 tetrads, but some have only very short lists and 3 tetrads wholly in the vice-county have yet to be visited. We hope to continue to deal with this in 2018. I am not attempting full monad coverage but aim to get some records from most lowland monads.

In 2017, we held a successful field meeting jointly with the Botanical Society of Scotland (BSS) at Fortrose, concentrating on urban records, and a similar event is planned for Strathpeffer in 2018. I also led an Inverness Botany Group/BSS outing at North Kessock and took part in local field club outings. In addition, I have been involved in the Scotland-wide BSS Urban Flora project, entering records on record for various parts of the country and these should come to the BSBI in due course.

East Sutherland (vc107) Mick Crawley

In order to botanise some under-recorded and remote locations on the border with West Sutherland (v.c. 108) I rented two extraordinary properties in 2017: Corrykinloch in June and Ben Armine Lodge in July. Corrykinloch is one of the most remote holiday lets in Scotland. The house (NC365256) stands completely on its own, 4km up a private road behind a securely locked gate off the A838 north of the Overscaig Hotel at the head of Loch Shin.

The skyline at the head of Coire Ceann Loch is dominated by Creag an Reamhar (465m) where the crags support *Polystichum lonchitis* (Holly-fern). Out of sight to the right, is the celebrated fishing loch of Loch Dubh a' Chuail with the crags of Meall a' Chuail (750m) towering above it. On the v.c. 107 side of the ridge were *Athyrium distentifolium* (Alpine Lady-fern), *Dryopteris expansa* (Northern Buckler-fern) and *Vaccinium uliginosum* (Bog Bilberry) along with other typical mountain plants.

Three km east from here is the remote summit of Beinn Leoid (792m) whose crest marks the boundary between the vice counties of East and West Sutherland. The richest area was the north-facing crags on the v.c. 108 side of the ridge, with *Draba incana* (Hoary Whitlow-grass), *Luzula spicata* (Spiked Wood-rush), *Polystichum lonchitis* (Holly Fern), and *Saxifraga oppositifolia* (Purple Saxifrage), all of which, along with the other species we saw, were recorded by A.G. Kenneth from this location in 1973. So, no gains and no losses of flora in 44 years from here then.

A private road leads over the watershed from Corriekinloch (on Loch Shin) to the Duchally Power Station (in Glen Cassley). Once past the summit of Maovally (511m) the view westwards is dominated by the massive flank of Ben more Assynt (998m).

The remote ground to the north of here runs past Fionn Loch Mor and Gorm Loch Mor to the eastern flanks of Beinn Uidhe (735m). The country between here and Beinn Leoid is almost completely unexplored botanically, but is extremely attractive topographically and is well worth a visit for any botanically-inclined wild-campers. The only downside is that much of the geology is quartzite, so the flora is rather species-poor.

The second base was even more remote at Ben Armine Lodge (NC704193),

12 km up a private road north of Sciberscross in Strath Brora. Beyond the lodge, Abhainn Srath na Seilge skirts the Lodgepole Pine plantation and leads up to the watershed on the ridge above Loch Choire to the west of Ben Armine that separates East and West Sutherland. If you walk west from that point you come to the Crask Inn by the A836 in Strath Tirry, 14km away, while heading east takes you to Badanloch Lodge by the B871 on the R. Helmsdale, 16km away.

The botanical interest hereabouts is restricted entirely to the highest ground, and within this, to the very localised craggy outcrops near the summits. Here grows a somewhat diluted subset of the typical mountain flora of northern Scotland with *Alchemilla filicaulis* subsp. *filicaulis*, *Arctostaphylos alpinus*, (Alpine Bearberry) *Kalmia procumbens* (Trailing Azalea), *Salix lapponum* (Downy Willow) and *Saussurea alpina* (Alpine Saw-wort).

The lower ground to the east of here is the enormous and rather bleak expanse of Strath Skinsdale, an area that is extremely remote and difficult to access. Needless to say, it is very poorly recorded, but the flora is distinguished by the occasional presence of *Vaccinium microcarpum* (Small Cranberry) and the region is a hot spot for *Betula nana* (Dwarf Birch).

West Sutherland (vc108) Ian Evans

Another successful year, with recording during June to August focused on areas accessible from self-catering accommodation at Tongue (thanks to a generous grant from the Lloyd Binns Bequest fund administered by the Glasgow Natural History Society). In three weeks we logged some 3400 records from 26 monads, spread from Loch Meadie (NC4939) and A'Mhoine (NC5160) in the west to Forsinard (NC8942) and Melvich (NC8865) in the east. *Goodyera repens* (Creeping Lady's-tresses) was found at Rhitongue (NC5959) by entomologist Stephen Moran, in an area where it had last been recorded (without precise locality) in 1897 and 1958. We are grateful to Wildland Ltd., who now own substantial areas of this part of West Sutherland, for help with access to areas south of the Kyle of Tongue.

Recording elsewhere in the vice-county concentrated on areas on the west coast, mainly in Assynt, last recorded, at tetrad level, prior to 2000. 17 monads yielded 2300 records, including the first confirmed local record for *Salix phylicifolia* (Tea-leaved Willow) on an island in Loch Urigill (NC2409) and the first record of *Lemna gibba* (Fat Duckweed) 'in the wild', at Lochinver (NC0822), previous records having been from garden ponds.

With additional contributions from Luke Gaskell, Kathy Velandar and Phil Smith, the total for the year was some 6000 records. It is also worth reporting the completion of the inputting by Avril Haines, funded by the BSBI, of a backlog of some 14500 records made during 2012-2016. Special thanks to

Andy Amphlett for assistance in the processing and subsequent verification of this backlog and to Ro Scott for her contributions during the August week at Tongue.

Caithness (vc109) Francis & Margaret Higgins

We recorded between April and September 2017, covering 80 monads (18 hectads) and submitted 7330 records via MapMate to BSBI. In the Spring, we found *Adoxa moschatellina* (Moschatel) and *Ceratocarpus claviculata* (Climbing Corydalis) in abundance, so obviously not rare in Caithness after all. In June, Jim Macintosh spent two full days with us; on one day we found the hybrid violet *Viola x intersita* (*V. riviniana* (Common Dog-violet) x *V. canina* (Heath Dog-violet)) confirmed by Mike Porter, and on the second day, a potentially rare hybrid orchid - but we'll need help to re-find it this year for proper identification as an NCR. Also in June, John Crossley, the Orkney Recorder, came to stay, and he and Francis spent a long day covering three fairly remote monads - with interesting finds.

The Caithness Rare Plant Register lists *Lycopodium annotinum* (Interrupted Clubmoss) at Ward Hill, 2008; this year we found only *Diphasiastrum alpinum* (Alpine Clubmoss) at that site so maybe the first entry was incorrect. However, we did re-find *Lycopodium annotinum* (Interrupted Clubmoss) at Cairn of Gets, last seen in 2005, growing with *Lycopodium clavatum* (Stag's horn Clubmoss) and *Huperzia selago* (Fir Clubmoss).

We have also visited under-recorded monads and have found: more sites for *Primula scotica* (Scottish Primrose); *Agrimonia eupatoria* (Agrimony); the rare *Carex extensa* (Long-bracted Sedge), confirmed by Mike Porter; and Chris Metherell confirmed two rare *Euphrasias* (Eyebrights): *Euphrasia foulaensis* and also *Euphrasia confusa x foulaensis*. In addition, we attended the weekend at Kindrogan in March, the recording week in Torridon in July, and the Annual Conference in Edinburgh in November.

Outer Hebrides (vc110) Paul Smith

Good progress was made filling a few more gaps for the Atlas, particularly in NB11, which was underdone and needed some long walks for access; the one coastal tetrad was covered to re-find many pre-2000 records for this hectad. A spring recording expedition attracted only a select crew, but we made a strong effort to find spring sand dune annuals on the NW Lewis dune systems, however, there were remarkably few, and most interesting old records were not re-found; probably there is less disturbance creating suitable habitat.

A milestone in recording was passed (as predicted) with the 200,000th record from vc110, which turned out to be *Trifolium pratense* (Red Clover) from the spring recording. The VCR ran two recording days for the Outer Hebrides

Biological Recording project in August, one covering a rich tetrad in N. Uist, and one a joint expedition to some islands off the E. coast of Benbecula, in two tetrads with no records hitherto. One island had *Sagina procumbens* f. *daviesii* (a form of Procumbent Pearlwort) with *flore pleno* (double-flowered) flowers, and you can read all about it in the last ever issue of New Journal of Botany. Overall, approximately 2500 records were added in 2017.

Orkney (vc111) *John Crossley* (Photo on Dropbox)

Good progress was made with Atlas 2020 in 2017, with 4000 records gathered from 60 tetrads. Geographic coverage is also progressing well: three-quarters of hectads with significant land area now have more than 70% of species re-recorded and more than half of these have 75% or more.

I had much help in recording from others, especially Brian Ribbands and Andrew Upton. Two days in North Ronaldsay were particularly profitable. The Orkney Field Club and its Flora sub-group were active and several outings with them to the islands of Hoy, Flotta and Stronsay and to Orkney mainland sites yielded significant numbers of records and some good finds. One of these was the distinctive hybrid between *Dactylorhiza incarnata* (Early Marsh-orchid) and *Dactylorhiza purpurella* var. *cambrensis* (Northern Marsh-orchid).

Regarding rarities and new VC records, there was the now customary crop of alien herbs, also many non-native trees due to an effort to record in plantations. Perhaps the most interesting among native species was a new site for *Carex maritima* (Curved Sedge) in North Ronaldsay, in damp sedge-rich grassland very heavily grazed by the native sheep - not on a sandy substrate. The only new native taxon, not counting varieties and hybrids with them, was that of *Equisetum arvense* (Field Horsetail) x *E. palustre* (Marsh Horsetail) = *E. x rothmaleri* (again in North Ronaldsay).

All records have been digitised and added to the BSBI database. Validation of records on the DDB has been completed, with the exception of the major critical groups and some individual problematic taxa.

Shetland (vc112) *Paul Harvey*

BSBI visits in 2015 and 2016 gave sufficient impetus to a small group of local folk to continue in 2017 with recording for the new Atlas. This was advertised as a recording week and attracted a dozen folk. We focused on gaps in previous coverage and managed to record about 20 one km squares between us - these in Foula, West Mainland, South Mainland and Bressay. Surprisingly, this fieldwork revealed a new site for the endemic Hawkweed *Hieracium spenceanum* - the first new location for a hawkweed in many years. Interestingly, this was on an area of stony coastal heathland where grazing has been

much reduced. Several new sites for *Ophioglossum azoricum* (Small Adder's-tongue) were also located.

Our other main focus in 2017 centred around revisiting sites for some of Shetland's rare plants that had not been recorded for a number of years. A re-survey of a site in Nesting that was subject to a planning application for a number of houses revealed yet more plants of interest. In addition to 500 Bog Orchids, over 200 Early Marsh Orchids were located, including one fine example of *Dactylorhiza x latirella* (*D. incarnata* (Early Marsh-orchid) x *D. purplella* (Northern Marsh-orchid)). It is pleasing to report that due to our protestations, this site has now been spared through the planning process.

There is only one new species to report and that an unwelcome addition to the local flora. *Crassula helmsii* (New Zealand Pigmyweed) was located in a fen area near Gulberwick, and the extent of its cover suggested it had been present for a few years. SNH was considering trying to eradicate the plant but I suspect that will prove difficult.

Finally, it is pleasing to report a small success with Shetland Amenity Trust's Hawkweed translocation programme. *Hieracium hethlandiae*, which has been extinct in the wild for a number of years, has proven difficult to re-establish in the wild; a number of efforts have failed. It would appear, however, that planting in a quarry near to its only known native site has been successful. A number of adult plants were present in a resurvey this year, while the presence of a number of seedlings was encouraging.

Late News We regret to report the death of Walter Scott, who made an immense contribution to Shetland botany during his very long tenure as BSBI recorder. It is expected that an obituary will be published in BSBI News.

Crossword solution and crib

ACROSS
1. MERICARP 6. AMARA 7. FIR 8. BEIN 9. FLEA 11. RYE 12. ADAPT 13. ACHILLEA
DOWN
2. ELATINE 3. ISAT 4. PERIANTH 5. BARBAREA 7. FOLIAE 10. GALL
CRIB
ACROSS
1. merry carp 6. AM/A/RA 7. reverse IF + R 8. BE/IN and the Bein Inn and BEIN(N)
9. one of the Fleabanes 11. wry 12. Anagram PAD AT 13. A/CHILL/(h)EA(i)
DOWN
2. <LATIN>E 3. I/SAT 4. anag THEN PAIR 5. BARBAR<E>A (with thanks for all her crossword support!) 7. anag FILE A GO 10. G/ALL

Minutes of the BSBI Scottish AGM held at the Royal Botanic Garden Edinburgh on 4 November 2017

Robin Payne welcomed everyone as Chair to the AGM.

Minutes of the AGM held on 5th November 2016 had been circulated and were approved (proposed Ro Scott, seconded Ian Strachan).

Committee for Scotland - There were three vacancies on the committee. Three new members had been proposed: Aileen Meek (proposed Ian Strachan, seconded by Liz Lavery), Lindsay Mackinlay (proposed by Liz Lavery and Ian Strachan) and Alan Walker (proposed by Hamlyn Jones and John Holland). Changes to committee membership were all approved. Ian Strachan is taking over from Robin as Chair, and Robin is to be Secretary for his remaining year. Details of the 2017-18 Committee are given below.

Scottish Officer report: Jim McIntosh presented his annual review. Highlights:

- Christmas lunch at RBGE - a popular annual event.
- Scottish Recording Conference - residential weekend held at Kindrogan in April. Two one-day conferences planned for April 2018 in Edinburgh and Strathpeffer.
- 5 million records had been transferred to the NBN Atlas Scotland - a major step forward.
- Plant Families ID workshops - 36 beginners enjoyed two workshops in Irvine & Glasgow. New Grass ID workshop very popular - sold out with 21 participants.
- Recording week held in Torridon. 16 botanists surveyed over 60 monads in a week.
- Rough Crew idea has got off the ground in Scotland with productive weekend in Glen Affric thanks to Adam Fraser & Trees for Life.
- Huge amount of Atlas 2020 recording by VCRs & members across Scotland.
- VCRs - Jay MacKinnon has been appointed following retirement of Jackie Muscott (West Lothian). Ken Butler, former recorder for Caithness, sadly died in October.
- Jim also doing wider support work across UK and Ireland e.g. eNews. SNH funding expires at end of March, hoping it will be renewed.

Chairman's report: Robin presented a brief report for the year.

- The Scottish Newsletter had been published in the spring, for which Angus Hannah was thanked as editor and Jackie Muscott for distribution. Council had agreed to continue funding for at least another year.
- Everyone had been shocked by the untimely death of Eric Meek who had served on the committee since 2014. As well as his ornithological role he had made a major contribution to BSBI work in Scotland, helping John Crossley in Orkney, but also more widely on the TPP and Atlas 2020 as a 'VCR without portfolio'.
- The proposed golf course at Coul Links was deeply concerning because of the botanical interest there. Support for the 'Not Coul' campaign was a matter for individuals, but the deadline for representations to Highland Council was 17 November.

Field meetings: Angus spoke briefly about the programme for 2018, which included Haddington, Wigtownshire, Invergarry and Drymen, also joint BSS meeting at Strathpeffer. He invited further proposals, preferably by 14 November. Several field meeting reports for 2017 are awaited.

Robin expressed thanks to the committee, BSBI staff, VCRs and other members for their contributions and efforts over the year, with particular thanks to Jim, Angus, Andy Amphlett and Stephen Bungard.

Ian Strachan

BSBI Committee for Scotland 2017-18

Voting members (10): Ian Strachan (Chair), Sandy Edwards (Vice-chair), Robin Payne (Secretary), Angus Hannah (Field Secretary), Faith Anstey, Natalie Harmsworth, Liz Kungu, Aileen Meek, Lindsay MacKinlay, Alan Walker.

Non-voting: Iain MacDonald (SNH), Davie Black (Plantlife), Dan Watson (NTS).

Attending: Jim McIntosh (Scottish Officer)

At the AGM on 3rd November 2018, Sandy Edwards, Robin Payne, Angus Hannah and Faith Anstey retire and are not eligible for re-election. Nominations for the committee, signed by two members normally resident in, or recorders for, a vice-county in Scotland and with the written consent of the candidate, who must also qualify as above, should reach the Secretary, Robin Payne (robin923@btinternet.com), by 30th September 2018.

Kirkcudbright Botany Group: Field meeting programme 2018

March	28 th	Glentroot	NX4180	<i>Hymenophyllum</i>
April	6 th	High Wood	NX6276	ASNW [‡] <i>Hymenophyllum</i>
	28 th	Penkiln Burn	NX4668	Riverine ASNW [‡] , <i>Frangula</i>
May	8 th	Auchenreoch Loch	NX8171	Aquatics and swamp/fen spp.
	19 th	Barony (BSBI)	NS0287	Plant families ID day
	25 th	Kenmure Holms	NX6376	Aquatics, swamp, fen
June	1/2/3*	Loch Valley	NX4481	Upland monad recording*
	16 th	Creebank	NX3477	Rich grassland <i>Viola lutea</i>
July	6 th	Arbigland	NX9957	Woodland esp. helleborines
	20 th	TBA	TBA	Fern or rushes ID day
	25 th	Mersehead	NX9155	RSPB staff ID day
	26 th	Mersehead	NX9155	As above, open to all
August	3/4/5*	MOD Dundrennan	NX7344	Monad recording*
	31 st	Clints of Dromore	NX5464	Upland species recording
September	14/15/16*	Loch Skerrow	NX6068	Aquatics, disused rail, moor*
	28/29/30*	Heart Moss	NX7647	Mire veg esp. marsh fern*
		& Newlaw Moss	NX7347	Mire veg esp. marsh fern
October	12/13/14*	Stroanfreggan	NX6391	Monad recording in moor*

* One day meeting , the exact day to be confirmed closer to the time.

‡ ASNW = ancient semi-natural woodland

For further details or to confirm e-mail David Hawker (davidhawker3@gmail.com)

Ayrshire Recording Group: 2018 meetings programme (provisional)

All welcome! If not already a member, please contact Gill Smart (gillsmart35@gmail.com) to join the group and receive regular updates and details as each meeting approaches.

Saturday 21 Apr	NS3406	Cloncaird Castle
Saturday 5 May	NS3048	Dalry East
Saturday 19 May	NS6022	Cronberry
Sunday 3 June	NX2294	Tormitchell Quarry
Sunday 17 June	NS4252	West of Lugton
Sunday 1 July	NX2694	Barr village
Saturday 14 July		Ailsa Craig
Sunday 15 July		Ailsa Craig backup
Saturday 28 July	NS4446	North-east of Stewarton
Sunday 12 Aug	NS5826	East of Sorn
Saturday 25 Aug	NX3296	Dalquhairn
Sunday 9 Sep	NX4894	South end of Loch Doon

Fern Society (BPS) Scottish Meetings 2018

BSBI members are welcome at all these meetings. If you would like to attend any of them, please contact Bridget Laue a few weeks before the date of the meeting, when further details should be available. Contact details: bridgetlaue@blueyonder.co.uk
Home: 0131-258-9592 Mobile: 0793-243-9989

- April 11 (Wed) Ascog Fernery workday, Isle of Bute Bridget Laue
Help to keep the ferns in good condition and enjoy the collection and gardens.
- May 19 (Sat) Brodick Castle Gardens, Isle of Arran Chris Nicholson
Weeding, planting and identifying ferns in the gardens.
- June 17 (Sun) *Asplenium septentrionale* monitoring, Deeside Bridget Laue
Checking sites in the Ballater area.
- July 7 (Sat) *Hypolepis ambigua* and Balnakailly, Isle of Bute Bridget Laue
A New Zealand fern in quantity in its only known UK locality. Then to Balnakeilly wood with lots of filmy ferns and other 'Atlantic' species.
- July 28 (Sat) Mountain ferns in Glen Lyon Andy McGregor
We hope to see *Cystopteris montana*, *Woodsia alpina*, and *Polystichum lonchitis*, as well as *Asplenium viride* and *Dryopteris expansa*.
- August 26 (Sun) *Thelypteris palustris* in Dumfriesshire Frank Katzer
A chance to see this very rare Scottish fern. We could also see *Cryptogramma crispera* at Mennock on our return journey.
- Sept 29 (Sat) Indoor meeting, Bearsden, Glasgow Alastair Wardlaw
Garden tour, book and plant sales, fern-related presentations and planning.

Many other groups organise field meetings throughout the season and BSBI members and friends are always welcome to attend. These include

Glasgow botany group

Lanarkshire botany

Perthshire Society of Natural Science (PSNS)

Dundee Naturalists

Inverness Botany Group

and many others including the newly formed Dumfries Botany Group.

It is always worth checking the web pages or contacting your local recorder to find out what is happening in your area. With only two recording seasons remaining in the current date-class, any offer of help will be appreciated even more than normally. Everyone can contribute to Atlas 2020!

BSBI Scotland Field-meetings programme 2018

(check website for any changes and contact leaders for details)

May 16	Liz Lavery/Brian Ballinger	Menstrie	vc87	urban	joint BSS
June 8-10	Jim McIntosh / H. Jackson	Haddington	vc82	recording	
June 9-16	Angus Hannah	Carrick Castle	vc98	recording week	
June 23	Brian Ballinger/ Mary Dean	Strathpeffer	vc106	urban	joint BSS
June 23-30	Jim McIntosh	Lagafater Lodge	vc74	recording week	
June 30	Liz Lavery/Jane Jones	Doune Ponds	vc87	recording	
July 1	John Holland	Stob a'choin, Inverlochlarraig	vc87	alpine	joint BSS
July 8-15	Jim McIntosh/Ian Strachan	Invergarry	vc97	recording week	
July19-22?	Jeff Waddell	Kelso	vc80	recording	
July27	Faith Anstey	St Cyrus	vc91	beginners/improvers	
Aug 4	Faith Anstey	Ballinluig	vc89	beginners/improvers	
Aug 10-12	Marion Moir/ A Hannah	Glencoe	vc97/98	brambles	
Aug 11 .	Liz Lavery/Jane Jones	Braco	vc87	recording	joint PSNS
Aug 17-19	Phil Sansum	Drymen,	vc86	recording	

Vacancies remain on most of the longer meetings as we go to press. Please come and help us out!

Pinnule venation in the Male Ferns (See page 12)



- 1: *Dryopteris affinis* ssp *affinis*
- 2: *D. borrieri*
- 3: *D. cambrensis* ssp *cambrensis*
- 4: *D. filix-mas*





Above: Rowan and Stac Pollaidh (Ian Strachan)

Below: *Oxytropis campestris*, Loch Loch (Bert Barnett)

