



BSS News

The Newsletter of the
Botanical Society of Scotland

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The Botanical Society of Scotland is a Scottish Charitable Incorporated Organisation (SCIO) (No. SC016283)

Front cover pictures:

Outside Yellow nonea, *Nonea lutea*, at Edinburgh Park Station tramstop, May 2019. See Field Report on p.15. Photo: John Grace.

Inside Two pictures of botanists botanizing, and relaxing, at Clackmannan. See Field Report on p.20. Photos: Brian Ballinger.

BOTANICAL SOCIETY OF SCOTLAND

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Website: <http://www.botanical-society-scotland.org.uk>

You can follow the BSS on Facebook and Twitter.

Founded in 1836 as the Botanical Society of Edinburgh, the Society became the Botanical Society of Scotland in 1991. Meetings are held in Edinburgh, Aberdeen, Dundee, Glasgow, Inverness, Perth and St. Andrews. The Society encourages the study of flowering and non-flowering plants. Activities of the Society include lectures, field meetings, symposia, surveys, and an annual exhibition meeting for the exchange of information on all aspects of Scottish botany. All botanical enthusiasts are welcome to be members of the Society, including gardeners, professional plant scientists, amateur field botanists and students. All members receive information about the events of the Society, including programmes of lectures and field meetings, as well as a twice-yearly newsletter, *BSS News*. Standard membership also includes the scientific journal: *Plant Ecology & Diversity*, published by Taylor & Francis on behalf of the Botanical Society of Scotland. Standard members can also go online and download all the Society's journals, from papers which have just been accepted for publication in *Plant Ecology & Diversity*, all the way back to the first issue of *Transactions of the Botanical Society of Edinburgh* published in 1844 (instructions can be found on our website).

Applications for membership of the Botanical Society of Scotland should be made to the Hon. General Secretary at the address at the top of this page. Subscriptions can be paid by cash, cheque (payable to the Botanical Society of Scotland), or Banker's Order. Please ask for a Banker's Order form if required. Or you can join online and pay by PayPal via the BSS website at <http://www.botanical-society-scotland.org.uk/content/bss-membership>.

Subscriptions fall due on 1st October each year:

Standard rate (with the Journal <i>Plant Ecology and Diversity</i>)	£40.00
Standard rate for undergraduate students (with the journal)	£30.00
Basic rate (without the journal)	£20.00
Basic undergraduate student rate (without the journal)	£5.00

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EDITORIAL

An unimaginative start to the news, but we must make sure that you read this! Several members are still not paying the current rate for subscriptions (see page 2), and the last increase was in 2012. Please check with your bank - you may have arranged an automatic payment some time ago and forgotten to check it.

Since our last issue, the BSS has held a large number of field meetings, many of them in connection with the Urban Flora Project (UFP), and several in association with partner organisations such as BSBI and the Dundee Naturalists. Everyone is welcome. A large part of this issue of BSS news is taken up with reports of field meetings, and we have recorded a large number of species, some of which were unexpected in Scotland, and exciting to find. As the UFP is recording its way through the plant kingdom, Dr Richard Milne and his family are trying to eat their way through it, see Richard's article on page 32. Their salad, pictured on the inside back cover, was no doubt as delicious as it looks.

The mills of the Coul Links Development adjudication will no doubt grind fine, but they do grind rather slowly: Dr Julia Wilson has been obliged to mark time in her article on page 9, but we hope to have heard the result by 16th January 2020, when we welcome Dr Tom Dargie as our visiting lecturer in Edinburgh to talk about "*Coul Links and golf: environmental science and the planning system in Scotland*". Tom Dargie will surely receive our warmest welcome for the stupendous effort he has made on behalf of all conservationists in the cause of preventing the destruction of Coul Links. His lecture will be repeated in Inverness, on 11th February 2020.

Thank you very much to the people who have sent in articles. We really need more people to contribute – for example please tell us what you are doing botanically, which gardens and wild places you are visiting, as well as who you would like to hear give lectures, and how we can encourage the next generation of botanists! The society depends upon your input.

Roger West and Jill Thompson

MEMBERSHIP MATTERS

Subscriptions and Gift Aid

Thank you for your continued support of the BSS. Payment of annual membership subscriptions is due on 1st October 2019 for all members except those who have joined us since 1st April 2019, whose membership will run until October 2020.

If you already pay by Banker's Order (direct debit or standing order), membership should renew automatically (but please check your account details and that you are paying at the correct rate). If you pay by PayPal, you can renew your membership online at <http://www.botanical-society-scotland.org.uk/content/bss-membership>. If you prefer to pay by cheque, please make the cheque payable to the Botanical Society of Scotland. Banker's Order and cheque payment forms are enclosed with this News.

Some subscriptions are paid from Bank Accounts that do not match the names of any of our members. If this applies to you, please send the details to the Treasurer, to help us avoid problems with your membership.

Membership rates remain unchanged, please see p.2 for details.

If you pay UK tax, it helps the BSS if you 'Gift Aid' your subscription. This enables us to reclaim directly from the tax office an extra 25p that you have already paid in tax, for each £1 of your subscription. If you have completed a gift aid form in the past, you do not need to do so again, but if you have never done so, please complete the one enclosed with this News, and send it to the Treasurer. If you cannot remember if you have filled in a gift aid form in the past, then ask the Treasurer.

Please check that your contact details are up to date in our records. You can edit your contact details online, by logging into your BSS account (<http://www.botanical-society-scotland.org.uk/user>), or by contacting the Membership Secretary, who can make the changes for you.

If you would like to receive our monthly emails about events, please follow this link <http://eepurl.com/dt6ha9> to sign up to them. While sending you emails about monthly events requires your consent, we will continue to email all our members about issues relating to the

management of the BSS, such as the Annual General Meeting and membership renewals.

Finally, if you decide not to renew your membership, please tell us. However, if we do not receive your subscription by Feb 1st 2020, your membership will lapse.

Kevin Gaffney
Membership Secretary
membership.secretary@botanical-society-scotland.org.uk

BSS COUNCIL 2019-2020

Our Annual General Meeting was held, as usual, in May after the last lecture of the Winter season. The President reported on our activities over the past year, and plans for the future, and the Treasurer explained our financial position (see p.53). In accordance with the our Constitution, membership of Council must be renewed every three years, by vote at the AGM, and new applicants for Council are put up for election by members.

This year, Brian Ballinger and Roger West's memberships of Council were up for renewal after their three year terms, and we had received three applications for new membership of Council, from Heather Forbes (RBGE), Jay MacKinnon (Napier University and BSBI County Recorder) and Kevin Gaffney (Wwoof). All other members of Council had indicated their willingness to continue serving the BSS. Brian and Roger were duly re-elected and Heather, Jay and Kevin were elected. Our new Council is listed on the following page. Brian Ballinger has stepped down from President, after two years, and Julia Wilson has taken on that role. Most other roles remain as before, but Kevin Gaffney has taken over as Membership Secretary and Liz Lavery has assumed the full role of General Secretary. We benefit enormously from the long experience and expertise of many Council members, but new faces and skills are always welcome. If you are considering applying for Council membership but would like to sit in on a few meetings before deciding, please contact us to arrange it.

BSS COUNCIL 2019-20

President:	Dr Julia Wilson
Vice-Presidents:	Dr Brian Ballinger vacant
General Secretary:	Liz Lavery
Treasurer:	Dr David Chamberlain
Membership Secretary:	Kevin Gaffney
Programme Secretary:	Dr Maria Chamberlain
BSBI Liaison:	Dr Liz Kungu
Conservation Secretary:	Dr Richard Milne
Cryptogams:	Cameron Diekonigin
Journal Editor-in-Chief:	Dr Laszlo Nagy
Journal Editorial Committee & Urban Flora Convenor:	Prof John Grace
Newsletter Editors:	
Receiving Editor:	Dr Jill Thompson
Co-ordinating Editor:	Roger West
Publicity Officer:	vacant
Student Representative:	Maude Grenier de Sigley
Web Site Administrator:	vacant, Julia Wilson acting
Councillors:	Heather Forbes Dr Chris Jeffree Jay MacKinnon Christina Smith
Local Secretaries:	Aberdeen: Dr David Burslem Dundee: Dr Brian Ballinger Edinburgh (RBGE): Dr Heather McHaffie Edinburgh (KB): Prof John Grace Glasgow: vacant Inverness: vacant St. Andrews: Prof Richard Abbott

JULIA WILSON - INCOMING PRESIDENT OF THE BSS

Firstly, I would like to thank my predecessor Brian Ballinger for his work as President over the last two years. He has made a tremendous contribution to the society, not least his enormous energy in organising field meetings and collecting data for the Urban Flora Project and his excellent leadership and chairing of Council meetings.

My background is a bit different to Brian's. While Brian's interest began as an amateur botanist, as a sideline to being a consultant psychiatrist, I studied botany as an undergraduate at the University of London and came to Edinburgh to do a PhD in the Department of Forestry and Natural Resources, with Prof John Grace as my supervisor. John will be well-known to you as the initiator of our Urban Flora Project and previous President.

My PhD involved studying the physiology of *Acer pseudoplatanus* trees exposing them to wind in a wind-tunnel. Among other measurements, this involved measuring photosynthesis, which required comparing CO₂ levels in ambient air and in air which had passed over leaves. John questioned my ambient CO₂ values which were 308 ppm at that time (1974). How low that sounds today, when global levels are now around 410 ppm.

I was then employed by the Institute of Terrestrial Ecology (later renamed the Centre for Ecology and Hydrology) to work on land reclamation, which developed my interest in mycorrhizal fungi. Over time this led to me being involved in projects all over the tropical world, on mycorrhizas and on below ground competition for water between trees and crops. I am now retired, and a 'Fellow' of CEH and continue my interest in botany by mapping and understanding the distribution of different cytotypes of polyploid *Campanula rotundifolia*.

FAREWELL FROM BRIAN BALLINGER - OUTGOING PRESIDENT OF THE BSS

I have now come to the end of my two year term as President and welcome my successor, Dr Julia Wilson. I have enjoyed my time in this role and will remain as Vice-President for a while, to assist the incoming president, and also continue as local secretary for Tayside.

I believe we have organised a very successful series of events, projects and publications. I am very grateful to members of Council and

others for all their contributions.. I also thank the Royal Botanic Garden Edinburgh for their support and collaboration.

Although much of our activity remains Edinburgh based, we have these past few years become more involved in meetings and projects elsewhere in Scotland, often in collaboration with other societies. This emphasises our role as a national society.

I look forward to our future progress and wish Julia Wilson and the Botanical Society Council continued success in the future.

COUL LINKS DEVELOPMENT - UPDATE: The Public Inquiry and Outcome

Regular readers will remember that we reported in our March 2018 News that there had been a planning application to Highland Council to construct a golf course at Coul Links, near Embo, Sutherland, which is protected by national (Site of Special Scientific Interest), European (Special Protection Area) and International (Ramsar) environmental designations. Highland Council's Area Planning Manager recommended refusal, primarily on the basis of objections by Scottish Natural Heritage (SNH: a statutory body) and damage to wildlife, but the Planning Committee recommended acceptance. This difference of opinion, and considerable pressure from organisations (including the BSS) and individuals, led to the proposal being 'called in' by Scottish Ministers for a Public Inquiry.

In the March 2019 News, we reported on the pre-examination meeting, held in October 2018, and the details of the upcoming Public Inquiry, which was to commence in late February this year (after the deadline for the March News). The Public Inquiry commenced on 26 February and ran for just over three weeks. Members of the public were welcome to attend the sessions, which were also webcast. The sessions were expertly run by the two Reporters (David Liddell and Timothy Brian), who were appointed by the Scottish Government.

Prior to the inquiry, all witnesses submitted written 'precognitions', setting out their background and experience, the scope of their evidence, and summarising their evidence in favour or against the planning application. All of these precognitions and all other documents and emails related to the inquiry can be found on the Scottish Government Planning and Appeals Division website at <https://www.dpea.scotland.gov.uk/CaseDetails.aspx?id=119883>.

All sessions of the inquiry were recorded and the webcasts can be followed at <https://dpea.public-i.tv/> (search for NA-HLD-086). While we are used to PowerPoint presentations in many walks of life, the inquiry relied on the printed documents that had been submitted, the eloquence of the witnesses and advocates, and the occasional flip chart to present their evidence. Large numbers of A4 ring binders bursting with documents, had been brought to the inquiry, and much time was spent searching for paper documents and on laptops, to make sure that everyone was looking at the same information.

The witnesses and Counsel for the opposition were impressive and performed brilliantly, as you can see in the recordings.

At the end of the inquiry, a 'conditions session' was held at which deadlines for the submission of written 'closing submissions' were invited from all parties and a deadline of 22 April was agreed. On 10th April, the Applicant (Coul Links Ltd.) requested a short extension until 26th April, which was agreed by the Reporters. A further extension was then requested until May 10th. This third deadline was also not met, and other parties raised questions about the fairness of the process, as this enabled the Applicant to review the closing submissions of other parties, which had been submitted on time and are available to the public. The Applicant finally submitted one chapter of their closing submission on 24th May and the remaining chapters of submissions were promised for June 5th. This date has come and gone, and there is no further information on the website.

In the meantime, we hear that the dunes on which the Trump International Golf Course on Menie Estate was built, may lose their status as a nationally important protected wildlife site (as part of the Foveran Site of Special Scientific Interest), due to damage, fragmentation and disruption of ecological processes, as a result of the golf course development. A 3-month consultation period which commenced on June 28th is in progress. The photographs in SNH's press release (<https://www.snhpresscentre.com/news/dunes-at-menie-golf-course-expected-to-lose-protected-status>) tell the sad story.

Breaking news: As we go to print, we see that the Applicants' closing submission was received by the Reporters on 6th August, well beyond the deadline.

Julia Wilson

FIELD REPORTS

Since our last issue, the 4th edition of Clive Stace's *New Flora of the British Isles* has become available. There are quite a large number of changes of plant names from the 3rd edition. The Urban Flora Project is retaining 3rd edition names in its databases for the time being, but the names of all vascular plants mentioned in Field Reports in this issue have been checked against the 4th edition. Where these have affected the Field Reports, the 4th edition name is given first, and the old name noted as a synonym, e.g. *Jacobaea vulgaris* (= *Senecio jacobaea*). Student members of the BSS can impress their tutors, in their essays, by citing both names where appropriate! There is a review of the new edition on page 45.

A LONG WEEKEND IN DUMFRIES & GALLOWAY 24th– 27th May 2019

This joint meeting of the BSS's Urban Flora Project (UFP), the BSBI and the Dumfriesshire Botany Group was intended augment the somewhat sparse records of the towns of Dumfries and Galloway, both for the UFP, and for Atlas 2020. The UFP is particularly interested in recording the flora of urban areas (defined as population > 1000) throughout Scotland. The flora of urban areas may be expected to differ from that of nearby rural areas because it includes many plants closely associated with human activity, either historical or current and plants that like the opportunities the urban environment offers, may be different to the surrounding countryside. This includes a warmer climate and many, often temporary, open ground opportunities suiting good colonists or plants that like disturbance and built infrastructure micro niches.

The two groups combined to give us up to 12 people on some days, working in smaller teams, always with a BBS and BSBI contingent. This allowed us to cover a good deal of ground in Dumfries, Heathhall, Annan, Sanquhar and Kirkcubright. Cards were completed for twelve monads for the Atlas, complemented by records in the same squares based on urban habitat categories. When all the records are digitised for analysis, this will yield more than 1500 new records. Some of the most interesting records are highlighted here.

On the afternoon of Friday 24th we met up at Brooms Road car park, Dumfries, in bright sunshine and recorded from here down to the riverside, through Dock Park, St Michael's cemetery and the back

streets. Dumfries proved to be a good hunting ground, especially around the River Nith. Highlights included some species not seen for a long time, including Henbit Dead-nettle, *Lamium amplexicaule*, on the edge of the pavement, not seen in Dumfries for over 100 years, and Northern bedstraw, *Galium boreale*, on the river wall, not seen in the Dumfries monad since 1936. The walls of the river were covered in Mexican Fleabane, *Erigeron karvinskianus*, a plant just getting a foothold in other Scottish towns but now widespread in England, Wales and Ireland. Those unfamiliar with the south-west of Scotland were surprised to see much of the highly poisonous Hemlock Water Dropwort, *Oenanthe crocata*, at the riverside in the centre of town. We then split into two groups, and each divided into sub-groups. One group explored St Michael's cemetery, where the body of Robert Burns rests. We found 50 species among the tombstones, including the Spotted Catsear, *Hieracium* sect. *Vulgata* (= *Hieracium maculatum*) and Pampas Grass, *Cortaderia selloana*, in various stages of clump-formation.

On Saturday the weather turned wet in the late morning, but the botanizing continued. In the morning one group went to Nunholm and recorded along the road, cycle track and riverside. Another group went to Heathhall and recorded on and around the old airfield famed for its aviation museum on the site of the former RAF Dumfries and industrial estate. At Nunholm the most notable find was a colony of Shady Horsetail, *Equisetum pratense*, growing below the old railway bridge that now carries the cycle path. This is known from small populations further up the Nith, and may have washed down, but was well established. On the bridge was some a lot of Squirreltail Fescue, *Vulpia bromoides*, and Hop Trefoil, *Trifolium campestre*. The former appears to be spreading in the County especially on forestry tracks, but the latter has few recent records in Dumfriesshire and may have declined.

At Heathhall, we found many species thriving in the fissures on the WW2 runway including Parsley Piert, *Aphanes arvensis*, Squirreltail Fescue, *Vulpia bromoides*, Sandspurrey, *Spergularia rubra* and Spring Sandwort, *Sabulina verna* (= *Minuartia verna*). Wild Pansy, *Viola tricolor*, was also present on open ground, a species that may be declining in the county. Just beyond the runway we entered a small woodland, criss-crossed by dog-walkers' paths. We came upon an open area with a strange depression (originally a bomb crater perhaps) with patches of acid-loving species including heather, *Calluna vulgaris*, Tormentil, *Potentilla erecta*, and Wavy Hair-grass *Avenella flexuosa*

(=*Deschampsia flexuosa*). There we found a rather scarce species, Birdsfoot, *Ornithopus perpusillus*, (pods arranged like a bird's foot).

On Saturday afternoon the rain started to ease. One group went to the SWT Ladypark Reserve, where house-building continues. They found an area stripped of topsoil, exposing a sandy substrate which had been colonised by Small Cudweed, *Logfia minima*, (= *Filago minima*), smaller quantities of Trailing St John's-wort, *Hypericum humifusum*, Canadian Fleabane, *Erigeron canadensis* (= *Coniza canadensis*) and one plant of Creeping Willow, *Salix repens*. The other group visited a small allotment site and found Fool's Parsley, *Aethusa cynapium*, on disturbed ground, Sticky Groundsel, *Senecio viscosus* and Hairy Tare, *Ervilia hirsuta* (= *Vicia hirsuta*), Goat's-beard. *Tragopogon pratensis* was found here and also in some of the grassland sites we visited in the next two days. This is good news – there were only three post-2000 records of it in the County.

Sunday morning was windy but bright, and we went to Annan. We divided into three groups, two recording East Annan and the third in the centre of town and riverside. On vacant ground and walls in several parts of the town we were excited to find sizeable colonies of Rue-leaved Saxifrage, *Saxifraga tridactylites*, rarely recorded in SW Scotland: see the pictures on p.27 and the inside back cover. Smooth Hawk's-beard, *Crepis capillaris*, was just coming into flower alongside the other yellow-flowered composites, Cat's Ear, *Hypochaeris radicata*, and Mouse-ear-hawkweed, *Pilosella officinarum*. On the base of walls, we saw plenty of the little garden plant Mind-your-own-business, *Soleirolia soleirolii*, common in southern England and perhaps now expanding its range in Scotland. Along the river banks we found Italian Lords and Ladies, *Arum italicum*, and Water Figwort, *Scrophularia auriculata*. Nearby woods yielded Common Twayblade Orchid, *Neottia ovata*, and Meadow Saxifrage, *Saxifraga granulata*. The best find was probably Northern Dead-nettle, *Lamium confertum*, a plant with only five previous records in the County, the last in 1981. It may be overlooked, and demonstrates the value of a BSS colleague who knows this from elsewhere visiting the area.

On Sunday afternoon we said goodbye to some, but continued with two groups recording parts of the town beside the river. Once more we saw Mind-your-own-business, *Soleirolia soleirolii*, growing profusely along the base of walls reached by the highest tides. Along the riverside, Water Figwort, *Scrophularia auriculata* and Meadow Saxifrage,

Saxifraga granulata, were good finds in more established grassland, while Purple Toadflax, *Linaria purpurea*, and Yellow Corydalis, *Pseudofumaria lutea*, are both uncommon plants in South West Scotland.

On Monday, our final day, we had warm, dry weather. We went to the historic town of Sanquhar (population around 2000), parking next to the tollbooth (William Adam 1731). We divided into two groups. One group visited the ruined castle, recently fenced off with a locked gate for safety. However, observations could still be made. Black Spleenwort, *Asplenium adiantum-nigrum*, last recorded in the hectad in 1975, was common on its walls. The sheep pasture surrounding the castle is calcareous, with Burnet Saxifrage, *Pimpinella saxifraga*, and Lady's Bedstraw *Galium verum*. The Bulbous Buttercup, *Ranunculus bulbosus*, was abundant in one small area.

The other group visited Blackaddie Bridge, the riverside and an industrial area. The town lochan had New Zealand Pygmyweed, *Crassula helmsii*, a very scarce non-native invader in SW Scotland (banned from sale from April 2014. This is the first ban of its kind in the country).

In the afternoon we went to the nearby former mining town of Kirkconnel. One team went across to Kelloholm, the other recorded the main street, railway and riverside. Grassland in and around the town had good populations of the umbel Burnet Saxifrage, *Pimpinella saxifraga*, and in one place Bulbous buttercup, *Ranunculus bulbosus*. In the base of walls on one street there was Wall Whitlowgrass, *Drabella muralis* (= *Draba muralis*), a larger cousin to the more ubiquitous Common Whitlowgrass, *Erophila verna*. By the station, disturbance had allowed Common Cornsalad, *Valerianella locusta* (see picture on p.27) and Black medick, *Medicago lupulina* to flower. The latter had only previously been seen at Sanquhar station in upper Nithsdale, so it had clearly caught the train north. On the riverside there was a good stand of Water Sedge, *Carex aquatilis*. This northern species is known above and below Kirkconnel on the River Nith, so it was nice to find it here.

Many of the towns in SW Scotland have received rather little coverage hitherto, and we were pleased to be able to contribute records. We have 1,676 records and 496 species from our weekend's work.

Chris Miles (BSBI) and John Grace (BSS)

FIELD MEETINGS AT EDINBURGH TRAMLINE, 2019

The original intention of tramline excursions was to study the invasion of the ballast by vascular plants. Best laid plans... annual spraying of glyphosate knocked ballast plants, and the plan, for six. However, many areas near the tramline between Murrayfield and Airport tramstops have proved to be botanically interesting, and the tramline excursions are now a significant part of our Urban Flora Project. Between Murrayfield and Edinburgh Park Station tramstops, there is extensive grassland, hedges, bridges and kerbs, which have been shown to support a good variety of species. Between Edinburgh Park Station and Edinburgh Park Central tramstops, there are large areas of rough ground, which show ample signs of former human disturbance, but are now rough, wet in parts, with little footfall and a rich flora: this area does not appear to be at immediate risk of building development. Between Edinburgh Park Station and Gogarburn tramstops, most of the ground is either too well manicured, or too inaccessible, to have attracted our attention. Near Gogarburn tramstop, the valley of the Gogar Burn is interesting, and between Gogarburn and Airport tramstops, there are extensive areas of abandoned farmland, on both sides of the tramline, which are destined for housing development in the fairly near future, but are now botanically interesting. The botanical changes in this area resulting from the expected change of use may make interesting future research for the UFP.

First Excursion to the Tramway, 12th June 2019

Four botanists met at Haymarket tramstop, Edinburgh, on the evening of Wednesday 12th June, and proceeded by tram to Saughton, where we were met by fairly heavy and continuous rain. Between Saughton and Bankhead tramstops, the tramway runs between the railway, just to the north, and a road, to the south. Between the tramway and the road is a strip of grassland – almost a meadow – and we decided to concentrate our recording there. A previous reconnaissance by John Grace and Roger West had located many species, including Yellow Nonea, *Nonea lutea* (see picture on front cover), and Viper's Bugloss, *Echium vulgare*, both Boraginaceae, at Edinburgh Park Station tramstop, so after reaching Bankhead we continued to that destination to admire them in the rain. *Nonea lutea* is uncommon in the British Isles: most of the small number of records are in the south and midlands of England, with two in northern England, and one station – literally! – in Edinburgh

We then retreated to Haymarket, and later in the evening four drowned rats made their ways to their respective homes.

Roger West

Second Excursion to the Tramway, 26th June 2019

The Edinburgh tramline, constructed between 2008 and 2013, links the city centre with the airport, cutting a 20-metre corridor through the mostly-arable landscape, skimming past several commercial centres, allotments and housing developments. Nothing is allowed to grow on the track itself, which rests on a deep bed of coarse gravel dosed with herbicide but there is a margin between the line and the surrounding fields which we thought might be worth visiting. This was the second of three evening visits, this time covering the most westerly stretch of the route.

The plan was to meet at the west end of the city (Haymarket), and take the tram to the Ingliston Park and Ride stop, joining those others coming by car. I arrived early at the Haymarket, and went for a walk. Round the corner was a patch of land where the rail and tram lines converge. *Conium maculatum*, Hemlock, was growing there with a large specimen of Oxford Ragwort, *Senecio squalidus*, and several other species.

We took the crowded rush-hour tram to meet the others. The party of eight divided into two groups, one going west towards the airport and the other going back towards the city, heading for Gogarburn.

Going east, the route was not easy. Sometimes we had to walk on the ballast of the line, listening out for the ringing sound of approaching trams, at other times we were wading through long grass on the edge of fields. The grasses included False oat-grass, *Arrhenatherum elatius*, Sterile Brome, *Anisantha sterilis*, and the stately Great Brome, *Anisantha diandra*. Several ditches and wet areas slowed us down. The pea family was well-represented (had the trackside been seeded for nitrogen fixation?). We found masses of *Ervilia hirsuta* (= *Vicia sylvatica*, Hairy Tare) with *Ervum tetraspermum* (= *Vicia tetrasperma*, Smooth Vetch), significant quantities of Hop Trefoil, *Trifolium campestre*, Bush Vetch, *Vicia sepium*, and Meadow Vetchling, *Lathyrus pratensis*. Also, we saw much clover (including Alsike clover, *Trifolium hybridum*, and strange examples of *Trifolium repens* exhibiting vivipary; has anyone ever seen that before? Cut-leaved Cranesbill, *Geranium dissectum*, was flourishing. At the side of the track we found Fairy Flax, *Linum*

catharticum. Later, we came upon an open field of heavy soil, partly flooded but pegged out for building, and white-dotted with Scentless Mayweed, *Tripleurospermum inodorum*. The field produced an entirely different range of species: Corn Spurrey, *Spergula arvensis*, Marsh Foxtail, *Alopecurus geniculatus*, both *Papaver rhoeas* (Common Poppy) and *Papaver dubium* (Long-headed Poppy), much Knotgrass, *Polygonum aviculare*, and some Black Bent, *Agrostis gigantea*. A ditch between the field and the track contained a stand of Bulrush, *Typha latifolia*.

We soon came to the point where the track crosses the Gogar Burn. The burn has steep banks, colonised by Giant Hogweed, *Heracleum mantegazzianum*. We saw many of its seedlings in the edge of the field. We ran out of time: however, we noted that further work is needed around the Gogarburn station.

Going west, the second group followed the tramway towards the airport, occasionally slithering down the embankment to explore interesting drainage ditches and other patches. The open fields on either side are destined for future development, with vehicular crossing points already established, dumped soil in some areas and drainage ponds created. Overall, the vegetation was very similar to that described in the eastern direction, though *H. mantegazzianum* was rare. An area of boggy ground revealed a few additions to our list – Common Reed, *Phragmites australis*, and Bulrush, *Typha latifolia* were frequent in damp patches, with Small Sweet-grass, *Glyceria declinata*, and Marsh Foxtail, *Alopecurus geniculatus*.

John Grace with help from Julia Wilson

Third Excursion to the Tramway, 17th July 2019

On our final visit to the Edinburgh Tramline, we divided into three groups, the first walking from Gogarburn to Edinburgh Gateway, the second working on rough ground adjacent to the short length of tramline between Edinburgh Park Station and Edinburgh Park Central tramstops and the third walking the line between Saughton and Balgreen.

Gogarburn to Edinburgh Gateway: We were lucky to have Cameron Diekonigin, Vladimir Kriftsov and David Chamberlain in our group, so the records are heavy with choice fungi and bryophytes. In this bit of the tramway we covered two monads, NT1672 and NT1772. The first monad included Gogar Kirk and surrounding meadows. A lone *Dactylorhiza fuchsii* was found nestled between some common meadow

species, but the find of the monad had to be 'Twist' on *Holcus lanatus*. This wonderful fungus, *Lidophia graminis*, is a common but usually overlooked plurivorous grass fungus which causes distortion and dieback in leaves and distortion in inflorescences in several grass genera. The most familiar distortion is where the uppermost tip of the inflorescence gets caught in a leaf sheath but the stalk continues to grow result in a distinctive loop of stalk. A close look at where the tip is caught in the leaf sheath will reveal a small dark grey discolouration where the fungus is immersed in the leaf. The Kirkyard revealed a good bryophyte list, the most notable of which was *Cyrriphyllum piliferum*. Walking from Gogarburn to Edinburgh Gateway we crossed over into the second monad and had to start a new species list all over again. The trees at the side of the track were mostly planted, so could not be included in the list, but the pathogens they bore were spectacular. Maybe the disturbance of the tramway construction contributed to the trees' vulnerability. All three *Taphrinas* on alder were there, *T. sadebeckii*, *T. tosquinetti* and the spectacular *T. alni* (alder tongue). Another distinctive *Taphrina* is *T. pruni* on *Prunus spinosa*, which causes infected fruits to become empty and elongated. The track base was covered in several areas by the pretty hare's foot trefoil, *Trifolium arvense*, which will no doubt be weed-killed before long. The angiosperm find of the day was a single spike of *Epipactis helleborine*. It was at this point that a man in a yellow jacket appeared questioning our intentions. He was not impressed by the fact that we had received permission to carry out the survey – and threw us off. Let us hope that the lone helleborine remains safe on this rather inaccessible bit of the tramway track route.

Maria Chamberlain

Edinburgh Park: On this short stretch the line goes over an elegant curved bridge and isn't accessible. There are, however, large areas of derelict ground to the north, much of it completely abandoned as far as we can tell, forming a ridged landscape with many areas of impeded drainage. In some places, standing water is present for a sufficiently great part of the year to support *Typha* and *Lemna* spp. It seems to have been the storage area for building materials, including ballast. Stumbling around for two hours, we found 102 species. Some were especially conspicuous, including Common Spotted-orchid, *Dactylorhiza fuchsii*, and Wild Teasel, *Dipsacus fullonum*, both in full flower. The ever-present Hairy Tare, *Ervilia hirsuta* (= *Vicia hirsuta*), had

ripe seeds by now. Among the unexpected we found Lesser Swine Cress, *Lepidium didymum*, *Malva moschata* (Musk-mallow, but in various colour-shades from white to purple – a garden escape we were sure), and one plant of *Pastinaca sativa* (Wild Parsnip, very attractive yellow umbels) growing with other tall herbs close to the line.

John Grace

Saughton to Balgreen: An asphalted path follows this part of the tramline, and we shared the space with evening walkers and cyclists. Much of the route was grassland that was quite monotonous in terms of species composition, probably having been re-seeded during landscaping of the tramway. It was rich in Timothy, *Phleum pratense*, and white clover, *Trifolium repens*, enlivened occasionally by sporadic, often single occurrences of natives, such as Greater stitchwort, *Stellaria holostea*, and Lesser stitchwort, *Stellaria graminea*, *Hypericum x desetangsii*, *Trifolium arvense*, *T. campestre* and *Reseda luteola*, plus a number of ‘escapes’ from adjacent allotments and cultivation, such as Horseradish, *Armoracia rusticana*, and Caper Spurge, *Euphorbia lathyris*. Although few notable plant species were found, the final species list came to 110. We enjoyed the colourful purple and yellow display of flowering *Cirsium arvense*, *Epilobium hirsutum*, *Chamaenerion angustifolium* (= *Chamerion angustifolium*), *Jacobaea vulgaris* (= *Senecio jacobaea*) and *Galium verum* close to Saughton. Several white clover plants were showing a curious development of their flowers, which were turning into leafy structures. Enquiries about this via the BSS Facebook page, suggested that they were probably due to phytoplasmas hijacking the host plant and causing reversion of flowers to leafy structures. See this website for further information: <https://www.jic.ac.uk/phytoplasma/>. There was a complete absence of the common thugs Giant Hogweed, *Heracleum mantegazzianum*, *Impatiens glandulifera* (Himalayan Balsam) and *Reynoutria japonica* (= *Fallopia japonica*, Japanese Knotweed) and wondered whether this was due to active management or whether they have not yet arrived.

Julia Wilson and Chris Jeffree

CLACKMANNAN BSS/BSBI/PSNS, 14th MAY 2019

A group of nine gathered in the centre of this quiet village to record plants for the BSBI Atlas 2020 and the BSS Urban Flora Project (see pictures on inside front cover). We set out on what turned out to be a fairly short walk, having noted the presence of a tea shop on the High Street. A local funeral was taking place, which appeared to be making a lot of business for local refreshment facilities.

We began by looking at the plants around the Tolbooth, which included the small ferns Maidenhair Spleenwort *Asplenium trichomanes*, and Wall Rue, *Asplenium ruta-muraria*, which are such a feature of the urban environment. Then we walked slowly down the hill towards the river, passing a piece of derelict land, which yielded 50 species, including Cut-leaved Cranesbill, *Geranium dissectum*. Matt Harding added some bryophyte records for inclusion in the urban flora list. Down by the river was an area of woodland where Moschatel, *Adoxa moschatellina*, was spotted, together with Water Avens, *Geum rivale*.

In the park beyond, a useful seat gave us a good lunch spot on what was a warm and sunny day. Here, in the disturbed ground under the bench, we found an unusual little plant, *Valerianella locusta* (Common Cornsalad, see picture on p.27). The adjacent meadow was quite species rich and Hard Rush, *Juncus inflexus*, and Hairy Sedge, *Carex hirta*, were recorded. At the lower part of the meadow, where the smell of Wild Garlic, *Allium ursinum*, became increasingly strong, our way was blocked by fallen trees under the railway line, so we returned by a different route.

By the roadside, an interesting find was American Speedwell, *Veronica peregrina*. Nearby was Small-flowered Crane's-bill, *Geranium pusillum*, later confirmed as this species by the BSBI referee. Both species are very rare in VC87.

Back in the main street the tea shop had now closed, but we enjoyed an ice cream as consolation. Above the town, by Clackmannan Tower, now out of the urban area, we were pleased to see Pellitory-of-the-wall *Parietaria judaica*, as well as the panoramic views over the River Forth. In all we recorded 59 species in the first monad, 114 in the second and smaller numbers in the two monads that we only entered briefly.

Liz Lavery and Brian Ballinger

AUCHTERARDER 27TH MAY 2019 BSS/ PERTSHIRE SOCIETY OF NATURAL SCIENCE

Seven of us gathered towards the west end of this long village, which is expanding rapidly with new housing estates. Our ages varied from 5 years old to very senior! We were recording for the Botanical Society of Scotland's Urban Flora Project as well as the Botanical Society of Britain and Ireland's 2020 atlas. In places the distinction between urban and non-urban proved difficult.

Part of the group started by walking down through a park. Here were patches of woodland and some rather neglected areas. In the woodland there was a mixture of native species and neophytes (recently arrived species), including *Silene latifolia* (White Campion), *Silene dioica* (Red Campion) and their hybrid, together with *Alliaria petiolata* (Garlic Mustard). Alien species included *Allium paradoxum* (Few-flowered Garlic), *Erysimum cheiri* (Wallflower) and *Claytonia sibirica* (Pink Purslane). In all 101 vascular plant species were noted in the first tetrad (2 x 2km square) visited.

Another group headed to the north of the village where *Veronica peregrina* (American Speedwell) was identified. A few lichens and mosses were also recorded here.

By lunchtime steady rain had set in and some of the group lunched by the park playthings, which were much appreciated by one of our number. Others had retreated to a cafe.

In the afternoon a diminished band headed down the main street to the other tetrad to the east, looking into older side alleys on the way. Here old walls featured some typical urban species such as *Cymbalaria muralis* (Ivy-leaved Toadflax), *Asplenium* (Spleenwort) species and *Campanula poscharskyana* (Trailing Bellflower). *Papaver cambrica* (= *Meconopsis cambrica*, Welsh Poppy) was prominent and *Barbarea* (Wintercress) species were noted. In spite of persistent rain, 55 species were found in the second urban tetrad.

Once more, a teashop beckoned and we felt it had been a reasonably successful day, in spite of the downpour.

Brian Ballinger

CONON BRIDGE 4th JUNE 2019 BSS/BSBI/ INVERNESS BOTANY GROUP

This meeting at Conon Bridge was intended to record for the Botanical Society of Scotland's (BSS) Urban Flora Project, as well as for the Botanical Society of Britain and Ireland's (BSBI) Atlas 2020. We were also joined by members of the Inverness Botany Group. See picture on p.30.

The weather was overcast and damp but we set off to record the plants around the car park by the Ferintosh Parish Church, which is bounded by a small stream. An unusual find was *Solanum nigrum* (Black nightshade), new for Easter Ross, as well as *Caltha palustris* (Marsh Marigold), and a *Rorippa* (Watercress) species in the stream.

Along the path towards the railway station we noted *Erinus alpinus* (Fairy Foxglove), unusual here, and undoubtedly an escape from a nearby garden. There was also a variety of native and alien species such as *Silene dioica* and *S. latifolia* (Red and White Campion), and *Ornithogalum umbellatum* (Garden Star of Bethlehem).

Walking back towards the village centre we saw several plants growing on walls including *Cymbalaria muralis* (Ivy-leaved Toadflax.). A coffee shop full of aquariums provided a welcome escape from the rain.

Moving out of the urban area the group proceeded along the River Conon, which was swollen from recent rains, pausing for lunch on two seats kindly provided by local fishermen. In a damp area near the river were the sedges *Carex vesicaria* (Bladder Sedge), *C. nigra* (Common Sedge) and *C. panicea* (Carnation Sedge), as well as *Eleocharis multicaulis* (Many-stalked Spike-rush).

The Garrie Island was still just joined to the land, and was notable for the considerable number of *Physocarpus opulifolius* (Ninebark) trees. The island is heavily wooded and plants seen included *Carex remota* (Remote Sedge) and *Circaea x intermedia* (= *C. alpina* x *C. lutetiana*, Intermediate Enchanter's Nightshade). The unusual Spurge *Euphorbia dulcis* (Sweet Spurge) was growing in several places. At the end of the island, *Rudbeckia laciniata* (Coneflower) had yet to flower but its large dead heads were still present from last year.

Coming off the island the water level was rising rapidly, and we were lucky to escape with dry feet.

On our way back to the cars a patch of *Crassula tillaea* (Mossy stonecrop) was spotted, formerly unknown in Easter Ross, but now quite widespread.

In all we noted 98 species in the first tetrad and 66 in the second.

Brian Ballinger and Mary Dean

BRAIDBURN VALLEY PARK, 5th JUNE 2019

A dozen botanists from the BSS and the Wildlife Information Centre (TWIC) met a stalwart of Friends of Braidburn Valley Park (FBVP) at the north gate of the Park on the very damp evening of Wednesday 5th June. The vegetation of this Park, like that of many other City of Edinburgh parks, is a mixture of cultivated and wild plants, and the self-sown descendants of planted species. Some species that might be supposed to have arrived naturally, are known to have been introduced to the Park by human agency.

The Braid Burn runs through the middle of the Park, and its banks and land immediately adjacent to them are covered mainly by native or apparently self-introduced aliens: the Giant Butterbur, *Petasites japonicus* is particularly invasive and ineradicable, and any suggestions as to how to get rid of it without using glyphosate, would be gratefully received by FBVP. Until the mid-1930's, BVP was mostly agricultural land, but the banks of the stream and the surrounding hedges were presumably uncultivated, with a small area of mature woodland by what is now the north gate. Then the area was converted to a public park, and avenues of *flore pleno* cultivars of Cherry were planted, which are now coming to the end of their lives, but which have left plenty of self-sown progeny that cannot easily be identified to species level.

Along the banks of the burn there are tall grasses including abundant *Phalaris arundinacea* (Reed Canary Grass) and *Arrhenatherum elatius* (False Oat-grass). One plant of the stately *Schedonorus arundinacea* (Tall Fescue) was found. Mixed with these are herbs aplenty, including *Stachys x ambigua* (= *S. palustris* x *S. sylvatica*, Hybrid Woundwort), *Symphytum tuberosum* (Tuberous Comfrey). Among the naturalised cultivated species, we found *Doronicum pardalianches* (Leopard's Bane), and *Cephalaria gigantea*

(Giant Scabious). Not quite flowering yet was *Erythranthe guttata* (= *Mimulus guttatus*, Monkey Flower). We saw no Giant Hogweed or Himalayan Balsam. There was an uncommon fungus *Hypholoma udum*, keyed out later by Mary Clarkson.

A wildflower hay meadow was established some years ago towards the southern end: seed of several species, supplied by Scotia Seeds Ltd, was sown and the area scarified annually by local schoolchildren. This management strategy maintained a botanically diverse hay meadow for several years, but fell into disuse three years ago, with predictable consequences, one of which is that *Dactylorhiza fuchsii* (Common Spotted-orchid) seems to be declining, though it is still present. Although some hay meadow species seem to have disappeared, many are still there, e.g. *Rhinanthus minor* (Hay Rattle), *Lotus pedunculatus* (Greater Birdsfoot Trefoil), *Knautia arvensis* (Field Scabious) and *Lathyrus pratensis* (Meadow Vetchling).

Plants that are present in the Park, but which could not be seen or identified on the day, include River Water-crowfoot *Ranunculus fluitans* and several alien rowans (*Sorbus*). The Park contains a spring at its southern end, which produced at least a little water almost always except after prolonged drought. The flora there comprises wet-loving species, some of which were introduced within the last 20 years by human agency.

During the evening, 128 species were recorded, covering parts of NT 2469 and NT 2470. A complete checklist of plant species in the Park should be available to the Friends fairly soon.

Roger West and John Grace

THE LOST SQUARE: INVERNESS BOTANY GROUP AND BOTANICAL SOCIETY OF SCOTLAND 4th JULY 2019

This was a joint meeting between the Inverness Botany Group and the Botanical Society of Scotland, and the aim was to visit a hectad (10km square) NH97 in Easter Ross which, until recently, had no biological records at all. The land area is small, as most of the rest is sea.

A group of 10 met at the carved stone at Hilton, which although not the original, which is in a museum, was nevertheless a fine piece of art.

The target square NH97 is about 3 miles along the coast and there were fine views over the Moray Firth on the way.

We were looking out for *Mertensia maritima* (Oysterplant), which had been lost from its former site near Hilton following a storm, but had been noted recently further along the shore. We were pleased to see that it was thriving in its new location and about 75 plants were counted, some coming into flower.

We finally arrived at our destination, and after lunch set out to record the flora. A very good find was *Ervillea sylvatica* (= *Vicia sylvatica*, Wood Vetch), locally scarce and new to this locality. *Lotus corniculatus* (Bird's-foot Trefoil), *Thymus drucei* (= *Thymus polytrichus*, Thyme), *Helianthemum nummularium* (Rockrose) and *Sedum acre* (Biting Stonecrop) were all at the peak of their flowering season. *Orchis mascula* (Early Purple Orchid), which has been seen as its white variant here, was just past flowering.

In all we recorded 103 plant species, nine of which were new hectad records. Several moth species were also recorded, as well as a grey seal and frog, probably the first mammal and amphibian records for NH97.

Near the end of the return journey *Crassula tillaea* (Mossy Stonecrop) was found growing in the path gravel. A small group from our botanical party finished the day with a stop at Fearn Station where *Orobancha minor* (Common Broomrape) was growing in profusion in the old goods yard, probably parasitic on *Trifolium pratense* (Red clover).

Brian Ballinger

Captions to Centrefold pictures, pp.27-30:

p.27 top: Common Cornsalad (*Valerianella locusta*) growing at Kirkconnel Station. See Field Reports on Dumfries & Galloway, (p.14) and Clackmannan (p. 20). Photo: Chris Miles.

p.27 bottom: Rue-leaved Saxifrage (*Saxifraga tridactylites*) at Annan. See Field Reports on Dumfries & Galloway, p.13. Photo: John Grace

p.28 top: Herbivory in *Clidemia hirta*. See article by Emily Waddell on p.41. Photo: Emily Waddell

p.28 bottom: View of landscape of high conservation value. See article by Emily Waddell on p.41. Photo: Emily Waddell.

p.29 top: View of landscape of high conservation value. See article by Emily Waddell on p.41. Photo: Emily Waddell.

p.29 bottom: Botanists botanizing at Conon Bridge. See Field report on p.22. Photo: Brian Ballinger.

p.31. top left: Red Clover, *Trifolium pratense*;

top right: Field Scabious, *Knautia arvensis*;

bottom left: Welsh Poppy, *Papaver cambrica*;

bottom right: Self-heal, *Prunella vulgaris*.

Photos: Mike Moroney.









MONCREIFFE ISLAND DNS, BSS/PSNS, 25th JUNE 2019

This evening meeting was a joint venture between the Dundee Naturalists' Society, the Perthshire Society of Natural Science and the Botanical Society of Scotland (BSS). We were collecting records for the BSS Urban Flora Project and the Botanical Society of Britain and Ireland's Atlas for 2020, as well as making other natural history observations.

After meeting at the South Inch car park, we crossed the road to view the plants on the river bank. This side of the river is in vice-county 88 (mid-Perth) for recording purposes, whereas much, but not all, of the island is in East Perth (Vice-county 89). The river bank is steep and slippery, but here was a colourful display, including *Mimulus* (Monkey flower), *Myosotis scorpioides* (Water Forget-me-not), *Silene flos-cuculi* (Ragged Robin) and *Caltha palustris* (Marsh Marigold).

The island is reached by a footbridge alongside the railway line where trains rumble by. The wall here provided some interest, including the ferns *Asplenium trichomanes*, *A. ruta-muraria* and *Adiantum-nigrum* (Maidenhair Spleenwort, Wall-rue and Black Spleenwort). More unusually *Cystopteris fragilis* (Brittle Bladder Fern), seen less often in towns, was also present as well as the commoner *Polypodium* (Polypody).

Descending the metal staircase at the north end of the island, we found ourselves in woodland, which was quite wild given its position in the middle of the city. However, the south end of the island is more developed, housing allotments and a golf course.

The trees included *Salix* (Willow) species including *pupurea*, *caprea* and *myrsinifolia*. There were considerable quantities of *Symphytum x uplandicum* (= *S. asperum* x *S. officinale*, Russian Comfrey), and *Myrrhis odorata* (Sweet Cicely). *Galium boreale* (Northern Bedstraw), *Teucrium scorodonia* (Wood Sage) and *Alchemilla xanthochlora* (Meadow Lady's-mantle), were noted. A solitary spike of *Dactylorhiza pupurella* (Northern Marsh-orchid), was found near the north end of the island.

We spent almost all of our limited time in the northern monad (1km square) and recorded a good total of 131 species.

A very brief visit to the more southern square led to the discovery of *Epipactis helleborine* (Broad-leaved Helleborine), not yet in flower and not at all common in eastern Scotland, although more frequent in the west.

Birdlife was not neglected, and 13 species were recorded, including a brief glimpse of a Kingfisher. Although small, this island more than filled our evening and another visit would be worthwhile.

Brian Ballinger

FORAGING IN CRAIGMILLAR PARK, 6th MAY 2019.

Scheduling our excursion for a bank holiday Monday guaranteed two things: a good turnout, and rain! We gathered in the garden of the lovely Bridgend community Farmhouse by Old Lothian Road, south Edinburgh. Our party was a wonderful mixture, including students taking a well-earned break from exam revision, young scientists hailing from China, India and Thailand, and many families, one with three generations. Uncountable small children charged around as Nanya (my wife and master forager) gave her introduction.

The first order of the day (unless you count hosing large dollops of bird poo off my son's jacket) was to hand out collecting bags divided into three categories: Stir-fry veg, salad veg, and nettles. This separation of ingredients would save us a lot of time when we returned to make lunch.

Then we set off along the cycle track towards Craigmillar Park. Progress was slow as Nanya and I introduced the edible plants along the way – *Alliaria petiolata* (stir-fry or salad), *Lamium album* and *Pentaglottis sempervirens* (corollas add colour to salads in both cases), *Heracleum sphondylium* and *Aegopodium podagraria* (stir-fry young shoots). The best food of all is the stinging nettle *Urtica dioica*, and we showed everyone how the stipules (which look like the plant is giving two fingers to potential herbivores) easily distinguish these from deadnettles even when the plant is sterile. The stinging nettles were enthusiastically gathered, especially by some of the children who seemed to like the challenge. This led to a few impromptu hunts for dock leaves along the way.

Further along the cycle track we encountered the first of several patches of the notorious invasive alien, *Allium paradoxum*. Ten years ago, this alien was virtually absent from most parts of Craigmillar Park,

but populations spring up in new places every year, then rapidly expand. Hence, we encouraged everyone to eat as much of this as possible, while taking extreme care not to drop the bulbils anywhere away from the source population. It is very edible, and though it does not taste quite as good as Ramsons (wild garlic) when fresh, it makes an excellent ingredient for pestos, curries, quiches, hummus, stir-fries and more (the last three we all sampled). In addition, Nanya described to the party how fermenting it with salt creates a sort of garlicky sauerkraut.

The young leaves of beech, hawthorn and lime all work well as lettuce substitutes; these were sampled as we entered the park proper. The rain had returned after a lull, so we gathered under the lime trees, where the party were introduced to one of the best wild salad vegetables, the “miner’s lettuce”, *Claytonia perfoliata*. It being a small plant, children seemed to be much better finding it than the adults.

Heading towards the centre of the park we passed its only patch of *Myrrhis odorata*, which imparts a lovely liquorice flavour to stir-fries, though older leaves become rather stringy (a problem best fixed by liquidising). Now the path skirted the recycling centre, and just beyond the fence here a natural primrose-cowslip hybrid allowed me to talk evolution for a few minutes. After this, more sustenance was needed, which was delivered in the form of *Ulmus* seeds. These are full of protein and oil, while the wings around them are another lettuce substitute. Further along the path, we visited a patch of lemon balm (*Melissa officinalis*), first found here last year by children from Castlevew primary school, during a nature walk I was leading. Leaves were picked for herbal tea, while children were entertained by the raindrops rolling around on the water-repellent leaves of *Alchemilla mollis*.

Emerging onto the grass at the top of the hill, Craigmillar Castle came into view, a new sight for some. Meanwhile others hunted for *Rumex acetosa* leaves among the grass. Now we doubled back along the path through the West Wood, past various non-natives that have persisted here since being planted before 1900, notably *Buxus sempervirens* and two kinds of *Ulmus*, which were just coming into bloom. Here, in a hidden dell, we visited the only patch of *Ruscus hypoglossum* ever found wild in Scotland (see pictures on the outside back cover), reports of its demise having been greatly exaggerated. Further on, *Viola riviniana* and *Galium odoratum* added more flowers to the salad bag.

Some of the party headed back to begin cooking while others took a detour to see the park's one natural patch of *Allium ursinum*, and the hidden ruins of what might have been a factory nearby, plus more *Doronicums* and a massive patch of *Hedera colchica*.

Back at the farmhouse, Nanya, Maria and their kitchen elves cooked up two vats of hearty nettle soup, a taxonomically diverse stir-fry and some very wild salad, pictured on the inside back cover, to go with home-made nettle-bread and some dishes Nanya had prepared earlier. Recipes were shared, until finally all that remained to do was wash up and stagger home for a restful afternoon in front of the snooker.

Richard Milne, Edinburgh

A COMPARISON OF URBAN AND RURAL FLORA IN EASTER ROSS

There is a general belief that there are differences between the flora of towns and that of the countryside but these have not usually been quantified. This small study describes a comparison between one-kilometre squares in small towns in Easter Ross and neighbouring rural squares

Method: Fifteen urban 1 x 1 km squares in towns and villages with human populations in excess of 1000 were selected, using places within the 30mph limit and in the built-up area. For each of the 15 urban sites a nearby rural site was selected for comparison. The rural squares were chosen as the closest adjacent rural square with good road access and a safe site with good parking. In both urban and rural sampling, all plants seen in 40 minutes at each site were recorded by the same recorder (Brian Ballinger) on the same day and staying within 100 m of the selected starting point. Plants that had obviously been planted were excluded, and the study was limited to vascular plants. Observations were carried out between April and June 2019.

Results: A total of 306 species were noted in the 30 sites including urban and rural areas.

196 species were recorded in urban sites of which 82 were not seen in rural sites.

221 species were recorded in rural sites of which 107 were not seen in urban squares.

A total of 666 records of individual species were made in towns and villages and 684 in the countryside.

Looking at neophytes (alien species, which arrived in the British Isles after 1500), 52 species fell into this category, of which 32 were only found in towns/villages and only six in the rural areas.

Of the most frequently recorded taxa, 57 were in two or more squares in both urban and rural sites. 25 were recorded in two or more squares only in urban locations, and 39 just in rural.

Those in three or more locations in urban places but not at all in rural were *Asplenium trichomanes*, *Asplenium ruta-muraria*, *Cymbalaria muralis*, *Erophila* sp., *Fumaria muralis*, *Lamiastrum galeobdolon* ssp. *argentatum*, *Papaver cambrica* (= *Meconopsis cambrica*), *Sedum acre*, *Sedum album* and *Vinca major*.

Species found in three or more rural squares but not at all in towns were *Anthoxanthum odoratum*, *Cynosurus cristatus*, *Deschampsia cespitosa*, *Erica cinerea*, *Lonicera periclymenum*, *Luzula sylvatica*, *Nardus stricta*, *Oxalis acetosella*, *Pinus sylvestris*, *Prunella vulgaris*, *Pteridium aquilinum*, *Quercus* sp., *Vaccinium myrtillus*, *Veronica serpyllifolia*, and *Viola riviniana*.

Discussion: This limited study was carried out early in the year so may not necessarily apply to other months. As the study was in the north of Scotland, it may not reflect the position in other parts of the country. The rural squares were near towns, and more remote areas are likely to be different.

The number of records made was similar in urban and rural sites although the total number of rural species was higher than in urban areas. No doubt more species would have been found with longer recording sessions. Sites with good parking may not be typical of the surrounding area.

Marked differences emerged in the comparison between the lists of species found, probably reflecting the considerable habitat differences. Alien plants were commoner in towns. Many of the species not found in this study in town or country do occur occasionally in the other setting, but there is no doubt that the frequency divergence applies.

This study reflects the importance of urban sites for some species, such as some small ferns, and the need to avoid excessive tidiness or chemical use to remove plant species. As always, this issue should be investigated further and more data is needed.

Summary: A comparison between urban and rural sites in Easter Ross showed a similar number of records in both types of area, more species diversity was found in rural settings, and a great difference in the particular vascular plant species found in urban versus rural areas.

Brian Ballinger

REVIEW OF BOTANICAL SOCIETY OF SCOTLAND'S WORKSHOPS SUMMER 2019

Each year the BSS runs one or two workshops, to introduce 'novices' to the joys of plant identification. Unlike other plant ID courses organised by the Field Studies Council or the Royal Botanic Garden, Edinburgh, our workshops are run at cost (small fee to cover such things as hall hire, petrol or photocopying species guides). I enclose reviews of the two workshops we ran this year. If you did not participate in them in this year (2019), look out for the next workshops, which we hope to offer next summer in 2020.

EVENING CRASH COURSE IN FLOWERING PLANT IDENTIFICATION

Held in Edinburgh on 29th and 30th May 2019

Led by Dr Richard Milne

It was meant to be on one evening, but the course was so over-subscribed that Richard arranged an overflow class for the following evening. Altogether 44 participants attended the two sessions.

To the beginner plant identification is surrounded by a daunting mystique, but Richard Milne expertly led the participants through a structured approach. We met in an Edinburgh University lab kitted out with about 60 numbered jars, beakers and measuring cylinders, each holding a different plant species, each waiting for a name. Richard is an enthusiast (he has won Edinburgh University Teaching Awards three times), who believes that plant identification is a cornerstone skill, which helps us to understand how plants react with their environment and what they can tell us about it. Most botanists use keys to aid plant identification, but Richard believes that keys are not a suitable starting point for beginners. Richard's method is to use a double-sided laminated sheet, on which are laid out tables to aid the student to determine the likely families to which a given specimen may belong.

The first and largest table is for radially symmetrical flowers. On the x axis is the number of petals, free or joined, and on the y axis is the arrangement of the flowers on the stem. Within each 'box' the families to which the plant is likely to belong are written, and by each family name the page number of a plant book where they might find an illustration. Different tables are provided for the bilateral flowers, green/brown flowers and trees/ shrubs. Because a number of family choices are offered in each 'box', students become familiar with all of the possibilities, and soon begin to pick out the distinguishing features of the commonest plant families that are represented in the British flora. In the 2-hour session, most people manage to identify about 20 plants, rather than the two or three they might have managed using a more conventional method.

The feedback from the course was very encouraging. Most said that it gave them the confidence to practise field identification throughout the summer months.

We thank Richard and his devoted team of volunteer demonstrators: Alice Wiersma, Philippa Stone, Vladimir Krivstsov, and Max Brown.

FERN WORKSHOP

Held in Cramond near Edinburgh on 6th July, 2019

Led by Dr Heather McHaffie

The venue, a room in Cramond Kirk Hall, proved to be very suitable accommodation for our 12 participants. The course started with an introduction to ferns. Heather defined the few names of fern structures that are necessary for fern ID, such as frond, blade, pinna, pinnule, indusium and sorus, and then described the magical and sexy fern life cycle. I loved her descriptions of the shape of things: the "J" shaped indusia (stands for jolly hockey sticks) in the Lady Fern, the "stripy socks" on the "long legs" of the broad buckler fern, the "mitts" of the shield ferns. It was all very comprehensible, and the differences between the nine ferns, which she showed us, seemed obvious. It was easy-peasy, I thought, - until we went out in the field, when suddenly the ID eluded me. We walked the length of the River Almond walkway from Cramond Kirk to Cramond Brig, and found at least eight different ferns, but what were they? Was it bi- or tri-pinnate? Was there a dark spot at the base of the pinna? How scaly is scaly? How tapered is tapered?

Nevertheless, armed with Heather's instructions (and some books), I managed to correctly identify more than half a dozen ferns on my urban recording session in Oban the following day. I thank Heather for her clear and instructive teaching. Maybe we can repeat it next year??

Maria Chamberlain

PLANT ALERT: A NEW STUDY OF POTENTIALLY INVASIVE GARDEN PLANTS - PLEASE JOIN IN.

The BSBI has launched a new survey to record potentially invasive ornamental plants in gardens in collaboration with Dr Katharina Dehnen-Schmutz from the Centre for Agroecology, Water and Resilience at Coventry University. In contrast to the usual BSBI recording, PlantAlert is a survey of horticultural taxa proliferating in gardens. The aim is to identify potentially invasive alien plants before they become a problem in the wider environment. We are asking gardeners across Britain and Ireland to report taxa that are growing out of control in garden situations - plants that might later escape into the countryside. We hope that results from this long-term project can help guide efforts to contain future problem aliens.

For more information, please visit this BSBI project page (<https://bsbi.org/plant-alert>). You can contribute records either from your smart phone or computer, and do not need to give personal information or precise location. Survey questions will ask you to report how confident you are about the plant's ID (you can upload a photo or ask for ID help if you are unsure). Other questions asked include "How the plant arrived in your garden, how it spreads there, how do you control and dispose of it, and how successful your control attempts are?" It is easy to go back and edit the report if you need to! To contribute records, read more background information and view the results so far, please go to <https://plantalert.org>. The project is also on twitter at @Plant_Alert.

Records from the project will appear in the BSBI Database, but the data will be clearly marked, and will not be included on distribution maps unless the maps are accessed through the PlantAlert results page.

Katharina Dehnen-Schmutz
Coventry University

<https://pureportal.coventry.ac.uk/en/persons/katharina-dehnen-schmutz>

ODE TO SUMMER

Season of trees in fullest leaf and flower,
of busy bees and gaudy butterflies,
of blazing Sun, whose incandescent power
dries streams and reservoirs, turns green grass brown,
tempts careless folk outdoors, then fries
their skin like seasonable barbeque!
Season, too, of moorland set on fire
by careless campers; of forests dry as tinder,
or else of flash floods inundating towns.
Know, then, that this is mainly due
to a tide of man-made CO₂.
Mankind has given Earth a careless shock
That's made its various climates run amok.
Poor Keats! Were he to see us now, his muse
might well all further services refuse,
and my muse, too, finds herself choked
to see they mayhem we've provoked.

Roger West

CODEWORD 30

In this codeword each number always codes for the same letter, and each letter occurs at least once. All the words are botanical genera (including some cryptogams). Solutions do not enter grey squares or cross thick lines. Further helpful hints may be found on the Members Page of the BSS website: click **Help for BSS News puzzles**.

	23	31	24	7	31	11	2		1	11	23	11	7
	1	11	2	21	24	31	21	21	26	24	3	22	21
	16			26			6		3	5	20	31	24
14	21	23	5	11	31	20	31	21	20	11	15	17	24
	30	25	24	24	11	23	21	24	31	21	10	25	21
12	31	16	5	25	20	4	24	21	20	5	31	21	23
	22	26	31	14					31	24	27		25
	3	7	22	21	24	26	31	20	21	31	25		20
1	24	11	16	16	21	20	31	21		27	24		31
30	11	27	3							11	3	26	21
31	7	21	26	31	7					16	20	11	2
27		23	21	16	25	20	5	11	16	21		16	11
20			32	25	20	3	26		22	21		31	23
21	21	5	31	21	20	26	11	2				22	3
13	21	20	7	3	20	31	21	20	11	22	12	21	24

1	2	3	4	5	6	7	10	11	12	13	14	15
F	M											
16	17	20	21	22	23	24	25	26	27	30	31	32

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

PLANT INVASION IN OIL PALM LANDSCAPES

Over the last two years, I have spent 6 months navigating the jungles of Sabah, Malaysian Borneo whilst looking for exotic plant species, as part of my Ph.D. project. The aim of the project is to identify, for the first time, which exotic species are found inside these Malaysian forests and to try to understand why the exotic species are there – by looking at aspects of the forests and characteristics of the species themselves.

The forests I am working in are patches of tropical rainforests that have been kept within oil palm plantations, as they have High Conservation Value – either high biodiversity, or they are important to prevent soil erosion – based on guidelines by the RSPO (Roundtable on Sustainable Palm Oil: www.rspo.org). The forests in this area, including my forest study patches (21 patches in total), were all heavily logged for timber before much of the forest was felled and oil palm was planted (see pictures of this landscape on p.28 and p.29). This caused the native forest structure and species composition to change and opened up the forest patches and oil palm plantations to the possibility of being invaded by exotic plants, brought into the plantations by people and vehicles.

My most recent trip in February of this year (2019), was focused on assessing how the exotic community (i.e. abundance and diversity) varies along a gradient of disturbance from oil palm roadside plantation, which is heavily managed (e.g. pesticide spraying, mechanical weed removal) to the more natural forest, which currently has low levels of disturbance. The fieldwork involved surveying for exotic species along 100 metre transects in each habitat (oil palm roadside, along forest-oil palm edge, in disturbed forest interior and less disturbed forest interior) and took many hours working in 34°C heat, which for a Scottish redhead was a gruelling task! (see picture on the inside back cover).

As we expected, the abundance and richness of exotics decreased from the oil palm to the forest interior, with only a handful of species that seem able to establish inside the forest environment. I am now working to understand what differentiates the exotic species that occupy the forest – can they disperse their seeds further distances, or are they stronger competitors than native forest species? These results will ultimately provide insight into which mechanisms are driving successful invasions in plantation forests and the remaining forest fragments.

During my February visit, I was also particularly interested in the species, *Clidemia hirta*, the most common exotic species found in these palm plantations (see picture on p.28). This species, from the Melastomataceae family, is native to parts of Central and South America but has been introduced, and is considered invasive, in many parts of the tropics. In its native range it rarely grows inside the forests and is most often found along forest edges and in gaps. In its introduced range, it does invade deep inside the forests. This is thought to be, in part, because there are fewer herbivores and diseases in the habitats where it invades as an exotic (DeWalt, Denslow, & Ickes, 2004). I measured herbivory levels and leaf characteristics (leaf area; fresh leaf area/dry leaf mass ratio) - I hope that by looking at differences in herbivory and leaf traits across the disturbance gradient, this will help us to understand the success of this dominant species when introduced into tropical forests.

I am currently a student at the Centre for Ecology & Hydrology in Edinburgh and University of York. My project is funded by the Natural Environment Research Council (NERC) as part of the 'Adapting to the Challenges of a Changing Environment (ACCE)' Doctoral Training Programme with support from a CASE partnership with Royal Botanic Gardens Edinburgh. Outcomes of the project will feed into reports by SEnSOR (Socially and Environmentally Sustainable Oil Palm Research: www.sensorproject.net) to the RSPO on how to make oil palm landscapes more sustainable in the future.

Emily Waddell
Ph.D. candidate
Centre for Ecology and Hydrology, Edinburgh
emwadd57@ceh.ac.uk

References:

DeWalt, S. J., Denslow, J. S., & Ickes, K. (2004). Natural-Enemy Release Facilitates Habitat Expansion of the Invasive Tropical Shrub *Clidemia hirta*. *Ecology*, 85(2), 471–483. <https://doi.org/10.1890/02-0728>

DEVELOPMENT OF A WATER PLANTAIN SEEDLING

In Summer 2017, I collected about 30 seeds of Water Plantain, *Alisma plantago-aquatica* (Alismataceae) from a plant in the lake at Stirling University, and planted them in underwater seed beds. Three germinated in April 2018, of which one has survived until July 2018. Some readers of *BSS News* may not have had an opportunity to observe the development of an *Alisma* seedling. I had to be careful not to disturb my plants, so this account is based on observations from a safe distance.

When I first noticed the seedlings, they each had three linear* leaves. They were about 15 times as long as broad, with blunt apices, and bent outwards: the appearance was reminiscent of a grass seedling. Two seedlings died at this stage. When the leaves of the third had elongated to about 2.5 cm the distal ends broadened so as to become slightly spatulate. New leaves appeared in which an ovate lamina with rounded apex and base were distinct, on a long petiole: the petiole must have had little strength because it bent outwards so that the lamina floated on the surface of the water. At this stage the length of these leaves, including petiole, was about 4-5 cm. The base of the laminae of these leaves became cordate, looking like a miniature version of the leaves of the mature plant, and on the new leaves the petiole was sufficiently strong to hold the lamina erect just above the surface of the water. During the late summer and autumn, the petioles+leaves grew longer. The lamina of the largest leaf attained 40 × 80 mm on a petiole >120 mm long. The first, strap-shaped leaves appeared in March 2019. Their nodes were below the surface of the water, but they projected above it. Later in the year (July), the plant was badly attacked by slugs and snails, but appears still to be alive

I now hope that it survives, and if so, can some kind reader offer it a permanent home?

Roger West

* Terminology taken from:

Stace, *New Flora of the British Isles*, 3rd edn., glossary pp.983-997 and illustration p.989, and from

Clapham, Tutin & Warburg *Flora of the British Isles*, 2nd edn., glossary pp.1201-1212 and illustration pp.1198-1199.

TRICOTYLEDONOUS SEEDLINGS OF SYCAMORE

In a previous issue of BSS News (No109, p.22, Sept. 2017) I described finding aberrant shoots of woody dicot species whose leaves are usually in decussate* (opposite) pairs (2d), but whose leaves are in decussate whorls of 3 or 4 (3d, 4d) instead. I now wish to conclude my report on seedlings of Sycamore (*Acer pseudoplatanus*, Sapindaceae). Quite a large number of seedlings of this species seem at first sight to be tri- or even tetracotyledonous, but closer inspection shows that one or both cotyledons have undergone dichotomous bifurcation, and the first true leaves are in decussate pairs. However, I found three seedlings which had 3 cotyledons and whose first leaves were in whorls of 3 and decussate to the cotyledons. I am not the only person to have reported 3d Sycamore seedlings: www.flickr.com/photos/treeblog/3517036614 reports other occurrences. I rescued two of these, and they have been growing in plant pots in my garden ever since. Their primary shoots have continued 3d, but, as I had expected, all lateral shoots, whose phyllotaxy I have been able to examine this year for the first time, are 2d. I regard this as a confirmation of the hypothesis I advanced in my previous article. However, there have been reports of a dicotyledonous condition having Mendelian inheritance of a low-penetration recessive gene, in several herbaceous dicots; see for example Hu *et al.* (2005), Khan (2006) and Page *et al.* 2019. This subject deserves further research.

Roger West.
rogerandcarolwest@gmail.com

* I extend the meaning of decussate to mean “having whorls of n leaves, successive whorls being rotated through $180/n$ degrees”.

References:

- Tricotyledonous sycamore seedlings: visit
www.flickr.com/photos/treeblog/3517036614
- Hu, J., Miller, J.F., Chen, J. and Vick, B.A. (2005). Preliminary observation on a spontaneous tricotyledonous mutant in sunflower. Proc. 27th Sunflower Research Forum 2005.
- Khan, D. (2006). Some seed and seedling characteristics (tricotyledony) of *Opuntia ficus*. Int. J. Biol. Biotech 3(4): 795-800.

http://www.sunflowerforum.com/research/research-workshop/documents/Hu_Tricotyledenous_05.pdf

Page E.R., Meloche, S., Bae, J., Larsen, R.J., Laforest, M. and Robert E. Nurse, R.E. (2019). Tricotyledenous giant ragweed (*Ambrosia trifida* L.) Canadian Journal of Plant Science Volume 99(1) February 2019

BOOK REVIEW

New Flora of the British Isles, 4th edition.

Clive Stace

C & M Floristics. ISBN 978-1-5272-2630-2

Available from Summerfield Books <https://www.summerfieldbooks.com/>

and NHBS <https://www.nhbs.com/>

£49.50 – £59.00 +shipping

The New Flora of the British Isles is the standard work of vascular plant identification, and perhaps the most important volume in a field botanist's library. This new edition comes 9 years after its predecessor and is similar in many respects, but incorporates important new changes in taxonomy and nomenclature arising from research in molecular phylogenetics. The book follows the APG (Angiosperm Phylogeny Group) system, which moved from APG III to APG IV in 2016, so an update to this flora was due.

While the overall layout and structure of the book will be instantly recognisable to users of previous editions, there are important differences, consequent upon advances in angiosperm taxonomy due to DNA sequencing. This is reflected particularly in the Key to Families of Angiosperms, in the order of families in the text, the arrangement of genera within families and in the names of a good many (hundreds) of species. The illustrations are very similar to those of previous editions, and the Glossary and accompanying figures are nearly identical.

As indicated in his preface, while Stace does largely follow APG IV, he has been cautious in some respects and retained the *status quo* where evidence is inconclusive. Future changes are inevitable as molecular studies progress. Of course, the field botanist must rely on morphological features, not DNA sequences, and there are situations where two genera are morphologically indistinguishable, but absolutely distinct on phylogenetic grounds, and Stace has elected to combine the keys where this occurs.

These changes in nomenclature have already had an impact on the reporting of field excursions in this issue of BSS News. Field botanists use many different flora, and different editions of the same one, so it will be some time (if ever) before we are all using the same names. This new volume, which is available at a very reasonable price, will enable enthusiastic field botanists to keep up, at least for the time being. Although the 4th edition has 1266 numbered pages (compared with 1232 in the 3rd edition), it is printed on thinner paper and weighs 625g less. Like Stace 3, it has a soft damp-proof cover, and the lighter weight will encourage users to take it to the field. However, my copy of the 4th edition is already starting to look dog-eared, and I hope that its lighter weight will not prove to be a false economy

A useful list of the changes between editions has been compiled by Martin Rand and is available on the BSBI website https://bsbi.org/wp-content/uploads/dlm_uploads/STACE-EDITION-4-CHANGES-rev.pdf.

Roger West

Solution to Codeword 30

	²³ C	³¹ I	²⁴ R	⁷ S	³¹ I	¹¹ U	² M		¹ F	¹¹ U	²³ C	¹¹ U	⁷ S
	¹ F	¹¹ U	² M	²¹ A	²⁴ R	³¹ I	²¹ A	²¹ A	²⁶ T	²⁴ R	³ O	²² P	²¹ A
	¹⁶ L			²⁶ T			⁶ D		³ O	⁵ Q	²⁰ N	³¹ I	²⁴ R
¹⁴ J	²¹ A	²³ C	⁵ Q	¹¹ U	³¹ I	²⁰ N	³¹ I	²¹ A	²⁰ N	¹¹ U	¹⁵ Y	¹⁷ K	²⁴ R
	³⁰ V	²⁵ E	²⁴ R	²⁴ R	¹¹ U	²³ C	²¹ A	²⁴ R	³¹ I	²¹ A	¹⁰ Z	²⁵ E	²¹ A
¹² H	³¹ I	¹⁶ L	⁵ D	²⁵ E	²⁰ N	⁴ B	²⁴ R	²¹ A	²⁰ N	⁵ D	³¹ I	²¹ A	²³ C
	²² P	²⁶ T	³¹ I	¹⁴ J					³¹ I	²⁴ R	²⁷ G		²⁵ E
	³ O	⁷ S	²² P	²¹ A	²⁴ R	²⁶ T	³¹ I	²⁰ N	²¹ A	³¹ I	²⁵ E		²⁰ N
¹ F	²⁴ R	¹¹ U	¹⁶ L	¹⁶ L	²¹ A	²⁰ N	³¹ I	²¹ A		²⁷ G	²⁴ R		³¹ I
³⁰ V	¹¹ U	²⁷ G	³ O							¹¹ U	³ O	²⁶ T	²¹ A
³¹ I	⁷ S	²¹ A	²⁶ T	³¹ I	⁷ S					¹⁶ L	²⁰ N	¹¹ U	² M
²⁷ G		²³ C	²¹ A	¹⁶ L	²⁵ E	²⁰ N	⁵ D	¹¹ U	¹⁶ L	²¹ A		¹⁶ L	¹¹ U
²⁰ N			³² X	²⁵ E	²⁰ N	³ O	²⁶ T		²² P	²¹ A		³¹ I	²³ C
²¹ A	²¹ A	⁵ D	³¹ I	²¹ A	²⁰ N	²⁶ T	¹¹ U	² M				²² P	³ O
¹³ W	²¹ A	²⁶ T	⁷ S	³ O	²⁰ N	³¹ I	²¹ A	²⁰ N	¹¹ U	²² P	¹² H	²¹ A	²⁴ R



**The Botanical Society of
Scotland SCIO
Financial Statements
For the Year to 30 April 2019**

Bankers Bank of Scotland	BSS Head Office c/o Royal Botanic Garden 20a Inverleith Row Edinburgh EH3 5LR
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Statement of Receipts and Payments	2018-19 Accruals(£)	2017-18 Accruals(£)
Incoming resources, Voluntary Income:		
Subscriptions	5,060.72	5,119.71
Grasses Workshop	235.00	
Bequest	7,757.97	50,000.00
Donations	428.00	285.00
Total	13,481.69	55,404.71
Incoming resources from charitable activities:		
Editorial Subvention	3,380.00	3,380.00
Royalties, - Journal (Taylor & Francis)	4,470.00	4,787.27
Sale of Merchandise		
Miscellaneous (incl. excursion donation)		
Contribution to a lecture		
Gift-Aid 2015-16, 2016-2017	-	1,541.20
Total	7,850.00	9,708.47
Interest		

CCLA Deposit Fund (C)	299.39	126.58
CCLA Ethical Income Fund (AA)	1,178.80	
Total receipts	22,809.88	65,239.76
Payments: Costs of generating funds		
Members' Copies of Journal & Journal Edit. meeting	4289.82	4,241.82
Charitable activities:		
<i>Directly allocated to activities:</i>		
Lecture Expenses (incl. pending & hospitality)	994.51	951.32
Printing Newsletter	2,781.05	732.10
Workshops	208.68	-
Student Essay Prize	356	200.00
Student Grants	600	
Schools Photographic Prize	-	50.00
Urban Flora Project (data-base development, etc.)	-	
Total	4,940.24	1,933.42
<i>Support costs:</i>		
Stationery & Postage	-	102.70
Printing	126.70	17.50
Insurance (pending)	133.00	130.63
Web pages	60.00	93.72
Total	319.70	344.55
Total - Charitable Activities	5,259.94	2,277.97
<i>Governance costs:</i>		
Computer software	-	250.00
Subscription Rebates, carried over to 2019-20		12.00
Accounting Fees	155.00	150.00
Officers' Expenses (incl. postage)	114.43	331.13
Transfer to CCLA Deposit Fund	-	60,000.00
Total – Governance	269.43	60,743.13
Total Net Resources Expended	9819.19	67,262.92

**The Botanical Society of Scotland SCIO
Financial Statements for the Year to 30 April 2019**

Reconciliations	2018-19 (£)	2017-18 (£)
Total receipts	22,809.88	65,239.76
Gross Expenses	9,819.19	67,262.92
Gross Surplus/Deficit(-) for the Year	12,990.67	-2,023.16
<i>Bank and cash in hand</i>		
<i>Closing balances at Bank 30 April 2018/19</i>	<i>41,836.19</i>	<i>28,922.01</i>
Opening balances at Bank 1 May 2017/18	-28,922.01	-26,752.93
Cheques not cleared	-1,401.68	-4,318.82
CCLA Deposit Fund (C) Interest	299.39	126.58
CCLA Ethical Income (AA) Interest	1,178.80	-
Surplus/Deficit (-) for the Financial Year	12,990.67	-2,023.16
Assets		
Cash at Bank	41,836.19	28,922.01
Cash in hand (Pay-in 500032)	164.00	-
Cash in CCLA reserve fund	27,016.19	105,494.14
CCLA Investments Ethical Income (AA) at 30/4/18-19	88,827.18	4,890.00
Gross Assets (see note 4)	157,843.56	139,306.15
Cheques not cleared	-1,401.68	-4,318.82
Net Assets	156,441.88	134,987.33
Reserves		
Designated funds		
Symington Grieve Trust Fund	500.00	500.00
Sir W. W. Smith Lectureship Fund	-	300.00
Urban Flora Project	2,342.00	2,342.00
Botany of the Lothians Fund	-	2,258.06
Total	2,842.00	5,400.06
General (unrestricted) funds	153,599.88	129,587.33
Total Funds	156,441.88	134,987.33

Notes to the Statements of Receipts & Payments

These notes form part of these financial statements that have been approved by Council

Note 1: Accounting Policies

Receipts and Payments:

The accounts are presented on the basis of receipts and payments.

VAT:

The Society is not registered for VAT and accordingly expenditure includes VAT where appropriate.

Unrestricted funds and revenue:

The funds of the Society which the Council are free to use are in accordance with the Society's objectives. Any unrestricted revenue surplus is transferred to the unrestricted capital fund.

Note 2: Council members remuneration

Council members do not receive any remuneration in their role as council members

Note 3: Taxation

The Fund is recognised by the Inland Revenue as a charity and no charge for taxation arises on the results for the year.

Note 4: Commitments and contingent liabilities

There are no contingent liabilities at the 2018-19 year end (for 2016-17, £nil). Editorial Subventions provided by the Publishers, Taylor & Francis, for 2014/15 and 2015/16, 2016/17, & 2018/19, totalling £16,798, are available to cover costs of the Journal Editor, including the promotion of the Journal at International Conferences.

Independent examiner's report to the council members of Botanical Society of Scotland, for the Year to 30 April 2018

Respective responsibilities of trustees and examiner

The charity's trustees are responsible for the preparation of the accounts in accordance with the terms of the Charities and Trustee Investment (Scotland) 2005 Act and the Charities Accounts (Scotland) Regulations 2006. The charity trustees consider that the audit requirement of Regulation 10(1) (d) of the Accounts Regulations does not apply. It is my responsibility to examine the accounts as required under section 44(1) (c) of the Act and to state whether particular matters have come to my attention.

Basis of independent examiner's statement

My examination is carried out in accordance with Regulation 11 of the Charities Accounts (Scotland) Regulations 2006. An examination includes a review of the accounting records kept by the charity and a comparison of the accounts presented with those records. It also includes consideration of any unusual items or disclosures in the accounts and seeks explanations from the trustees concerning any such matters. The procedures undertaken do not provide all the evidence that would be required in an audit and, consequently, I do not express an audit opinion on the accounts.

Independent examiner's statement

In the course of my examination, no matter has come to my attention

1. which gives me reasonable cause to believe that in any material respect the requirements:

- to keep accounting records in accordance with section 44(1) (a) of the 2005 Act and Regulation 4 of the 2006 Accounts Regulations, and
 - to prepare accounts which accord with the accounting records and comply with Regulation 9 of the 2006 Accounts Regulations
- have not been met, or

2. to which, in my opinion, attention should be drawn in order to enable a proper understanding of the accounts to be reached.

D. Millar, Independent Examiner.

Summary of the 2018-19 Accounts

Bequest

- Second Tranche of the Basil Ribbons Bequest £7,758

Investments

- CCLA Ethical Income Fund, now valued at £88,827 (book cost £85,000)
- Interest yield at least £630 per quarter (£2,500 per annum). This will be used to fund charitable activities, incl. student travel and research grants

BSS News

- Three Volumes of BSS News have been funded, one a carry-over from the 2017-18 Session

Work-Shop

- A Beginners' Guide to Grass Identification £208

Student Grants

- 1. Maude Grenier - FSC Field Course £200
- 2. Engstrom – Research Grant £400

Cash Funds as at 30 April 2019

- Cash in Bank £41,836
- Cash in Hand £164
- Cash in CCLA Deposit Fund £27,016

Designated Funds

The Sir William Wright Smith Fund (£300), and The Botany of the Lothians Fund (£2,258) have been subsumed into the General Accounts. The stipulations attached to these Funds are deemed to be met by the aims of the Society.

BSS NEWS – INFORMATION AND GUIDELINES FOR CONTRIBUTORS

The Newsletter of the Botanical Society of Scotland ISSN 0967-5922

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Aims of BSS News

The chief aims of BSS News are to communicate with the membership, to keep members informed and to act as a vehicle for members' contributions on all things botanical. All contributions are welcome.

Scope of the Newsletter

The content of BSS News is as kaleidoscopic as possible around the botanical theme and we are keen for this variety to continue. For a list of ideas for contributors see the BSS website (www.botanical-society-scotland.org.uk) and the following list, but please don't feel constrained by it. New ideas are welcome. Regular contributions include the following items:

- Reports of field excursions (leaders please take note), picking out the botanical highlights.
- Descriptions and recommendations of other botanical sites in the UK or abroad (it might help people to plan their holidays)
- Articles of current or historical interest, including ethno- and acheo-botany.
- Biographical profiles of botanists.

- Botanical poems.
- Botanical notes, news items, announcements of future events, reports of meetings attended, correspondence, small ads etc.
- Book reviews.
- Crosswords and quizzes.
- Illustrations, including paintings, photographs and line drawings, or even witty cartoons if they are your forte! A stock of small b/w line drawings of plants would be useful for filling areas of whitespace at the end of articles. Coloured illustrations can only be printed on the inside and outside cover, and usually illustrate articles.

Guidelines for contributors

Do not worry if you cannot comply with all the following guidelines. Just send what you can and the Editors will make adjustments.

File name for email submissions and web uploads.

Please include your own name and indicate article content in the file name. Also add your name, preferred title and affiliation etc. to the end of your article. If possible, please add a contact email address (see our template on the BSS website for full instructions)

Text

The Newsletter is set up on A4 pages in MS Word 2010 using Ariel font (size 15 for major text, 18 for main headings and 14 for references and acknowledgements). Margins are set at 2 cm (sides) and 2.5 cm (top and bottom), with headers and footers at 1.5 cm. Text is justified and single-spaced. Paragraphs are followed by 6pt spacing. **Please use the template on the BSS website to submit articles in this format.**

Illustrations

The cover is the display area for colour pictures. Please include the name of the photographer or artist with all images. Line drawings, maps or graphs in the text look best in black-and-white or greyscale.

Submission

Please send your contributions to the Receiving Editor by:

- Post at the address above.
- Email to the Receiving Editor at jill.thompson99@gmail.com

- Through the BSS website at <http://www.botanical-society-scotland.org.uk/content/bss-news-newsletter-botanical-society-scotland>

When sending something by post please phone 0131 258 2358 or email jill.thompson99@gmail.com to let Jill know that something has been posted.

The last deadline for the next issue will be 15th January 2020. Earlier submission would be appreciated.

Back cover pictures:

Outside

Top: Flowering phylloclade of Spineless Butchers' Broom, *Ruscus hypoglossum*, at Craigmillar Park, Edinburgh. See article on p.32-34. Photo: Richard Milne.

Bottom: Whole plant of Spineless Butchers' Broom, *Ruscus hypoglossum*, at Craigmillar Park, Edinburgh. See article on p.32-34. Photo: Richard Milne.

Inside

Top left: Fieldwork in Sabah, Malaysian Borneo. See article by Emily on p.41. Photo: Azlin Bin Sailim.

Bottom left: Forager Salad. See article on p.32-34. Photo: Richard Milne.

Top right: Finding Rue-leaved Saxifrage (*Saxifraga tridactylites*) at Annan. See Field Report of Dumfries & Galloway, p.13. Photo: John Grace.

Bottom right: Examining the old runway at Heathhall. See Field Report of Dumfries and Galloway, p.12. Photo: John Grace.



