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Cynoglossum germanicum, Farnborough, (v.c.12). Photo A. Mundell © 2012 (p. 11)

Fumaria capreolata Greatstone-on-Sea, Kent. Photo B.A. Tregale © 2012 (p. 40)

Verbena hastata

Verbena hastata close-up of flowers

Both photos taken in vegetable patch, Sark by S. Synnott © 2012 (p. 41)

Ian Bonner & Valerie Oxley at unveiling of blue plaque in Firbeck, near Rotherham, commemorating the birth of H.C. Watson at nearby Park Hill. Photo © Friends of Firbeck Hall (p. 49)

Linnaeus & Antony Timmins at the AEM Cambridge. Photo J. Robertson © 2012 (p. 60)

Lynne Farrell, Emperor penguin & Mark Watson at the Flora of cold regions conference, Cambridge. Photo J. Robertson © 2012 (p. 59)

Martin Warren joining BSBI, with Monika Walton & Lynne Farrell at the Butterfly Conservation AGM at Nottingham. Photo L. Marsh © 2012 (p. 60)

Trevor Dines addressing delegates at the BSBI/RBGE Mapping Conference, Edinburgh, September 2012. Photo L. Marsh © 2012 (p. 50)

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Photo R. Hobbs © 2009 (p. 11)

IMPORTANT NOTICES

From The President

IAN BONNER, *Cae Trefor, Tyn y Gongl, Anglesey, LL74 8SD*;
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The headline news has to be that our membership has risen by over 150 since August this year, bringing the total to 2887. Thanks to all those of you who have helped, especially to Louise Marsh and her team, who are working so hard to raise our profile. Please keep it up – it would be good to break the 3000 barrier for the first time. It is, of course, just as important that we value and retain all you existing members. I do feel our subscription provides very good value for money – see the note from the Honorary Treasurer (p. 60).

The Special General Meeting, announced in the previous *News*, took place on 24th November and I am pleased to report that those present voted overwhelmingly in favour of the resolution that the Society should become a Company Limited by Guarantee. The minutes of the Special General Meeting appear on page 3.

Further reports on progressing the implementation will appear in the next *BSBI News* and on our website, leading up to elections to the Board and Council at our AGM on 12th June 2013.

The SGM took place within the very successful and enjoyable conference on 'The flora of cold regions' and the Annual Exhibition Meeting, generously hosted for us at the British Antarctic Survey headquarters in Cambridge and organised by Jonathan Shanklin, one of our Council members and an emeritus member of BAS. It is to be hoped that the text of the conference talks will appear in *New Journal of Botany* or in *BSBI News*.

The AEM brought to an end a busy autumn, coming after the hugely successful Biological Mapping conference in Edinburgh in September (participants heard to say "one of the best conferences ever attended") and the superbly well-attended Scottish AEM, hosted by Scottish Natural Heritage, at Battleby in early November. Grateful thanks to all those involved in the organisation of both events. An equally exciting and varied programme for next year is being prepared and will appear in the *BSBI Yearbook 201*3.

We congratulate Polly and Martin Spencer-Vellacott on the birth of their son, Jay, in early November and welcome Paul Green as her maternity cover. Paul is based at the National Museum of Wales in Cardiff.

It is good to have Jim McIntosh back in his role as Scottish Officer after his his sabbatical in Tristan de Cunha. We have temporarily enhanced this role by adding the co-ordination of the other country staff. Thanks go to Angus Hannah for so ably covering this while Jim was away.

Hopefully, in the next *BSBI News* we will be announcing the appointment of a 'Head of Operations' to work alongside the Head of Research to improve the coordination and management of all our activities. The success of this post though will rely on the continued active support of all of us – the volunteer members.

Minutes of the Special General Meeting held at 12 noon on Saturday 24th November, 2012 at the British Antarctic Survey, Cambridge

1. Apologies for absence were received from Mary Dean, Gwynn Ellis, Richard Gornall, David Pearman, and Roy Vickery.

2. Declaration of a quorum (Rule 45). This states that seven members must be present and there were 86, so a quorum was deemed present.

3. Explanation of purpose of Special General Meeting. The President outlined the background and purpose of the meeting.

4. Confirmation of incorporation status and common objectives of a company limited by guarantee. The Hon. Treasurer gave a detailed account of these aspects and explained the benefits to the Society compared with its current unsatisfactory structure. He outlined that the new proposals appeared to be in line with Charity Commission guidance and legal advice received from the Society's solicitors. He invited and answered questions on any aspects for which members required clarification or wished to comment on.

The aspects discussed included the following:-

Confirmation that the new articles of association presented to Companies House and the charities regulators did not need to include all the rules of the Society (so that there was more flexibility over the make-up of committees and other such matters, without needing to go back to those regulators);

Discussion of the composition of the new smaller trustee body (with a desire expressed by several members for a trustee responsible for matters in all the national territories) and its relationship with a revised science-focused Council;

Registering the new company limited by guarantee in the name of the Botanical Society of Britain and Ireland, which would henceforth be the Society's name, although it would still be known as 'BSBI';

Confirmation that, after a period of parallel running, the charitable registrations would be unified so that any bequests, *etc*., left to the Society would find their way to the new company limited by guarantee.

5. Special Resolution. The Hon. General Secretary explained the voting procedures (Rule 40) and all present agreed that this could be by a show of hands. A two-thirds majority is required for a motion to be carried (Rule 47).

The Resolution:

That, pursuant to clause 49 of the Society's Rules (2011), and subject to the preconditions set out below, the Society be dissolved. The preconditions to the dissolution of the Society shall be:

That the Council put in hand incorporation and registration with the Charity Commission for England and Wales and the Office of the Scottish Charity regulator a charity with the objects similar to the Society's own objects and that any assets remaining after satisfaction of the proper debts and liabilities be transferred to such incorporated charity;

and that:

if the transfer of assets referred to above has not taken place within 12 months of the date of this resolution this resolution shall lapse.

Voting then took place with the result being :

84 in favour of the Resolution, one against and one abstention. Therefore the Resolution was passed.

6. There was no other business.

7. Next steps. The President then explained that the Society would take forward the Resolution and the tasks outlined in the Treasurer's presentation.

a) The new Board of Trustees would come into operation in early 2013 and Council would become more of a focus for scientific debate.

b) We will review our activities, and this process has already begun, with a Development Plan for the Plant Unit. This would be made available on the BSBI website. Other Permanent Working Committees would be looking at their own remits and feeding into the overall Development Plan, so that it represented all strands of the Society.

c) Council has already approved a Head of Operations post and this would be advertised in January 2013. Other improvements to the Society's working and posts were also being considered.

The whole theme is about supporting growth and our own members.

Lynne Farrell, Hon. General Secretary
28th November 2012

Monitoring the effects of ash die-back: a request for volunteers

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The spread of ash die-back disease in Britain has been widely publicised, but, despite alarming reports in the media and by government agencies there seems to be little consensus amongst scientists over the extent to which it might impact some aspects of our native biodiversity. The likely threats to epiphytic lichens and bryophytes are clear (Edwards, 2012; Ellis *et al*., 2012). However, its effect on woodland and hedgerow plants associated with ash is much less clear. One would hypothesise that, as in the case of Dutch Elm disease, high mortalities will reduce the habitat available to some species whilst creating open niches into which other species might spread.

The BSBI therefore has a unique opportunity to monitor the longer term impact of this disease over the whole of Great Britain and Ireland. To date, no other European country has attempted to do this, although there have been a range of national surveys to map its extent. By chance, BSBI are currently working with Plantlife and the Centre for Ecology and Hydrology to pilot a new habitat-based plant surveillance scheme designed to better monitor changes in a range of semi-natural habitats, including deciduous woodlands, in relation to known drivers (*e.g.* climate, management and environmental changes, and 'invasive' species), as well as to provide an 'early warning' of unanticipated changes, such as the spread of novel pests and pathogens like ash die-back (Walker *et al*., 2010).

Therefore we are proposing to survey a sample of ash-dominated habitats (woods, hedgerows) in 2013, using the same methodology as the pilot, to provide a baseline from which future impacts can be quantified. The methodology is relatively simple and will involve recording the presence of all vascular plants within small 'permanent plots' located under ash in woodlands and along hedgerows, as well as the number and age structure of ash trees present. A 'control plot' under a different canopy will also be recorded, so that the effects of the disease can be separated from other changes that are occurring (*e.g.* due to climate, management, etc.). The intention would be to re-survey these 'permanent plots' over time (say at least once every 5 years) to track changes brought about by the disease.

Ideally, we would like baseline surveys from at least one ash plot per vice-county in Britain, with surveyors being free to choose their own sites. The precise methodology, which may include bryophytes and lichens, has yet to be finalised but if you would like to take part in this valuable survey then please get in touch with Kevin Walker either by email, phone or post, as given above, for further details.

References:

EDWARDS, B. (2012). *A preliminary assessment of the importance of ash trees for epiphytic lichens in the British Isles*. British Lichen Society.

ELLIS, C.J., COPPINS, B.J., HOLLINGSWORTH, P. (2012). 'Tree fungus: lichens under threat from ash dieback'. *Nature*, Nov. 29, 491 (7426): 672.

WALKER, K.J., DINES, T., HUTCHINSON, N. & FREEMAN, S. (2010). *Designing a new plant surveillance scheme for the UK*. Joint Nature Conservation Committee (JNCC) Report No. 440. JNCC, Peterborough.

BSBI Science and Research: our plans, our staff and interaction with our volunteer network

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In July last year the BSBI Executive decided that, after five years with Kevin Walker as the inaugural Head of Research, it was high time that we took stock of our organisation, setting out our plans for the next few years, re-examining how we interact with our members, ensuring that we are taking them with us and that the 'Plant Unit (PU)', as we have been calling it, is properly integrated into the main body of the Society. At the Council Meeting in October 2012, Kevin Walker (KJW) and David Pearman (DAP), as requested, after much consultation, presented their Review. Below we reproduce a revised version of the executive summary, but the full document is available to any member.

BSBI's Science and Research plans: a summary

This document provides a strategic review of how the Plant Unit has grown since 2007, in terms of its objectives, role, composition and activities. We feel that during that period the PU itself has exceeded all expectations at a much lower cost to the Society than envisaged. The Unit has perforce grown piecemeal over the last five years and is at the limit of what can be achieved from existing resources and management – in fact we know that we are not currently managing to service the leads that are constantly being opened up.

The emergence of the BSBI as a major player in the plant science and conservation field over the last five years is so exciting and rewarding, and so integral to our future role and our ability to attract members and funding, linked to other developments in the Society, such as training and education, that we feel that standing still is not an option. A glance at the presentations for the recent Mapping Conference in Edinburgh showed, again and again, collaboration with a wide range of academics and conservation bodies that would have been unthinkable a few years ago.

With the Unit in a healthy state, as well as the Society as a whole, this is the time to step back and take a radical look at how we structure the PU, and how to better fit it into the Society. This is beyond our initial brief, but after subsequent discussions we feel that this is the time to raise it. Whatever else we decide KJW needs to be released from a number of roles as his responsibilities are currently spread across a wide range of activities. Maintaining these through a single post is not sustainable, even in the shorter term, and is currently preventing the PU from achieving its full potential.

At the same time we recognise that the bedrock of the PU is the network of Vice-county Recorders and their helpers, and we must ensure that we take them with us and support them in any expansion of the PU role.

So, we present the background and our suggestions for the next five years. The genesis of this review arose at meetings in July and September, and a version of this document was presented to the BSBI Executive in October 2012. It is intended it will feed into a much broader review of the Society's activities, which would include Training & Education, Publicity & Outreach and Publications, as well as administration and finance. However, as this review has progressed, the need for a Head of Operations (see below) became so apparent and pressing, and the details of the role became so much clearer, that we were asked to include this in our review. In addition, it was felt that our existing staff team needed someone to represent them and ensure that they have their best interests looked at in relation to the rest of the BSBI and the outside world. They work hard and they deserve to have good terms of employment and conditions – not continuous short-term contracts or part-time if they wish otherwise.

The Executive, which met in October, broadly endorsed our approach and proposals and suggested the following to Council:

1. A Head of Operations (HoO) should be appointed to look after the publicity, promotion and administration of the Society, parallel to KJW as Head of Science and Research. The job description should include all the business side of our contacts with the outside world, should encompass our Web operations and look after all our human resourcing (HR) matters. This post might well take over the administration of the Country Officers too.
2. A full-time research assistant should be appointed to support the Head of R&D.
3. A more realistic pyramid structure for staff reporting should be instigated. It is possible that this re-organisation might await the appointment of the HoO, but the Executive recommended two key moves in the interim:
   a. Appointing a Data Manager (to eventually replace DAP's workload) to oversee all aspects of data management. This it was envisaged would be a part-time post, or part of a larger post, but that might depend on the future role of the Biological Records Centre in managing plant data.
   b. Appointing a Senior Officer to manage the work of the Country Officers. This too would only be part of a post, but might well be part of the role of the HoO.
4. The re-designation of the Plant Unit and of the Records Committee as the Research and Recording Committee, to take its place in the existing committee structure. This would have a number of sub-committees/ working groups, such as the Science and Research Sub-committee, the Database Sub-committee and possibly a group to co-ordinate the routine of supporting VCRs, referees, etc. A suggested scenario would be set out if this found favour.

At the Council meeting in November all of these proposals were accepted, and actions will be taken over the coming months to put them into effect. We hope to put an advertisement on our website for the Head of Operations post in January.

NOTES FROM THE EDITORS

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The Editors were very pleased to have a totally unprompted accolade published in the *Daily Telegraph* on 24th September, from one of our members, Ken Thompson, complete with nice colourful photos relating to some of our recent floral articles, and a photo of the front cover of no. **121**! We especially thought that Ken's summary of our 'editorial policies' was worth a laugh: "…an examination of its content suggests something along the lines of 'print everything we are sent, as long as it's not actually libellous or offensive'. In other words, it's extremely democratic and inclusive, which is one reason it's such a good read." Well, thank you very much Ken! You are about right – and yes we do try to include anyone's contribution, not just from the *cognoscenti.*

As such, we do welcome articles (preferably not too long and full of statistics) and short pieces concerning anything to do with especially British vascular plant botany, and although we do prefer to get them as Word documents, and preferably typed up without extraneous formatting, etc. (which we only have to un-do anyway before it goes into the desk-top publishing package), we will also take hand-written or old-fashioned typewriter documents if people don't use computers.

Remember, though, if you have something more scientifically important to say, then do consider first whether it ought to go into the *New Journal of Botany*, because that is probably the more 'permanent' record.

In the meantime, by the time you read this, we hope you will have had a merry Christmas, and a not too hung-over New Year, ready for another year of good botany!

From now on proofs of articles published in *BSBI News* will no longer be sent by post to those with email addresses. If available it would be appreciated if a current email address could be included with the article, whether or not it is to be published as part of the author's address. As mentioned above this does not mean that we won't accept non-electronic copy and proofs of these will continue to be sent by post.

At the risk of repeating myself it would also be useful if all contributors sending photos could provide a detailed caption including locality, photographer and date and indicate in the text where the photo should be mentioned.

BSBI Yearbook now also has a Colour Section and authors of Field Meeting Reports and Obituaries are encouraged to submit photos to accompany their papers, not forgetting detailed captions. There is obviously a limit to the number that can be published but it would be good to have a larger selection to choose from.

It would be good for morale if members took note of the fact that most contributors would welcome some feed-back of any kind. It doesn't have to appear in *BSBI News*; a letter or email expressing thanks for an interesting note or offering suggestions or asking questions would be much appreciated as proof that someone out there is interested in what they are doing and that they are not completely wasting their time.

PayPal

Since its inception at the end of 2011, more new members pay their subs online than by cheque and it seems likely that this will also be the case for sub renewals in 2013, although at the time of writing I have not yet started on processing sub renewals, that has to wait until *BSBI News* and *BSBI Yearbook* have gone to press.

My apologies to members who receive a subscription reminder card for any confusion over the request to those using PayPal to leave a message in the 'Instruction from buyer' section indicating that it is a sub. renewal. As has been pointed out by many members, this message should have been in the 'Add special instructions to the seller' box. 'Instruction from buyer' or 'Message to Merchant' is what appears on the PayPal receipt sent to BSBI!

Members will I'm sure be sad to hear of the recent death of Professor Krzysztof Rostanski, a Polish botanist, who visited Britain in the 1970s & 1980s, described new British taxa and published many papers on the genus *Oenothera*.

Our thanks to Philip Oswald for informing us that the new Director of Cambridge University Botanic Garden will be Dr Beverley Glover. Her entry on the University website tells us that 'she came to Cambridge in 1996 following a PhD at the John Innes Centre in Norwich. She worked initially in David Hanke's lab, and so developed an inevitable interest in cytokinins and their perception. However, her main area of interest has always been the evolution and development of floral features which attract pollinating animals.'

Next April we will publish a new *List of Members*. Apart from names and addresses the list also gives the email addresses of members who agree to their publication. If your email address is not in the current *List of Members* and you would like it to be included, please let me know.

NOTES

A vascular plant red list for England

DR PETER STROH, *BSBI, 14 Rushmere Close, Islip, Northamptonshire, NN14 3LG*; (peter.stroh@bsbi.org.uk)

The purpose of a 'red list' is to provide an assessment of the conservation status of taxa, particularly in relation to their risk of extinction, using internationally recognised and agreed criteria drawn up by the International Union for the Conservation of Nature (IUCN). These criteria require assessments to be made for each taxon of a range of attributes, including population trends over time, population size, numbers of sites and changes in geographical range. Thanks very largely to the efforts of the BSBI, we are fortunate in having what must be one of the best recorded floras in the world. In particular, the huge amount of data underlying the two atlases (Perring & Walters, 1962; Preston, Pearman & Dines, 2002), along with more detailed location and population information for a wide range of nationally rare and scarce species, enabled IUCN 'range' and other criteria to be used to assess almost the entire British flora. This assessment led directly to the publication of the *Vascular plant red data list for Great Britain* (Cheffings & Farrell, 2005), where, for the first time, it was possible to make the important distinction between 'rarity' and 'threat' – resulting in a list of threatened taxa that included many (often quite widespread) species that had not featured in previous red data books. Who would have anticipated, for example, that *Spergula arvensis* (corn spurrey) would be assessed, as a result of this new analysis, as more threatened than well-known rarities like *Erica vagans* (Cornish heath) and *Ophrys sphegodes* (early spider-orchid)? Just as the two atlases underpinned the GB red list, so the latter has underpinned the development of conservation priorities at a GB level, with efforts understandably being directed at those species under greatest threat.

So, why do we now require a vascular plant red list for England?

While biogeographic boundaries plainly transcend political boundaries, many of the funding mechanisms in place to conserve threatened species do not. This is largely a result of devolution and the fact that government policies, programmes and priorities are increasingly determined at an individual country (rather than at a GB or UK) level. Despite close collaboration between the Joint Nature Conservation Committee and conservation agencies in England, Scotland and Wales, the dismemberment of the (GB) Nature Conservancy Council in 1991 has gradually led to each country developing its own priorities with regard to nature conservation. In England, for example, there is the Natural Environment White Paper and the England Biodiversity Strategy (Biodiversity 2020). So, while the production of country red lists could be viewed as unnecessary 'parochialism', it could just as easily be seen as a pragmatic and valid response to the situation each of the country agencies now finds itself in and a necessary instrument, for both the agencies themselves and their NGO partners, to help establish a sound basis for determining species conservation priorities at an individual country level. Equally, there is probably a good case for assessing England and Scotland and to a lesser extent Wales separately, given the very different biogeographic make-up of the floras of each country and threats they face.

Consider the case of one forward-thinking 'region'. The production of a *Vascular plant red data list for Wales* (Dines 2007), produced hot on the heels of the GB red list, has enabled a two-pronged approach to be taken, with Welsh priorities now including taxa known to be threatened in Wales (*e.g. Geranium sylvaticum* (wood crane's-bill) or *Hammarbya paludosa* (bog orchid) and those listed in Cheffings & Farrell (2005) as being threatened

at a GB level. The Welsh red list also highlighted a number of species threatened at a GB level but which are less threatened (or not threatened at all) in Wales (*e.g. Ranunculus tripartitus* (three-lobed water-crowfoot). Such taxa are still regarded as conservation priorities in Wales, of course, since by definition the Welsh populations represent an important component of the GB total.

Turning now to the situation in England, we suspect there are many instances of species that are categorised as being of 'Least Concern' (*i.e.* not threatened) in GB that are likely to be threatened at an England level. Take, for example, *Betula nana* (dwarf birch), a species that occurs in only a handful of sites in England, or *Eleogiton fluitans* (floating club-rush), a widespread species showing a marked decline in England while continuing to hold up pretty well in Wales and Scotland. At present, a GB threat category of 'Least Concern' makes it difficult for Natural England to prioritise or apportion funds (or indeed notify Sites of Special Scientific Interest) for such species. A lack of quantitative information on regional threat status is also a practical constraint when considering policy agendas for conservation. For example, species-specific objectives in the Government's Biodiversity 2020 strategy that evolved from the Nagoya 2010 agreement to halt the global loss of biodiversity are framed at an England (rather than GB) level. Likewise, Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006) requires the Secretary of State for the Environment to publish a list of species "of principal importance for the conservation of biodiversity in England". It seems strange that this *English* list of 'important species' is founded on a UK BAP list, which itself was derived from an analysis of threat undertaken at a GB level. For this reason, species like *B. nana* and *E. fluitans* do not currently appear on the Section 41 list, no matter how threatened they may be at an England level.

Our intention, then, is that the production of a regional red list for England will be used along with the GB red list by Natural England and others to inform future conservation priorities in England with respect to vascular plants. It will doubtless contain a number of surprises, and by making use of the Society's Distribution Database and the millions of records, many at tetrad resolution or higher, collected since the publication of the *New atlas*, it is hoped that it will give a more up-to-date and robust assessment of threat status than hitherto thought possible. By now, many England vice-county recorders will have been asked for detailed population data on a small number of species that have a very restricted range in England, and it is likely that further requests will need to be made before a final draft of the red list is completed by the end of April 2013, although I will try to keep them to a minimum. In the meantime, I would like to take this opportunity to thank all vice-county recorders for their time, expertise, patience and cooperation whilst the England red list is being compiled.

This BSBI-led project is being carried out with funding support from Natural England, and coordinated by a project steering group comprising representatives from BSBI (Kevin Walker, Peter Stroh), Natural England (Simon Leach, John Martin, Ian Taylor), Natural History Museum (Fred Rumsey), Royal Botanic Gardens, Kew (Mike Fay) and Plantlife (Nicola Hutchinson), with CEH Wallingford (Colin Harrower, Tom Oliver, Chris Preston, David Roy) kindly providing support with data analyses.

References:

CHEFFINGS, C. & FARRELL, L. (2005). *The vascular plant red data list for Great Britain*. Species Status, 7, 1-116. Joint Nature Conservation Committee, Peterborough.

DINES, T. D. (2008). *A vascular plant red data list for Wales*. Plantlife International, Salisbury.

PERRING, F. H. & WALTERS, S. M. (eds.) (1962). *Atlas of the British flora*. Thomas Nelson & Sons, London.

Preston, C. D., Pearman, D. A. & Dines, T. D. (eds.) (2002). *New atlas of the British & Irish flora*. Oxford University Press, Oxford.

[**N.B.** English names in lower case at request of author!]

Cynoglossum germanicum (Green Hound's-tongue) in Hampshire

TONY MUNDELL, *38 Conifer Close, Church Crookham, Fleet, Hampshire, GU52 6LS*; (vc12recorder@hantsplants.org.uk)

In 2012 I did a lot of 'square-bashing' to contribute records for the planned 'Atlas 2020'. On such forays, I often find one or two uncommon plants that add interest and 'make my day'. Just occasionally there is a real surprise. One of these was on 3rd August 2012, when I stumbled on a colony of plants that I did not recognise along a woodland edge near Farnborough in v.c.12. They were all in seed and looking rather bedraggled. I picked a small piece and took it home, where I realised it might be *Cynoglossum germanicum*. Oh dear, I had possibly picked a plant protected by the Wildlife and Countryside Act under Schedule 8. I passed the offending specimen on to John Poland and Eric Clement, who duly confirmed it was *C. germanicum*, new to Hampshire.

I returned on 7th August 2012 to take some voucher photographs (see inside front cover). I found over 100 plants scattered over an area of about 50 × 20m. They were mostly under Beech, but were also surviving under mature *Tsuga heterophylla* (Western Hemlock-spruce) plantation, wherever enough light penetrated to the ground. The area concerned is woodland within SU8652 that backs onto an Army Golf Course and with various military buildings in the vicinity. The wood is extensive, but most has been coniferised in the past. I have yet to explore it fully.

The main concentration of recent British records for *C. germanicum* is clustered in Surrey, where it is a native plant. There are older pre-1970 records scattered across quite a few southern counties and it is certainly declining. The *New atlas* (Preston *et al*., 2002) suggests that many of the older records were of transient populations. Most of the Surrey plants are many miles away from the Hampshire site in the Mole Valley of central Surrey, but Ann Sankey tells me that there is a 1951 record in a wood at Compton Heath (SU949476) (supported by a specimen in BM) and this is only 10km away. The Compton Heath site was searched unsuccessfully in the 1960s. Its status in Hampshire is not clear, but it could be native.

C. germanicum has hooked seeds that could easily be spread by animals such as deer, dogs or even on the socks of people, so I am surprised that it is not more widespread. However, Ann Sankey tells me that its seeds are only viable for a short time. The colony was in seed when I found it and I have never seen it in flower anywhere. I was sent a photo of a flowering plant taken in Surrey by Ralph Hobbs (see front cover). Ralph's photo was taken in 2009, near the foot of Dukes Plantation, where an impressive stand of it had grown up within a new 'scallop' cut from the woodland edge by the Surrey Wildlife Trust in order to create open wood edge habitat.

Reference:

PRESTON, C.D., PEARMAN, D.A., & DINES, T.D. (eds.) (2002). *New atlas of the British & Irish flora*. Oxford University Press, Oxford.

Peloric flowers on *Kickxia elatine* (Sharp-leaved Fluellen) and *Melittis melissophyllum* (Bastard Balm)

ANDREW SHAW, *Gofynne, Llanynis, Builth Wells, Powys, LD2 3HN*; (andrewgshaw@hotmail.com)

In *BSBI News* **116** I reported a range of peloric flower types occurring on *Kickxia spuria* (Round- leaved Fluellen) plants growing in my garden. This year my Sharp-leaved Fluellen plants produced a similar range of peloric flowers. Bastard Balm plants growing in three

separate areas of my garden also produced a number of peloric flowers. The peloric flowers typically comprised six white petals emerging from a large leaf like calyx tube (see Colour Section, Plate 1).

Frankenia laevis (Sea-heath) in Warwickshire

JOHN & MONIKA WALTON, *46 Hill Top, Baddesley Ensor, Atherstone, Warwickshire, CV9 2BQ*; (johnwalton46@tiscali.co.uk)

In August 2012 we received the following e-mail from entomologist Robert Homan:

> "I was in Bidford-on-Avon on Thursday last (16th August 2012) looking for leaf-mines. I did a quick circuit that took in Marlcliff and came across an unfamiliar plant growing at the edge of the minor road NE of the village (SP0991550738 or thereabouts). I had no idea what it was, but it has now been identified via iSpot as *Frankenia laevis*. This might be a well-known site/sight among Warwickshire botanists, but it certainly had me foxed. The county which has the most central point in England shouldn't really have a sandy coast plant."

A few days later, accompanied by fellow botanists John and Val Roberts, and armed with a car load of field guides, we went to have a look. The plant was well-established, with six separate clumps covering about twenty metres of kerbstone, situated on the outside of a narrow verge overlooked by a hedge of *Crataegus monogyna* (Hawthorn). After a brief examination of the plant to check it wasn't just a Mediterranean species such as *Frankenia thymifolia*, which is often grown in gardens, we decided it was probably *Frankenia laevis* (see Colour Section, Plate 1). We then took a brief walk to examine the front gardens of the nearby cottages to make sure it wasn't a rockery escapee.

A small specimen was taken and sent to David Pearman and Fred Rumsey, who confirmed our identification. Associated plants at the base of the hedge included *Alliaria petiolata* (Garlic Mustard), *Cerastium fontanum* (Common Mouse-ear), *Convolvulus arvensis* (Field Bindweed), *Hordeum murinum* (Wall Barley), *Lolium perenne* (Perennial Rye-grass), *Plantago lanceolata* (Ribwort Plantain) and *Senecio vulgaris* (Groundsel). There were no other salt-tolerant species, such as *Cochlearia danica* (Danish Scurvy-grass) or *Plantago coronopus* (Buck's-horn Plantain) seen.

Sorry if this find spoils the look of the hectad distribution map!

A little bit more on English names

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Richard Bateman ends his piece in *BSBI News*, **121**: "If such a revision [of Dony *et al*., *English names of wild flowers*, 1986 edition] should ever be contemplated, it should certainly be done systematically and according to an explicit set of widely accepted rules." John Presland, in the following item, asks: "… if some people write Marshmarigold and some Marsh Marigold, does it matter?" (He clearly thinks not).

They cannot both be right. If my co-initialist wants to use a set of names which have a systematic basis and follow an explicit set of widely accepted rules, he should stick to using scientific names. Vernacular names need only be recommended for use in contexts where readers are likely to have difficulty coping with scientific names. In contexts like Simon Harrap's book, where scientific and English names will be presented side by side, he should enjoy some freedom to present the latter in whatever way he thinks best.

Hyphens & apostrophes

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In *BSBI News*, **120**, I proposed that a large number of hyphens could and should be dropped from the English names of wild flowers (Harrap, 2012). I asked for comments, and am delighted to report that I had ten replies via e-mail. Of these, eight were firmly in support, one was not, and one did not mention hyphens at all (it concerned capitalisation). This was followed by two more responses in *BSBI News* (Bateman, 2012; Presland, 2012). This correspondence has raised four main points.

Firstly, I am not suggesting that any names be changed (with the exception of Butterfly Bush, a 'book name' for the plant that *everyone* calls Buddleia), merely that hyphens be removed. The usefulness of any name, either scientific or vernacular, is diminished by change. Scientific names abide by a strict system of rules, however, that forces some changes, and taxonomic advances make others highly desirable. No such pressures need apply to English names, which can and should remain stable, and on this point I agree wholeheartedly with Richard Bateman (who, despite wishing to retain the 'binomial' system for English names, does admit that there is a case for a wholesale review). In fact, I suggest that removing unnecessary hyphens would actually promote stability. When Fragrant Orchid was split into Chalk, Heath and Marsh Fragrant Orchids, the current system dictated that they become 'Fragrant-orchid', and at a stroke they move in the index from 'orchid' under O to 'fragrant-orchid' under F. If there was no hyphen, there would be no need to make this confusing (and misleading) change.

Second, I was wrong to imply, albeit unintentionally, that the current system of English names, complete with their hyphens, originates with the various editions of 'Stace'. Clive Stace did not devise the current system, rather he followed *English names of wild flowers* by J.G. Dony, S.L. Jury and F.H. Perring, first published under the auspices of the BSBI in 1974, with a second edition in 1986. For the many extra names that he needed for his *New flora*, he followed the same principles as in *English names of wild flowers* (Clive Stace, *in litt*.).

It is worth taking a closer look at the argument put forward for the use of hyphens in Dony *et al.*, and I will repeat it here for the benefit of those who do not have access to the original publications, which are long out of print (quotes are taken from the second edition, with italics used for scientific names as appropriate):

> "A binomial system is adopted. Some English names, *e.g*. Holly, may stand in their own right, but in those cases where a number of closely allied species bear the same English generic name, *e.g*. vetch, we have strictly adhered to binomials. We have converted trinomials, which were often ambiguous, into binomials by using hyphens, and created 'English' sub-genera. The reader will find male-ferns, water-speedwells *etc*., which we hope will eliminate such ambiguities as scaly male fern and blue water speedwell. In following this principle we are fully aware that ambiguities still remain with small-white orchid and early-purple orchid, but we have resisted the temptation to make sub-genera of white-orchids and purple-orchids, having in them only one species".

This statement makes it explicit that the authors were trying to mimic the binomial system of scientific names, but the reason for their doing so eludes me. I do not see *any ambiguity* in 'scaly male fern' or 'blue water speedwell' and, if the names are capitalised, there can be no ambiguity at all (Scaly Male Fern, Blue Water Speedwell). What I do see is a whole mass of artificial and, in many cases, taxonomically misleading 'sub-genera' requiring hyphens which, as my e-mail correspondence makes clear, are confusing for *even the most experienced botanist*.

Dony *et al.* use another argument to insert hyphens:

"English generic names are limited to one family of plants. An application of this principle may be seen with the cabbages, which we have limited to the Cruciferae. St Patrick's-cabbage is not a true cabbage, as it belongs to the Saxifragaceae, and is in consequence hyphenated. We have made some exceptions to this rule.

1. Horse-radish, although with the other radishes in the Cruciferae we consider far enough removed from them to stand in its own right.
2. White bryony and black bryony each stand alone, as it is not clear whether the true bryony is *Bryonia* (Cucurbitaceae) or *Tamus* (Dioscoreaceae).
3. Greater celandine and lesser celandine each stand alone, as it is not clear whether the true celandine is *Chelidonium* (Papaveraceae) or *Ranunclulus ficaria* (Ranunculaceae).
4. Allseed and four-leaved allseed stand, as it is not clear whether *Radiola linoides* (Linaceae) or *Polycarpon tetraphyllum* (Caryophyllaceae) is the true allseed.
5. Fringed water-lily (*Nymphoides peltata*) has been included with the other water-lilies (*Nuphar* and *Nymphaea*) although in a different family (Menyanthaceae), rather than create a 'genus' fringed-water-lily, with one species.

We consider the true chestnut to be *Castanea* (Fagaceae) and the true purslane to be *Portulaca* (Portulaceae)."

Personally, I think that if you are happy to make exceptions because you are not sure which is the 'true' celandine – an obscure historical point – then you don't need the hyphen in *any other cases* and you can omit them all! And, the logic of Horse-radish being sufficiently distant from other radishes to justify a hyphen is completely beyond me; but I leave the reader to draw their own conclusion.

The third criterion used by Dony *et al.* is:

"Plant names from other families forming part of a longer name are hyphenated. This follows the sub-generic principle and is seen most clearly amongst the 'water' plants, *e.g.* water-dropwort, water-lily, water-violet. We have adopted water-cress to show that this belongs to the bigger group of cresses, although watercress is now a common usage.

In following this principle, we have made a major exception in the grasses. We have applied 'rush' in its restricted sense to *Juncus*, and 'sedge' to *Carex* (with *Kobresia simpliciuscula* False Sedge as a sole exception), but find no genus to which 'grass' can be so restricted. We have, however, restricted 'grass', when used with a hyphen, to the true grasses (Gramineae). We have made cottongrass one word, as the cottongrasses are not true grasses, and grass is used here as a general term. We experienced some difficulty with blue-eyed-grass and yellow-eyed-grass, which might have been solved by making a genus of eyed-grasses and by so doing making an exception to a principal that had worked well."

This is the criterion that I cannot refute wholesale. I can see good arguments to use a hyphen in cases where the constituent parts of a name would *never* be used on their own in a botanical context, whether or not they include a word that is used for another family. One way around this is to make the name into one word if this can be done so clearly: *e.g.* watercress, waterlily, deadnettle, hempnettle – the first following general usage, the rest also being 'legitimate' group names. Many compound names cannot, however, happily be made into one word, and I would suggest that the following are still acceptable as hyphenated group names (for the reasons outlined in my original article): Meadow-rue, Water-milfoil, Evening-primrose, Rock-rose, Sea-lavender, Sea-blite, Cow-wheat, Water-dropwort, Water-plantain and Bur-reed, but I intend to drop the following from my list of 'legitimate' hyphenated group names: Hedge Parsley, Golden Saxifrage, Water Starwort, Water Crowfoot,

as, on further reflection, I think that one does refer to 'starwort', 'crowfoot' *etc*.

Thirdly, several of my correspondents wanted to go further than I had suggested and omit hyphens in cases where I thought them necessary to make it clear that a group of words is a plant name (thus Adder's-tongue, Pellitory-of-the-wall, Good-King-Henry, Lily-of-the-valley and Coral-necklace would become Adder's Tongue, Pellitory of the Wall, Good King Henry, Lily of the Valley and Coral Necklace). On the face of it this suggestion is attractive, but I have thought carefully about it and can see two issues:

1. Some names are short phrases and the individual words make no sense at all on their own: Pellitory-of-the-wall, Mind-your-own-business, Fox-and-cubs, Lily-of-the-valley. 'Wall', 'business', 'valley' and 'cubs' would never be read as part of a name without the rest of the phrase (you would hardly point to some Pellitory-of-the-wall and say, "Oh look, some wall"!).

2. Indexing - would you look for 'Adder's Tongue' under 'Adder' or 'Tongue'? This is not quite as over-riding as I had thought, however, as, with careful indexing, you can put them where you want.

Leaving aside phrases such as Lily-of-the-Valley, I am now not at all sure about my other examples. Putting the issue of indexing to one side, is 'Weasel's-snout' any clearer than 'Weasel's Snout'? Even more marginal are the likes of 'Little-Robin' and 'Ragged-Robin'. Are 'Little Robin' and 'Ragged Robin' any less obviously the name of a plant? (Of course, if you don't know it's a plant, it will not mean much, with or without the hyphen.) It seems to boil down to style, and I welcome further comments, but suspect that I will drop many or most of these hyphens, returning the names to the format found in most older books (when they were more precise about grammar, perhaps?). The issue of indexing can be resolved by indexing the name under both words, or perhaps under the first only.

Apostrophes

The fourth, and new, point, concerns apostrophes. Kenneth Balkow (*in litt.*), as well as John Presland in *BSBI News*, **121** have argued for the abandonment of many possessive apostrophes. I have thought carefully about this, applying the principle that the English names of plants should be made as accessible as possible (*i.e*. easy to read, to write correctly, and to remember), whilst still retaining the connection with history and their meaning. Consider the following examples, where both the apostrophe and hyphen are removed:

Coltsfoot
Monkshood
Cranesbill
Storksbill
Goatsbeard

To my eyes, they read well, their original meaning is clear, and they are easy to write and spell. In fact, all are the *correct* spellings according to the *Collins English dictionary* (with Goat's-beard as a variant - my thanks to KB for pointing this out), while the first four are also the correct spellings in the *New Oxford English dictionary*. I have a sentimental attachment to the old forms, complete with hyphens and apostrophes, perhaps because I get a little thrill from the knowledge that *I know how to write them correctly, whereas others may not*, but I have put this conceit aside and agree that if the name can happily be made into one word, drop the apostrophe. *Happily* is the operative word, however, as I think that this only works well when the resultant compound word is not too long, is easy to read, and the constituent parts make sense. Thus we have:

Birdsfoot (and Birdsfoot Trefoil – whether 'birdsfoot' or 'bird's-foot', you still have to know a little about wild flowers to know that it is a flower at all)
Birdsnest Orchid
Yellow Birdsnest
Marestail
Catsear
Hawksbeard, spelt thus in the *New Oxford English dictionary*.

Hawksbit (dropping the apostrophe for the 'hawk-something' composites has the added advantage of removing a link to birds of prey, for I understand that the root of these names is nothing to do with raptors!)

Sheepsbit

I would, however, retain the possessive apostrophes when the two words cannot be made into one due to considerations of sense and readability:

Dame's Violet
Viper's Bugloss
Enchanter's Nightshade

The above have a 'group name' that is obviously a plant. But in other cases as well, if you drop the hyphen (as suggested above), I think that you still need the apostrophe:

Hart's Tongue
Venus's Looking-glass
Hound's Tongue
Jacob's Ladder
Shepherd's Purse
Weasel's Snout
Leopard's Bane
Ploughman's Spikenard
Pheasant's Eye
Traveller's Joy
Shepherd's Needle
Butcher's Broom

Others are 'legitimate' group names in the sense of my article and retain the hyphen and apostrophe:

St John's-wort
Hare's-ear
Solomon's-seal

I realise that I may have been arbitrary and perhaps even illogical in some of my choices, but I think that the priority is to make English names clear and easy to use, and this may mean that some inconsistencies are needed! After all, the apparent rigid application of a 'rule' led to Early-purple Orchid, which makes no sense at all. I also think it worth remembering that botanists (and the BSBI) do not have a monopoly on the English names of plants, or the last word on what is 'correct'. I would invite further comments, and will put a full list of the names affected on my website (www.norfolknature.co.uk/wildflowernames). But I go to press on 21st February 2013, so you will have to be quick.

Many thanks (again) to Nigel Redman for his comments and advice, and to the people who kindly commented upon my article.

References:

BATEMAN, R. (2012). 'A capital idea, but please keep all the hyphens'. *BSBI News* **121**: 38-39.

HARRAP, S. (2012). 'An overdose of hyphens'. *BSBI News* **120**: 38-44.

PRESLAND, J. (2012). 'More on English names'. *BSBI News* **121**: 39-40.

Hyphens in plant names

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How interesting to see two diametrically opposed articles on plant names side by side in *BSBI News* **121**. I hope it demonstrates the poverty of the case for extensive use of hyphens. Richard Bateman's arguments for them seem weak.

The main plank in Richard's defence of hyphens seems to be that "a key part of the logic underpinning the publication *English Names of Wild Flowers* was to preclude names that contain more than two separate words." He describes this as "limiting names to two components". Let us consider "Lily of the Valley". If you insert hyphens to make it "Lily-of-the-valley", the five original components are still there – whether you call them words or whatever you like. Insertion of hyphens does not remove them. Indeed, it adds four additional components, and increases the memory load. Barring staggering memory abilities, there seem to be two main ways to be sure where hyphens are in all of the hundreds of names. One is to look them up individually in Stace. The other is to

try to work out what rules the authors of the list were using and then apply them systematically to each name in turn. Who wants either?

Why, in any case, should there be a two word limit? I'm sure this didn't bother the ordinary people who coined many of the names, nor would they have even thought about whether the written version should contain hyphens or not. It appears arbitrary, until Richard tells us that it was meant to match the binomial system used in scientific names. Why, you might ask, does it need to? Richard again has an answer. The binomial system is now operated in a way that produces confusion and instability. It should be replaced or duplicated by a systematised collection of vernacular names modified as in the *ENoW* or something more remote from the original versions.

The problems with scientific binomials have for some time been the subject of jokes, and people have, in jest, suggested that vernacular names might be better. The joke is now, apparently, a serious suggestion. However, one of the original purposes of the scientific names was to provide consistency and stability in naming. If that is not achieved, should not the solution be for taxonomists to put the system in better order – rather than a takeover and rationalisation of vernacular names, with its consequent cultural loss?

Meanwhile, let's enjoy and extend the joke. Let's imagine the creation of the *International Code of Vernacular Nomenclature*. It will be devised and implemented by a group of highly qualified people meeting in a heavily fortified building in the upper reaches of the Himalayas, with the access roads guarded by hungry lions and the members flown in by helicopter. Here a detailed system of rules and guidelines will be drawn up, along with a set of sanctions to discourage the hundreds of botanists attempting to use illegal vernacular names. The severest penalties will be reserved for those who have forgotten where the hyphens go. Non-English-speakers will be required to arrange their own translation services, though country-specific versions may be developed in time. A different approach may, for instance, be needed in Germany, where it is quite usual to join short words into longer ones without hyphens. There could be particular problems in China.

While the methods of working will be largely a matter for the group, there are plainly a number of component tasks which it will need to carry out to ensure that the nomenclature accurately mirrors the form of the binomial system. For instance, just as the number of words in a name is crucial, so is the order in which they occur. It would be inappropriate for me to tell the group how they should address this task, but I imagine "Creeping Buttercup" will become "Buttercup Creeping" and Hairy Bittercress" will become "Bittercress Hairy". It is unlikely, also, that the group will long tolerate names that do not accurately reflect the evolutionary and genetic relationships between plants. Such confusing labels as "Greater and Lesser Celandine" will, for instance, need to be tackled early. Might they perhaps become "Poppy Lesser-yellow" and "Buttercup Lawn?" Furthermore, local differences over correctness of names will need to be resolved, so there will, as an example, need to be representatives from both Yorkshire and Lancashire. It will be a new world. I have hopes of being a member of the group (I've never been up the Himalayas), but fear my levity may result in automatic disqualification.

A capital idea re-dreamed

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The conjunction of articles on the Shetland Mouse-ear and on the capitalisation of vernacular names in *BSBI News* **121** reminded me of a note that I wrote on the ambiguities of using lower case, in *BSBI News* **66** in 1994. As this note was included in the Editorial, rather than among the other notes on the topic around then, it got rather lost and was not indexed. It is perhaps worth reproducing the relevant part of it here:

I had a confusing dream and I am still not sure how many species of *Cerastium* I saw in

it. The khaki-brown mouse-ear was scattered in the field I was walking through, but the grey mouse-ear in the field was the common mouse-ear. The common mouse-ear on the wall I passed was a sticky mouse-ear, and this wall mouse-ear looked quite unlike the field mouse-ear, which was a little mouse-ear but not nearly as small as the dwarf mouse-ear on the Shetland sand-dunes I then found myself in. This Shetland mouse-ear was obviously a sea mouse-ear, but it suddenly lost its hyphen and I woke with a start when I realised that a Sea Mouse has no ears. If any more hyphens had got lost and I had gone on dreaming, I suppose the next thing I saw would have been snow in summer!

[**A note from the editors**: we believe we have allowed a good debate here, and await the results of Simon Harrap's work with interest. However, we now think the subject needs to rest. Readers will recognise that we have worked on the premise of adopting a 'standard' for use in *BSBI News*. For the moment, this is the usage in Stace, ed. 3 (to match our current adoption of his usage of scientific binomials). We are not specially wedded to any one 'standard'. However, we would point out the value of whatever 'standard' adopted being practical, and long-established. For those trying to find information in an index, the use of names that might be most likely to be looked for is important, and guessing how these might be presented is a chore. We are not convinced by the idea that "anything goes because we can cleverly organise our indeces". Librarians call best practice in indexing the use of the 'sought term', meaning – using the name most people are likely to look for. We would suggest this is as good a guide as any as to when and where a hyphen ought to be inserted.]

Beware the turions of *Myriophyllum*

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The evocatively named Left-hand Main Drain is a large, straight ditch running north-east to south-west along the east side of the canalised River Cefni in Malltraeth Marsh, Anglesey. It supports abundant vegetation in the summer and so is frequently cleaned out. In November 2010, I found the dredgings to include hundreds of *Myriophyllum* turions along 0.75km of the ditch bank running south from the road bridge at SH461730 (see Colour Section, Plate 1). As *M. spicatum* L. (Spiked Water-milfoil) is a major component of the aquatic assemblage here, they were assumed to be turions of this species. An attempt to grow the 2010 turions in a tank failed, but their identity was settled on 12th November 2011, when numerous turions were found attached to *M. spicatum* in the drain at SH458728 (see Colour Section, Plate 1).

Some British reference works (*e.g*. Clapham, Tutin & Warburg, 1962; Preston, 1998; Stace, 2010) suggest *M. spicatum* doesn't produce turions and, indeed, say the presence of turions is diagnostic of *M. verticillatum* L. (Whorled Water-milfoil), although Preston, Croft and Easy (1997) mention that *M. spicatum* has been found producing turions in mainland Europe. It would seem one needs to be cautious about using the presence of turions in identifying members of this genus in Britain too.

References:

CLAPHAM, A.R., TUTIN, T.G., & WARBURG, E.F. (1962). *Flora of the British Isles*. 2nd ed. Cambridge University Press, Cambridge.

PRESTON, C.D. (1998). '*Myriophyllum*' . In: *Plant Crib 1998*, ed. by T.C.G. RICH, A.C. JERMY & J.L. CAREY, pp. 192-193. BSBI, London.

PRESTON, C.D., CROFT, J.M., & EASY, G.M.S. (1997). *Aquatic plants in Britain and Ireland*. Harley Books, Colchester.

STACE, C.A. (2010). *New flora of the British Isles*. 3rd ed. Cambridge University Press, Cambridge.

The status of *Mycelis muralis* (Wall Lettuce) in Scotland

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The map in the *New atlas* (Preston *et al.* (eds.), 2002) shows *Mycelis muralis* as very widespread and native in England, as somewhat localised but native (with a few exceptions) in Scotland and as somewhat localised and neophyte in Ireland. This article questions its native status in Scotland.

Firstly, it is useful to consider the natural habitat of *Mycelis muralis* in England. Rodwell (1991) describes a *Sanicula europea* sub-community of W12 *Fagus sylvatica-Mercurialis perennis* woodland. He writes "among the associates are some strong preferentials, most notably *Mycelis muralis*, here attaining a tall, delicate, almost stately form far removed from its sturdy physiognomy on sunlit walls, and *Melica uniflora* and *Poa nemoralis* which, together with occasional *Brachypodium sylvaticum*, help give the field layer an open grassy appearance". Similar communities occur in the more acidic of the Beech woods which are such a feature of so many countries in central and south-east Europe, from Germany to Bulgaria. One of several relevant communities recognised is the '*Luzulo luzuloidis-Fagetum sylvaticae*' association, with *Fagus sylvatica* (Beech), *Mycelis muralis*, *Luzula luzuloides* (White Wood-rush) and *Poa nemoralis* (Wood Meadow-grass) as the constant species (Tzonev *et al.*, 2004). Grime *et al.* (1990) note that its associates are often ferns: "This highlights the distinctive ecology of the species, which arises from its unusual combination (among British herbs) of shade tolerance with effective seed dispersal by wind. These two attributes undoubtedly confer a characteristic ability to exploit shaded but relatively inaccessible situations on cliffs, walls and rock outcrops". So, it seems that *Mycelis muralis* is primarily a southern species of Beech woods that has found an alternative and contrasting habitat on walls and rocks. The wall habitat brings it into proximity to man and is an ideal habitat for any species seeking to hitch a lift on vehicles and their contents.

The status of *Mycelis muralis* species in Ireland has been thoroughly researched by Clabby & Osborne (1994). In Ireland, *Mycelis muralis* is widespread on the limestone pavements in the Burren, but has only been known there since the 1930s. Elsewhere in Ireland, it is almost exclusively found in habitats modified by man, especially walls, but also rock outcrops, roadside banks and woodland. Clabby & Osborne conclude that it is a neophyte in Ireland. Significantly, there are no native Beech woods in Ireland.

Swan (1993) is helpful regarding the distribution of *Mycelis muralis* in Northumberland. He maps it as native and widespread on the limestone of south Northumberland, but as scarce in north Northumberland, where he notes that the absence of 19th century records suggests that it may be a recent arrival there. Is this a pointer to its status in Scotland?

The first record I can trace of *Mycelis muralis* for Scotland is that in Dr George Gordon's *Collectanea for a flora of Moray* (1839), where he reports it from "Main's garden and offices at Elgin and at Birnie". This does not suggest a native species; it suggests a wall plant. The next reference is in Balfour and Sadler's *Flora of Edinburgh* (1863). They report it: "Near Musselburgh, Inverleith Row [at or near the Royal Botanic Garden]. Introduced". The next record is for Berwickshire, for which I am v.c. recorder. Andrew Brotherston published a long list of plants new to Berwickshire and Roxburghshire, the great majority of which were neophytes, in the *History of the Berwickshire Naturalists' Club* in 1872. This list includes *Mycelis muralis*: "Hirsel Woods, plentiful". The Hirsel, near Coldstream, was the seat of the Earl of Home and remains in that family. It is a large mansion house with extensive policies. Brotherston also published his record in the journal of the Botanical Locality Record Club in 1874. There he goes further: "Most plentiful on the side of the rivulet that runs

from the loch [a large man-made lake near the mansion] to the Leet [Water]. I believe that it is truly native". Long experience has taught me that claims of a species being 'truly native' imply a considerable element of doubt! A later account that is illuminating is in Ingram & Noltie's *Flora of Angus* (1981). *Mycelis muralis* is entered as: "Walls and waste places, sparse but increasing. The Corstophines [working c.1900-1939] recorded it as 'very rare' giving only a single locality". So, although Ingram & Noltie do not actually list *Mycelis muralis* as a neophyte, their account strongly suggests the possibility of that status.

More recently, Smith *et al.*, in *Plant life of Edinburgh and the Lothians* (2002), report *Mycelis muralis* as "Native. Local. Damp woodland, walls, roadsides". Historical records are not discussed. Meanwhile, Dickson *et al.*, in *The changing flora of Glasgow* (2000), report it as "Hortal and/or accidental in only five tetrads. First evidence: Lee 1953 'Rouken Glen'''. Lee had reported it as very rare on walls and rocks in four of the ten 'sub-areas' of his *The flora of the Clyde area* (1933), but not from Glasgow itself.

In Berwickshire, *Mycelis muralis* is quite plentiful on the tall stone walls in the town of Coldstream. At The Hirsel it is again quite plentiful, both on walls, including the wall of the walled kitchen garden, and in woodland nearby, where it favours the shade of mature Beech trees (Beech is no more native in Scotland than in Ireland). It also occurs at the mansion house Newton Don, on walls, again including the wall of the walled kitchen garden, and on rocks near a waterfall, Stichill Linn. There are only a few other stations: at other mansion houses and on a wall at the village of Cockburnspath.

Of the Berwickshire stations of *Mycelis muralis*, the one most suggestive of native status is that by the Leet Water between The Hirsel and Coldstream (including a short length of the rivulet described by Brotherston). Although the woodland there is on calciferous sandstone and has a herb layer with ancient woodland elements, it is basically a mixed plantation. It seems vastly more probable that *Mycelis muralis* has spread from the walls to the woodland than the reverse. There is a similar situation at Newton Don, where the romantic setting of the linn was compromised when an early hydroelectric scheme powered by a turbine was installed c.1890. Here, *Mycelis muralis* is well-established on rocks and banks of calciferous sandstone in the plantation below the linn, with the ferns *Asplenium scolopendrium* (Hart's-tongue) and *Cystopteris fragilis* (Brittle Bladder-fern), but at least the *Mycelis* and *Asplenium* are likely to be introductions from the gardens close by, as they do not appear in a long list of plants recorded as new to Newton Don by William Wood (1893). The *Cystopteris* has a better claim to be native, as it, alone of the three, was known to George Johnston (1853) from a meeting of the Berwickshire Naturalists' Club in 1846. *Geranium lucidum* (Shining Crane's-bill), listed by Wood as an introduction, was plentiful on the basalt by the linn up to 1995, but may now have been overwhelmed by the *Hedera colchica* (Persian Ivy) introduced to camouflage the hydroelectric plant.

Any case for treating *Mycelis muralis* as native in Berwickshire seems to fail by the first record being as late as 1872, as it does not seem possible that such a relatively conspicuous species could have been missed in such well-visited localities as those discussed.

So, I suggest that the evidence points to *Mycelis muralis* being a neophyte in Scotland, not introduced until after 1800, which could have hitched a lift on vehicles and their contents coming from the south, given its propensity for man-made habitats as well as its primary native habitat of Beech woodland. The relatively late date of introduction is interesting. Could it be that *Mycelis muralis* only adapted to its wall habitat quite recently? If so, could a review of historical records in England reveal any clues as to the date of such an event?

References:

BALFOUR, J.H. & SADLER, J. (1863). *Flora of Edinburgh*. Adam and Charles Black, Edinburgh.

BROTHERSTON, A. (1872). 'List of plants not recorded in "*Eastern Borders' Flora*"'.

History of the Berwickshire Naturalists' Club **6**: 437-440.

BROTHERSTON, A. (1874). 'New county records'. *The Botanical Locality Record Club*, 1874.

CLABBY, G. & OSBORNE, B.A. (1994). 'History, distribution and ecology of *Mycelis muralis* (L.) Dumort (Asteraceae) in Ireland'. *Biology and Environment: Proceedings of the Royal Irish Academy* **94B**: 57-73.

DICKSON, J.H., MACPHERSON, P. & WATSON, K. (2000). *The changing flora of Glasgow*. Edinburgh University Press, Edinburgh.

GORDON, G. (1839). *Collectanea for a flora of Moray*. Alex. Russell, Elgin.

GRIME, J.P., HODGSON, J.G. & HUNT, R. (1990). *The abridged comparative plant ecology*. Unwin Hyman, London.

INGRAM, R. & NOLTIE, H.J. (1981). *The flora of Angus*. Dundee Museums and Art Galleries, Dundee.

JOHNSTON, G. (1853). *The natural history of the eastern Borders*. J. van Voorst, London.

LEE, J.R. (1933). *The flora of the Clyde area*. John Smith & Son (Glasgow) Ltd., Glasgow.

PRESTON, C.D., PEARMAN, D.A. & DINES, T.D., (eds.) (2002). *New atlas of the British & Irish flora*. Oxford University Press, Oxford.

RODWELL, J.S., (ed.) (1991). *British plant communities*, vol. 1: *Woodlands and scrub*. Cambridge University Press, Cambridge.

SMITH, P.M., DIXON, R.O.D. & COCHRANE, M.P., (eds.) (2002). *Plant life of Edinburgh and the Lothians*. Edinburgh University Press, Edinburgh.

SWAN, G.A. (1993). *Flora of Northumberland*. The Natural History Society of Northumbria, Newcastle upon Tyne.

TZONEV, R., DIMITROV, M., CHYTRY, M., ROUSSAKOVA, V., DIMOVA, D., GUSSEN, C., PAVLOV, D., VULCHEV, V., VITKOVA, A., GOGOUSEN, G., NICKOLOV, I., BORISOVA, D. & GANEVA, A. (2004.). 'Beech forest communities in Bulgaria'. *Natura 2000 v Bulgaria* <http://www.natura2000bg.org [Accessed 3rd March 2012].

Wood, W. (1872). 'Plants of Newton Don'. *History of the Berwickshire Naturalists' Club*, 14: 403-404.

Potamogeton species and *Luronium natans* in South Yorkshire

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In his recent review of my book, *The story of South Yorkshire botany* (*New Journal of Botany* **2**: 87), Dr Preston asks the very reasonable question whether the *Potamogeton pusillus* (Lesser Pondweed) and *P. compressus* (Grass-wrack Pondweed) that are recorded in Jonathan Salt's *Flora Sheffieldiensis* of 1800 really were those species. The answer to the first is: perhaps. The answer to the second is: yes.

As indicated in the book, the reason that Salt's list is of such outstanding importance is that it is supported by herbarium specimens. Space limitations, however, meant that, while I was able to make the occasional comment concerning the surviving sheets, it was not possible to annotate every line of the *Flora* with a detailed analysis of the specimens; but, with few exceptions, they are what they say they are on the sheet. W.W. Newbould examined both Salt's manuscript and the herbarium for F.A. Lees' *The flora of West Yorkshire* of 1888, and came to the same conclusion.

At the start of the 19th century, botanists recognised only one pusilloid pondweed, which they called '*P. pusillus*', and the distinction between this species and *P. berchtoldii* (Small Pondweed) was not, of course, clarified until the 20th century. The condition of Salt's specimen does not allow us to be able to place it with absolute confidence. There are no turions, and while some visible stipules appear to have tears or splits, it is not clear if this is collecting damage, damage occasioned while adjusting the specimen for mounting or an indication that it is *berchtoldii*. Both species

occur in South Yorkshire, as described in the recently published *South Yorkshire plant atlas*.

Salt's specimen of *P. compressus* is clearly that species, and the description in his usual work of reference, the 3rd edition of Withering's *Arrangement of British plants,* would have encouraged him to identify it as this, although Withering's description probably means that he would have identified *P. friesii* as this taxon also. *P. compressus* has not been recorded reliably in South Yorkshire since Salt's time, but this is not surprising, as increasing industrial pollution effectively sterilised many of the area's waterways in the 19th century and this is a pollution-sensitive species. The *South Yorkshire plant atlas* does not deal exhaustively with the county's historical records and Salt's *Flora Sheffieldiensis* reference is omitted. The one occurrence that is cited, from an anonymous Sorby Natural History Society member in 1979 in the Sheffield canal, is highly unlikely and is best disregarded.

The published catalogue of the herbarium, *List of plants collected chiefly in the neighbourhood of Sheffield by Jonathan Salt,* dating from 1889, states that there is no specimen of *P. compressus* in the collection, but it then lists it under *P. zosterifolius*, both names being present on the sheet. This herbarium catalogue, unfortunately, is both incomplete and unreliable, and has been the source of several misunderstandings. As an illustration, the *South Yorkshire plant atlas* indicates that *Luronium natans* (Floating Water-plantain) occurred in the county some time between 1773 and 1809, the record being attributed to Salt. This caption is based on a list of plants put together by, or for, someone at Rotherham Biological Records Centre and was partly based on the catalogue. Following the catalogue, the compiler has thought that an entry for *Alisma natans*, with the caption "Wales" meant that the plant had been collected by Jonathan Salt and referred to the South Yorkshire village of that name. Examination of the specimen label, however, shows that it is in the writing of Dr John Nicholson (the discoverer of *Viola persicifolia* (Fen Violet) in Britain) and clearly comes from Wales the country. The dates quoted are based on a paragraph in the catalogue implying that Salt collected between these years, but while 1773 is the earliest specimen date (*Trifolium fragiferum* (Strawberry Clover)) in Salt's herbarium, it is not Salt's. It was collected by William Staniforth "near London". Neither is the year 1809 correct. There are two specimens with this date, but neither was collected by Salt. In fact, the last specimen collected by Salt in the wild − *Trifolium arvense* (Hare's-foot Clover) from Doncaster in 1812 − is not listed. There is no reason to believe that *Luronium natans* has ever occurred in South Yorkshire.

The sign of the right birch

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While studying a somewhat enigmatic birch (*Betula*) tree, I decided to use the Atkinson Discriminant Function that separates *B. pendula* from *B. pubescens* in the majority of cases. This note is to alert readers to a misprint in the Function as given on p. 295 in the third (2010) edition of Stace's *New flora of the British Isles*. The correct expression has a minus sign, not a plus sign as printed, before the term 2LTW (the Function is printed correctly in the two earlier editions). I hope not too many novices have identified every birch tree as *B. pendula*!

Reference:

Atkinson, M.D. and Codling, A.N. (1986). 'A reliable method for distinguishing between *Betula pendula* and *B. pubescens*'. *Watsonia* **16 (1)**: 75-76.

Pollination of *Cephalanthera longifolia* (L.) Fritsch

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Cephalanthera longifolia (Narrow-leaved Helleborine) is a spectacular orchid, which is much valued by conservationists and orchid enthusiasts. Within the British Isles, it has suffered a severe decline from a presence in 109 hectads prior to 1930, reduced to 79 hectads prior to 1970 and further reduced to 62 hectads prior to 2000 (BSBI, 2012). Harrap & Harrap (2009) list 32 British Isles counties where it has been lost.

Considerable conservation effort has gone into finding out the optimal conditions for the success of this orchid. Its biological demands have been found to be somewhat exacting. Its development depends on the presence of specific ectotrophic fungi found on the roots of some Beech trees in southern England (Bidartando, 2008) and circumstantial evidence suggests that other species of tree support the orchid in its Welsh and Scottish locations, with *Quercus petrea* (Sessile Oak) being a strong candidate (Hedley, 2011). This dependence on tree roots causes the orchid to be a woodland or woodland fringe plant. It grows successfully under high canopy Beech trees, but it was shown that fruit setting was significantly better when the orchids grew on the edge of glades, indicating that pollination was much lower in shady conditions (Hedley, 1998). Successful pollination has been found to be one factor of critical importance to the survival of this species. It has no obvious mechanism for vegetative reproduction. Dafni and Ivri (1988) showed that this orchid had no mechanism for self-pollination and therefore had to be cross-pollinated by insects. The evidence so far indicates that pollination has been predominantly carried out by small bees belonging to the family *Halictidae* (Dafni and Ivri, 1988; Claessens and Kleynen, 2011). The only known British pollination record was of *Lasioglossum fulvicorne* (G.R. Else and R. Hedley, unpublished information), a bee which has been classified in the family *Halictidae*. All the listed Hymenoptera are ground-nesting bees which require pollen and nectar to feed their larvae. *C. longifolia* produces no nectar and no usable pollen. The pollen of *C. longifolia* has been described as attached to the thorax of the bees, in loosely bound clumps, so that it can be transferred to the stigma of a flower when it is female ripe. Pollen in this position is inaccessible to the bees, as they can not use their cleaning legs to gather the pollen. The principal unresolved problem is what attracts the bees to the flower, if there is no reward? The bees self evidently need plants which provide nectar and pollen at the same time as the *C. longifolia* plants are in flower. Dafni and Ivri (1981) proposed a facultative mimicry between *Cistus salviifolius* (Sage-leaved Cistus) and the orchid, with *C. salviifolius* as the model and *C. longifolia* as the mimic. The bees were described as the operators confusing the model and the mimic and that they were deceived into pollinating the orchid. Daphni and Ivri (1981) also found that pollination occurred in sunlit conditions in the absence of *C. salviifolius*, but, in its presence, the levels of pollination were much higher. The authors called this facultative Batesian mimicry, as the mimic's pollination was only enhanced and not mandatory.

The evidence for facultative mimicry is rather weak:

1) The model is radially symmetrical and does not reflect u.v. light. The mimic is zygomorphic and strongly reflects u.v. light. The greatest similarity is that both species have yellow patches near the centre of the flower.
2) It was found that the *Halictus* bees collected pollen from the model and the mimic in the same foraging flight and that four times as many bees collected pollen from *C. salviifolius* first. If there were four times as many *C. salviifolius* flowers as *C. longifolia* flowers this could simply be the consequence of random foraging by the bees. Dafni and Ivri (1981) mentioned that *C. salviifolius* was much more numerous than *C. longifolia*.

No other flowers were described in the Israeli *Quercus calliprinos* (Palestine Oak) groves, where the observations took place.

3) The critical differences between groves with no *C. salviifolius* and low levels of pollination of *C. longifolia* in comparison to groves with *C. salviifolius* and higher pollination may simply have been due to the relative frequencies of bees. No count of the bees or indications of distance of bee nesting burrows was recorded.
4) *C. salviifolius* does not occur north of the Alps, whilst *C. longifolia* has a pan-European to Asian distribution and yet comparable levels of pollination have been found at some British sites.

Two very contrasting C. longifolia sites in southern Hampshire were selected to explore possible differences in percentage pollination and whether this could be attributed, in any measure, to the presence of Batesian models, which enhance the pollination levels.

Method

The two sites had levels of fruiting that seemed to be comparable with the higher levels of pollination in Israel, *i.e.* greater than 24% in some years. The baseline of 24% was taken from the Israeli percentage pollination, when no *C. salviifolius* was present. The two sites were Chappett's Copse, South Hampshire, v.c.11, and Little Shoulder of Mutton (LSM), North Hampshire, v.c.12. These sites were found to have similar edaphic conditions, but were widely different in aspect and associated flora. Records of fruiting over a number of years were available for both sites. In 2012 it was decided to compare flowering and fruiting on the two sites, to identify the synandrous flowers, and look for explanations of difference in frequency of pollination.

Results

Environment	Chappett's Copse	Little Shoulder of Mutton
Soil	Rendzina soil on crest of a down	Rendzina soil on crest of a down
Aspect	5 glades open to the south and west	1 site open to south and east
Associated trees	*Fagus sylvatica* (Beech)	*Fagus sylvatica* with some *Taxus baccata* (Yew), *Crataegus monogyna* (Hawthorn) and *Salix caprea* (Goat Willow).
Hours of direct sunlight.	Glades vary between maxima of 2 and 4	Greater than 4

Associated flowering plants synandrous with *Cephalanthera longifolia*	Chappett's Copse	Little Shoulder of Mutton
Galium odoratum	abundant	
Sanicula europaea	abundant	
Fragaria vesca	frequent	
Veronica chamaedrys	occasional	occasional
Euphorbia amygdaloides		abundant
Polygala vulgaris		frequent
Lotus corniculatus		frequent

The percentage of flowering plants with one or more fruit between 1995 and 2012:

Year	95	96	97	98	99	0	1	2	3	4	5	6	7	8	9	10	11	12
Chappett's	13	38	18	40	31	0	41	23	49	<5	0	<1	13	23	11	17	6	32
Little S. of M.	0	75	69	63	50	24	32	34	40	14	63	0	0	0	0	0	14	54

In eight of the eleven comparable years of fruiting, the Little Shoulder of Mutton has a higher percentage of fruiting plants than Chappett's Copse.

The overall percentage:

Little Shoulder of Mutton: from a total* of 12 years = 29%

Chappett's Copse: from a total* of 16 years = 20%

(* total of flowering plants counted at LSM = 1,406; total of plants counted at Chappett's = 14,142).

Conclusion: Little Shoulder of Mutton had a significantly higher level of fruiting.

Discussion of synandrous flowering plants which might act as models increasing the pollination of the potential mimic, *C. longifolia*.

At Chappett's Copse, the principal associated flowering plants were *Galium odoratum* (Woodruff) and *Sanicula europaea* (Sanicle). Both these plants have white clusters of flowers in terminal umbels. *Sanicula europaea* stands to 30cms, with a number of umbels at a similar height to some of the flowering spikes of *C.longifolia*. The *G. odoratum* umbels were much closer to the ground, but they have been recorded as having a vanilla scent. *Fragaria vesca* (Wild Strawberry) flowers are white with a yellow centre. The principal plants at Chappett's Copse had a white colour and the flowers were clustered in white masses. Information on their u.v. reflectance was not available.

At LSM, the principal associated plants were *Euphorbia amygdaloides* (Wood Spurge), with radial, yellow-green flowers in terminal umbel-like clusters; *Polygala vulgaris* (Milkwort) with zygomorphic, blue flowers, having a white spot in the middle of fused sepals and petals; *Lotus corniculatis* (Bird's-foot-trefoil), with zygomorphic, yellow standards and two yellow petals fused to a keel, with two yellow wings; and *Veronica chamaedrys* (Germander Speedwell), with radial, blue flowers, having a white spot, local and only occasional.

Among the flowering plants of the LSM, not one had any clear visual resemblance to *C. longifolia*. Dafni and Ivri (1981) paid particular attention to the yellow pseudo-pollen on the epichile of the orchid, being similar in colour to the yellow centre of *C. salviifolius.* The only yellow-coloured plant at LSM was *Lotus corniculatus*. Its keel and wing pollination mechanism requires much heavier bees than those belonging to the *Halictidae* to operate it. *C. longifolia* would appear bee white, having a strong reflectance in all parts of the bee's visual spectrum.

LSM was found to have had a much higher level of pollination than the sites at Chappett's Copse. It is suggested that the difference between the levels of pollination at the two sites had much more to do with the activity of pollinating bees than the presence or absence of flowers that act as Batesian models. The LSM site lies open to chalk downland, with short, grazed grass. The situation of the *C. longifolia* plants was in a true ecotone, with high levels of sunlight gradually merging into the deeper shade provided by a bank of trees of *F. sylvatica, S. caprea and T. baccata*. Chappett's Copse sites have open glades surrounded by *F. sylvatica*, but no part of the glades provided conditions that were as favourable to bees nesting as the LSM site.

It is hypothesised that flowers of *Cephalanthera longifolia* are intrinsically attractive to bees and that a Batesian model is not required to achieve high levels of pollination. High levels of bee activity will promote high levels of contact between bees and flowers.

Supporting evidence

Godfrey (1933) records observing *Halictus* bees gathering around *C. longifolia* flowers in a vase. He wrote:-

> We saw the flowers of *ensifolia* [*C. longifolia*] visited a number of times by a small Hymenopteron, a female *Halictus smeathmannellus* K. and a still smaller female *H. politus* Schenck, which carried off the white pollinia attached to their thorax…….These little bees took no notice of the flowers of *C. grandiflora* [*C. damasonium*] which were in the same vase.

Dafni and Ivri (1988) record having observed bees of the genus *Halictus* entering the flowers of *C. longifolia* in a glass vivarium. Apparently, the bees became intoxicated by their contact with the orchid flowers and paid particular attention to the yellow pseudopollen cells on the epichile.

At one of the five Chappett's sites in 2012, there was a very high percentage of pollination. In a small area measuring 10m square, there were 138 of 206 flowering plants bearing fruit = 67%. Of the fruit bearing plants, 98 = 71% had multiple pollinations, with two or more flowers bearing fruit. This site was not in any way better endowed with potential models such as *G. odoratum* or *S. europaea* than any other site. It would seem that the intrinsic visual impact of the mass of *C. longifolia* flowers was attractive to the pollinating bees and that many of them worked the same site. Examination of the west-facing bank of the adjoining hedgerow at 12m distance, revealed 10% + bare earth and many small holes in the bank, which were interpreted as the burrows of ground-nesting bees.

Discussion

The differences in levels of pollination between Chappett's Copse and LSM could most easily be accounted for by differences in suitable conditions for bee activity; that the flowers of *C. longifolia* were attractive to the pollinating bees; and that there was no need to invoke mimesis to account for differences in pollination rates. Pollen and nectar bearing plants must be present within the bees' foraging range for them to survive, but visits to *C. longifolia* are not dependent on them in any sense, except that they may increase the number of bees in a locality.

Mimesis is an attractive concept and has become widely applied in the literature. Claessens and Kleynen (2011) state: " the Israeli plants showed a significantly higher fruit set than the European population lacking the presence of *C. salviifolius*, illustrating that *C. salviifolius* indeed serves as a model for *C. longifolia*". There are a number of variables which might account for differences in pollination levels between orchids to the north and south of the Alps, which do not involve mimesis in any way: hours of sunshine, average temperature, differences in management of the sites in which the orchids grow and bee numbers. It would be difficult to prove or disprove the hypothesis, that there is a facultative mimetic effect between *C. salviifolius* and *C. longifolia* without detailed information about the presence or absence of the operating bees at the sites, where levels of fruiting were compared. Facultative mimesis is a mechanism which should be reconsidered and the hypothesis that *C. longifolia* is sufficiently attractive to the pollinating bees to account for all levels of pollination is worth further examination.

Acknowledgements:

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References:

BIDARTANDO, M.I. & READ, D.J. (2008). 'Fungal specificity bottlenecks during orchid germination and development'. *Molecular Ecology* **17**: 3707-3716.

BSBI (2012). Maps Scheme: *Cephalanthera longifolia* (http://www.bsbimaps.org.uk/atlas/map_page.php?spid=458.0).

CLAESSENS, J. & KLEYNEN, J. (2011). *The flower of the European orchid: form and function*. Published by the authors.

DAFNI, A. & IVRI, Y. (1981). 'The flower biology of *Cephalanthera longifolia* (Orchidaceae): pollen imitation and facultative floral mimicry.' *Plant Systematics and Evolution* **137**: 229-240.

GODFREY. M.J. (1933). *Monograph and iconograph of native British Orchidaceae*. Cambridge University Press, Cambridge. Pp. 53-54.

HARRAP, A. & HARRAP, S. (2009). *Orchids of Britain and Ireland: a field and site guide*. A. & C. Black, London.

HEDLEY, R. (1998). *The flowering and fruiting performance of Cephalanthera longifolia, with implications for conservation*. Hampshire Wildlife Trust.

HEDLEY. R. (2011). 'British trees associated with *Cephalanthera longifolia*.' *BSBI News* **117**: 32-34.

Hybrid violets at Brockadale and Hetchell Woods – a response

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Mike Wilcox's investigation (*BSBI News* **121**: 19-21) into the hybrid violets *Viola ×bavarica* (*V. reichenbachiana* (Early Dog-violet) × *V. riviniana* (Common Dog-violet) and *V.×scabra* (*V. hirta* (Hairy Violet) × *V. odorata* (Sweet Violet)) makes a number of valid and interesting points, although I feel that some of his conclusions do not take into account recent work on hybridity in *Viola ×bavarica*.

***Viola ×bavarica* (*V. reichenbachiana* × *V. riviniana*)**

Mike remarks that it was "not possible to tell which [plants] were *V. ×bavarica* on morphology alone", and one can concur wholeheartedly: very often, one cannot name this hybrid in the field! There are some plants, growing in the presence of both parents that exhibit both sterility and morphological intermediacy, and which can be said, with a fair degree of confidence, to be the hybrid, but there are also many others that defy naming. However, Mike goes on to assume that plants with pollen "more or less fully fertile" will be one or the other of the parents. F_2 and subsequent generations of *V. ×bavarica* have been demonstrated in Germany (Neuffer *et al*., 1999), the existence of which pre-supposes some fertility in the F_1. Indeed, work carried out on a number of such plants in Germany suggests mean pollen fertility may be as high as 60% (Trees-Frick, I. (1993). These subsequent generations may be largely fertile, and hence fertility does not rule out hybridity. Furthermore, such fertility opens the way to back-crossing, and the confusing patterns of variation we see in *V. riviniana* today may reflect past instances of this (for example the plants *V. riviniana* with dark purple notched spurs often found later in the season in shady sites).

Mike's description of the differences between *V. riviniana* and *V. reichenbachiana* is helpful but *V. reichenbachiana* also tends to have a dark zone on the lowest petal (as can be seen in Jesse Tregale's photo on page 3 of the colour section in *BSBI News* **121**), although, as is the case with *V. riviniana*, this is not always present. The comment that "*V. ×bavarica* is probably uncommon…" is based upon its sterility, which, as remarked above, is arguable and therefore misleading regarding the probable national distribution of this hybrid. It seems likely that partially fertile *V. ×bavarica* is overlooked and therefore under-recorded and that if back-crossing occurs in British populations, this hybrid is likely to be more widespread than Mike's article suggests. However, it could be concluded fairly that sterile F_1 *×bavarica* is uncommon at the site Mike sampled.

***V. ×scabra* (*V. hirta* × *V. odorata*)**

Mike describes hairs in this plant as being "very variable, some long and some short" - characters which point to the hybrid. Additional, stronger characters worth mentioning are those of a) intermediate stolon inter-

node length. Hybrid stolon internode length in Norwegian populations is 17-19mm, as opposed to 0-2mm for *V. hirta* and 28-48mm for *V. odorata* (Marcussen & Borgen, 2000); b) vigorous growth habit; c) the large size of the flowers and the leaves, the latter sometimes becoming enormous later in the season (up to 9cm × 7cm, with petioles to 23cm).

Again, Mike says that "to be certain" of hybridity, the level of fertility of pollen grains was checked. There is, however, no certainty in this, since (as he indeed hints in his discussion of *V.* ×*bavarica*), sterility can result from reasons other than hybridity, such as environmental conditions or disease.

Mike has demonstrated the value of acetocarmine staining of pollen. For a clearer picture of the degree of sterility in this hybrid, and also in its parents, based upon pollen fertility, it would be very valuable to assess this rigorously, by calculating the % proportions of fertile *vs.* infertile grains in a number – preferably a large number – of reticule squares, and by sampling from several anthers from a number plants.

V. riviniana* var. *minor

Many small forms of *V. riviniana* revert to normal size when grown on in a less severe environment and should not be referred to as var. *minor*. True var. *minor* is a valid ecotype of exposed habitats, which retains its small stature when grown on in the greenhouse, as demonstrated by Valentine, who also provided precise measurements for the taxon (Valentine, 1941).

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I would like to thank Jeremy Roberts for much helpful discussion on this topic and Clare O'Reilly for various suggestions and for making available to me the results of her research into these intriguing hybrids, which will be published in the forthcoming new edition of Clive Stace's *Hybridisation and the British flora*.

References:

MARCUSSEN, J. & BORGEN, L. (2000): 'Allozymic variation and relationships within *Viola* subsection *Viola* (Violaceae)'. *Plant Syst. Evol*. **223**: 29-57.

NEUFFER, B., AUGE, H., MESCH, H., AMARELL, U., & BRANDL, R. (1999): 'Spread of violets in polluted pine forests: morphological and molecular evidence for the ecological importance of interspecific hybridization'. *Mol. Ecol.* **8**: 365–377.

TREES-FRICK, I. (1993): 'Karyologische und morphologische Untersuchungen an *Viola reichenbachiana* Jord. ex Boreau und *Viola riviniana* Rchb.'. *Mitteilungen der Naturforschenden Gesellschaft in Bern,* N.F. **50**: 81-98.

VALENTINE, D. H. (1941): 'Variation in *Viola riviniana* Rchb'. *New Phytologist* **40**: 189–209.

More on identifying violets

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In *BSBI News* **121**, Michael Wilcox included photos of *Viola riviniana* (Common Dog-violet) and *Viola reichenbachiana* (Early Dog-violet) to show their floral differences, alongside his article on hybrid violets.

This year, on a Bradford Botany Group field trip, I found and photographed a white violet in Gubbins Wood, Arnside, which I determined as *Viola reichenbachiana* f. *leucantha*. Later in the year, I photographed the white form of *Viola riviniana* f. *luxurians*, which was found with Michael on the Sun Lane nature reserve in Burley-in-Wharfedale.

The frontal photos show *V. reichenbachiana* with narrower petals and with the top narrow petals held vertically. The side view shows the narrower spur of *V. reichenbachiana* . The photos may help differentiate these often difficult to determine species (see Colour Section, Plate 2).

Identification of *Viola rupestris* (Teesdale Violet)

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Mike Wilcox (by his own admission) appears to have had only limited success in separating *Viola rupestris* (Teesdale Violet), from *Viola riviniana* (Common Dog-violet) on Ingleborough, v.c.64 (*BSBI News* **121**: 21-2). However, I would be most disappointed if readers were left with the impression that there is little difference between these two species! (I should explain that, with a forty-year interest in this species and as the original finder of *Viola rupestris* on Ingleborough (Roberts, 1977), I believe some clarity needs injecting here.)

Separating these two violets should be entirely straightforward, if what follows is kept in mind:

1: Don't waste time on immature or stunted plants. Initially, look for well-grown individuals.

2: It is problematic seeing characters on such a low-growing plant *in situ* – one needs to lie prostrate, hence blocking one's light. Collecting a leaf-plus-stalk from a well-grown plant to allow lens-viewing in adequate light would be acceptable. Picking the rosette, however, might lead to the death of the plant.

3: *Viola rupestris* in most seasons produces very few open (*i.e.* chasmogamous) flowers: any prospective Teesdale-violeteers should not expect to cast about for a flower, and then check the plant below it! Look for the green plant. However, read note 4!

4: Identification is far easier with full-grown plants in summer/autumn. Non-opening (cleistogamous) flowers grow freely as the branches develop through the season, so look for ripening capsules (the hybrid being sterile). Even long after the seeds have been cast, the three pale brown valves remain obvious – often detectable below the plant after being shed.

5: Guides and floras (at least British ones) are very misleading in the main! Very few accurately describe the hairs of the two species correctly, with regard to their i) appearance and ii) distribution. Yet these two characters at once separate the two species!

If I could recommend one account it might be that in *The plant crib 1998* (Roberts, in Rich & Jermy, 1998; recently reprinted), which still holds up reasonably today – but then I might well say that, having written it! The only clear factual inaccuracy there concerns the hybrid, which is now known in all four of the UK localities for *Viola rupestris.*

It pains me that most UK flora-writers still appear fixed on the notion that *Viola rupestris* has to be hairy, and that this will separate it from *V. riviniana*. The first population discovered, that on Widdybank Fell in Teesdale, is indeed consistently pubescent. Ingleborough populations, however, have a good proportion of plants where the indumentum is sparse or patchy, and some plants are completely glabrous (Jonsell, *et al.,* 2000). In this respect they resemble many continental populations (Jonsell (ed.), 2006). It is noticeable that some Ingleborough plants may have dense pubescence on petioles of the first leaves, whilst later-growing leaves may have none.

The other large population, on Widdybank Fell in Co. Durham (v.c.66), is consistently pubescent (M.E. Bradshaw, pers. comm.), as is the small population on Arnside Knott in Westmorland (v.c.69), whilst plants on the fourth site, Long Fell, above Brough (also v.c.69), are more variable, like those on Ingleborough (pers. obs.).

So, ignoring the hybrid *V.* ×*burnatii* for the moment, how do you separate *Viola rupestris* from *V. riviniana*, which usually grows nearby? First, and easily observed – the leaf-rosettes are very distinctive, and leaf-shape is an excellent indication:

Shape and posture of leaves

	Viola rupestris	*Viola riviniana*
Leaf-blade	Ovate, apex blunt.	Heart-shaped; apex ± pointed.
Base of leaf	Basal lobes small. Sometimes ± truncate.	Broadly cordate; basal lobes large.
Posture of MATURE leaves	Sides of leaves raised (esp. towards base), often making a scoop or trowel shape.	Basal lobes of leaves often incurved towards tip, but may be flat.

Mike Wilcox suggests *Viola rupestris* has the 'ace of spades' leaf-shape, but to my eye 'ace of spades' fits *V. riviniana* perfectly, and *V. rupestris* not at all! (See the photo-gallery on my website, reference at the end of this note.)

Next, needing closer inspection with a lens: just two characters – type and distribution of hairs – will separate all well-grown plants, and indeed most others. The type of hairs is completely different, and diagnostic: very short, bristle-like hairs in *rupestris* (Phill Brown aptly described the effect as 'stubble'), but longer, slender hairs in *riviniana*. See Colour Section, Plate 3.

Type and distribution of hairs

	Viola rupestris	*Viola riviniana*
Leaf-BLADE (upper lamina)	Apparently hairless without close inspection. (On basal lobes and up margins, often some inconspicuous very short hairs [2]. More rarely, very short hairs cover whole lamina.)	A covering of hairs [1]; these are slender and may be inconspicuous, but are visibly longer [2] than any hairs in *rupestris*. (Bend leaf over finger and view against contrasting background.)
Leaf-STALK (petiole)	Typically a dense covering of very short hairs [2]. Effect of greyish 'fuzz' when dense. Sometimes covering is less dense or patchy, or petiole is entirely smooth (even on same plant).	Typically hairless [3]. More rarely, a few hairs.

Notes

[1] Coverage of hairs in *riviniana* may be uniform, or concentrated towards the margins. Small leaves have less area and may therefore have few hairs. Leaves on young plants may be completely glabrous.

[2] If you have the wherewithal to measure them, bristles of *rupestris* will be mostly 0.035-0.05mm (35-50µm); hairs of *riviniana* will be mostly 0.3-0.35mm (300-350µm) long, *i.e.* approaching ten times longer.

[3] Some forms of *riviniana* are more hairy, with scattered longish hairs on the petiole. Rarely, the whole plant may be densely hairy. However, such forms have not been noticed on the Crummackdale limestones.

So, to summarise:

1) Look for well-grown individuals.
2) Check leaf shape:
   ~ leaves ovate, apex blunt, with small basal lobes or even ± truncate = *rupestris*
   ~ leaves heart-shaped: apex pointed, base cordate = *riviniana*
3) Check upperside of leaf:
   ~ apparently glabrous; perhaps some minute short hairs = *rupestris*
   ~ a covering of distinct longer hairs = *riviniana*.
4) Check leaf stalks:
   ~ a 'stubble' of very short hairs = *rupestris* (if hairless, use other characters)
   ~ typically hairless = *riviniana* (any hairs present longer than in *rupestris*).

Other points

Mike Wilcox describes how to demonstrate pollen-sterility – a useful technique, but not proving hybridity. Other factors may induce sterility in the parent species. The other difficulty with spring-time identifications is that, at the time when the plant is opening its flowers, vegetative parts are still developing, and thus many features valuable in identification are less easily seen (*e.g.* shape of mature leaves), or not yet present (*e.g.* ripe capsules).

Mature leaves in *V. rupestris* are often concave side-to-side, as stated above, but convex lengthways.

Capsules in *V. rupestris* are almost globular, with the apex blunt or rounded. In *V. riviniana* they are more elongated, and with the apex pointed to some degree. Contrary to some descriptions of *V. rupestris*, capsules are often glabrous in Ingleborough plants, or soon becomes glabrous, even in plants otherwise pubescent. Teesdale *rupestris* have the capsule more consistently pubescent (M.E. Bradshaw, pers. comm.).

V. rupestris can develop dense 'circular' rosettes of many leaves with short stalks. *V. riviniana* has few leaves in a laxer rosette. This contributes to a distinctively different appearance in many individuals.

Habitats

The large and extensive populations of *Viola rupestris* on Ingleborough occur scattered over the two huge whaleback limestone fells of Moughton and Norber, which enclose Crummackdale. Its habitats in this area are mostly of three types:

i) calcareous drift, where terracettes caused by downhill soil-creep and livestock trampling have sparse grass cover and open patches of bare soil, which allow seedling establishment;
ii) open soil in loose screes of pea-gravel and small stones, and in open turf amongst larger stones;
iii) in small-scale 'clitter' (broken gravel) on exposed tops;
iv) much more rarely, in cracks in exposures of limestone bedrock, especially where these form low, broken mounds.

Optimum habitats here are very largely dominated by S*esleria caerulea* (Blue Moor-grass), *Festuca ovina* (Sheep's-fescue) and *Carex flacca* (Glaucous Sedge), with calciphile mosses as a ground layer (NVC = CG9). Common associates are *Thymus polytrichus* (Wild Thyme), *Galium sterneri* (Limestone Bedstraw), *Plantago lanceolata* (Ribwort Plantain) and *Campanula rotundifolia* (Harebell), with less frequent *Carlina vulgaris* (Carline Thistle), *Euphrasia confusa* (Confused Eyebright), *Gentianella amarella* (Autumn Gentian) and *Minuartia verna* (Spring Sandwort).

Mature plants can persist in closed turf, but seedlings require open soil to establish. The species can develop dense colonies in open patches of soil in scree and amongst stones (see Colour Section, Plate 3).

Where *Sesleria* is not grazed hard enough, it becomes tussocky, excluding *V. rupestris* and most other species. This has become a major concern in many rocky areas, where grazing stock do not penetrate. Recent partial surveys suggest that populations of *Viola rupestris* may have declined strongly in such areas since first discovery.

The hybrid *Viola riviniana* × *V. rupestris* = *Viola* ×*burnatii*

Naming this hybrid in the field from immature or stunted plants remains unreliable and hence worthless. The hybrid is sterile. Thus, any plant with developing capsules is not the hybrid! I disagree with Mike Wilcox that seeds in the hybrid "would remain very small and white rather than plump and brown". This implies that capsules do actually expand on hybrid plants, but in my experience the flowers abort at an early stage. Hybrid plants cultivated for many years invariably aborted the flowers, to leave a shrivelled brown 'flower-plus-stalk' at each leaf-axil on the branches. On a single occasion, I saw a capsule on a plant thought to be hybrid, which had partially developed, but was misshapen and empty.

In the summer and autumn, look for mature plants lacking capsules, and carefully expose any branches from the surrounding vegetation to see the aborted flowers. Bear in mind that flowers in the parent species often fail to develop, so the absence of capsules does not prove the hybrid, but the presence of capsules proves the pure species.

Leaf-shape is generally intermediate, being blunter than in *V. riviniana* and with larger basal lobes than in *V. rupestris*. Margaret Bradshaw (pers. comm.) describes the shape and posture of leaves of Teesdale hybrids as being closer to *V. riviniana.* Given the variation in each species, leaf-shape may be a pointer, but the hair type and distribution is more generally useful.

The critical character: hybrids can have a variable mixture of the types of hairs of the parent species (thus, long-plus-short, or various lengths between those of the parents), and variably distributed over the stems, leaf-stalks and -blades. However, this advice on hair-length might apply only to crosses involving the pubescent varieties of *V. rupestris* (see also Jonsell, *et al.* (2000).

The hybrid can be patch-forming. Such potentially long-lived plants are known in the Widdybank and Long Fell populations, but not yet in the Ingleborough and Arnside Knott populations, where only rare solitary (*i.e.* not patch-forming) hybrid plants have been identified thus far. If Ingleborough hybrids generally lack a means of vegetative reproduction, their likely limited longevity might be sufficient to explain the apparent rarity of hybrids in that population.

Website

There is a photo-gallery illustrating these two violet species and their hybrid on my website. Follow the link on the homepage at: www.edencroft2.demon.co.uk

Acknowledgements:

I am very grateful to Dr Margaret Bradshaw and to Mike Porter for valuable comments on a draft.

References:

JONSELL, B. (ed.) (2006). *Flora Nordica*, Vol. 6. Department of Phanerogamic Botany, Swedish Museum of Natural History, Stockholm, Sweden.

JONSELL, B.; NORDAL, I.; ROBERTS, F.J. (2000). '*Viola rupestris* and its hybrids in Britain', *Watsonia* **23**: 269-278.

ROBERTS, F.J. (1977) '*Viola rupestris* Schmidt and *Juncus alpinus* Vill. in Mid-W Yorkshire', *Watsonia* **11**: 385-386.

ROBERTS, F.J., in RICH, T.C.G., & JERMY, A.C. (1998). *Plant crib 1998*. BSBI, London. Pp. 109-111.

WILCOX, M. (2012) 'Hybrid violets at Brockadale and Hetchell Woods, and a search for the Teesdale Violet (*Viola rupestris* F.W. Schmidt) and its hybrid (*Viola* × *burnattii* Gremli) with Common Dog-violet (*Viola riviniana* Rchb.).' *BSBI News* **121**: 19-22.

Floral aberration in *Viola hirta*

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Back in 2009, Miles Hodgkiss sent me photographs of *Viola hirta* (Hairy Violet) plants found at Perham Down (v.c.12) that had two spurs on each flower. Miles christened them 'The Devil's Own' violets. By looking at many *V. hirta* plants elsewhere, he soon found that instead of the usual single spur, it is not difficult to find flowers with 2 spurs, 3 spurs, 4 spurs, no spurs, or a misshapen single spur. Examples are shown in the photographs in the Colour Section, Plate 2.

I had a quick look myself in 2010, whilst at Stockbridge Down, and I soon found a few examples of malformed flowers, including a couple of widely spaced plants with no spurs. The first one I found was infected with a fungus (probably *Puccinia violae*), so initially I wondered whether this might be the cause, but this now seems very unlikely, as many aberrant flowers found subsequently showed no sign of fungal infection. Miles speculated whether pollution from motor exhausts might be the cause, as he found many malformed flowers on road verges, but again this now seems unlikely as further sites were found very remote from roads.

In 2010 and 2011 Miles continued searching for *V. hirta* in other locations and found similar floral aberrations at Shipton Bellinger (v.c.12), Danebury Hill (v.c.12), Figsbury Ring (v.c.8), Sidbury Hill (v.c.8), Albury Down (v.c.17) and various roadside sites. Together, in 2012, we found further examples in several places at Porton Down (v.c.12).

Some plants had all their flowers malformed, yet others had a single malformed flower amongst normal ones. Often the number of petals is affected so that flowers with only four petals but a spur attached to each approach a peloric form.

Some time ago I mentioned this to Malcolm Storey, and, with a bit of 'Googling', he came up with a very relevant article by Charles Britton, titled 'Floral variations amongst Surrey violets', published in the *Journal of Botany* **42** (1904), pp. 140–148. This is available at:
http://www.archive.org/details/mobot31753002398300 (Select 'Read Online' and use the 'Thumbnail' control to select the required pages). To cut a very long story short, Charles Britton found similar floral aberrations in several species of violets in Surrey, but *Viola hirta* stood out as the species most frequently affected.

I would be interested to hear if such aberrations are found throughout the distribution range of *V. hirta*, though it may mean looking closely at hundreds of violet flowers before you hit the jackpot.

A long-distance character for *Seseli libanotis*

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Seseli libanotis (Moon Carrot) is a rare biennial or perennial umbellifer found in chalk grassland at a handful of sites in East Sussex, Bedfordshire and Cambridgeshire (and formerly in Hertfordshire). In at least one of these, the number of plants is in single figures.

In East Sussex, the plant's distribution is centred on the Beachy Head area, with the largest population growing at a private nature reserve at Bullock Down. At another site I know quite well, a population of c.30-40 plants grows in south-facing rough chalk grassland on a cliff-top between Seaford Head and the Cuckmere Estuary at Hope Gap. Here, it grows with two other umbellifers: *Daucus carota* ssp. *carota* (Wild Carrot) and *Pimpinella saxifraga* (Burnet Saxifrage). All three species naturally look similar, presenting white-flowered umbels, the similarity being greatest between *Seseli libanotis* and *Daucus carota*. At close-quarters, the former can be distinguished from the latter by the fibrous remains of leaves at the base of the plant; the simple, linear, rather than lobed, bracts at the bases of the umbels; the crisped appearance of the leaves, which have more broadly triangular lobes (though at a national level its leaves might be quite variable); and the pubescent, rather than spiny fruits. Also, at this site at least, *Seseli* tends to be taller (although very dwarf plants occur), with more robust, obviously-ridged stems and denser umbels. The fact that the umbels remain convex in fruit rather than folding in on themselves will not distinguish it from *Daucus carota* ssp. *gummifer* (Sea Carrot), which could conceivably grow with it at coastal sites, although not this one, to my knowledge.

However, if you time your visit to the site well, as *Seseli* is coming into flower at the end of July/beginning of August, the plants can be picked out from a distance. This is because their umbels have a distinct, if faint, greenish tinge, while those of the other two species appear as pure white. The green is located at the centre of the partial umbels, where the flowers are still closed, and fades as the umbels become fully expanded. Presumably it is the sepals that impart the green colouring, and Tutin (1980) states that these are absent in *Pimpinella saxifraga*, "triangular" in *Daucus carota* and "conspicuous" in *Seseli libanotis*. The green fades as the flowers open and the sepals become hidden, or perhaps the sepals drop off – Tutin describes them as "deciduous". The character is well-illustrated in David Lang's photograph at the bottom of page 153 of *Sussex wild flowers* (Briggs, 2004) – particularly the umbel next to and at the same level as the fruiting umbel at the extreme right of the photograph.

It is possible that very small populations of a few plants of this rare umbellifer have been overlooked. Interested parties with access to unimproved chalk grassland in the south-east of England should look out for green-tinged umbels at the end of July.

References:

BRIGGS, M. (2004). *Sussex wild flowers*. Sussex Wildlife Trust, Henfield.

TUTIN, T.G. (1980). *Umbellifers of the British Isles*. BSBI, London.

Mnemonic Corner

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While taking various botanical trips and courses, we have noted little rhymes and word-images which help us to remember various identification features. We thought we would send these to *BSBI News* in the hope that people would not only find them useful, but also send in their own tricks and memory-joggers. It is often impossible to say who first thought of them, so apologies and thanks to all the uncredited inventors!

Sedges have edges.....the stalks of sedges are triangular in cross section.

Medics have needles.....the midrib of the leaflets of medicks extend into a 'needle' point, whereas the trefoils, which are often confused with them, do not have points.

Molly has hairy knees.....*Holcus mollis* (Creeping soft-grass) has hairs at the stem joints, while *H. lanatus* (Yorkshire Fog) does not.

You can sell sheep.....*Rumex acetosella* is Sheep's Sorrel, as opposed to *R. acetosa* (Common Sorrel).

The major is hairy.....*Vinca major* (Greater Periwinkle) has minute hairs on the margins of leaves and calyx lobes, as opposed to *V. minor* (Lesser Periwinkle), which hasn't.

FleX has siX.....stamens in *Cardamine flexuosa* (Wavy Bitter-cress) as opposed to *C. hirsuta* (Hairy Bitter-cress) (T.C.G. Rich).

[My own mnemonic for this duo is 'six sex flex'; I'm sure Freud would have something to say about that! RGE]

Botanists

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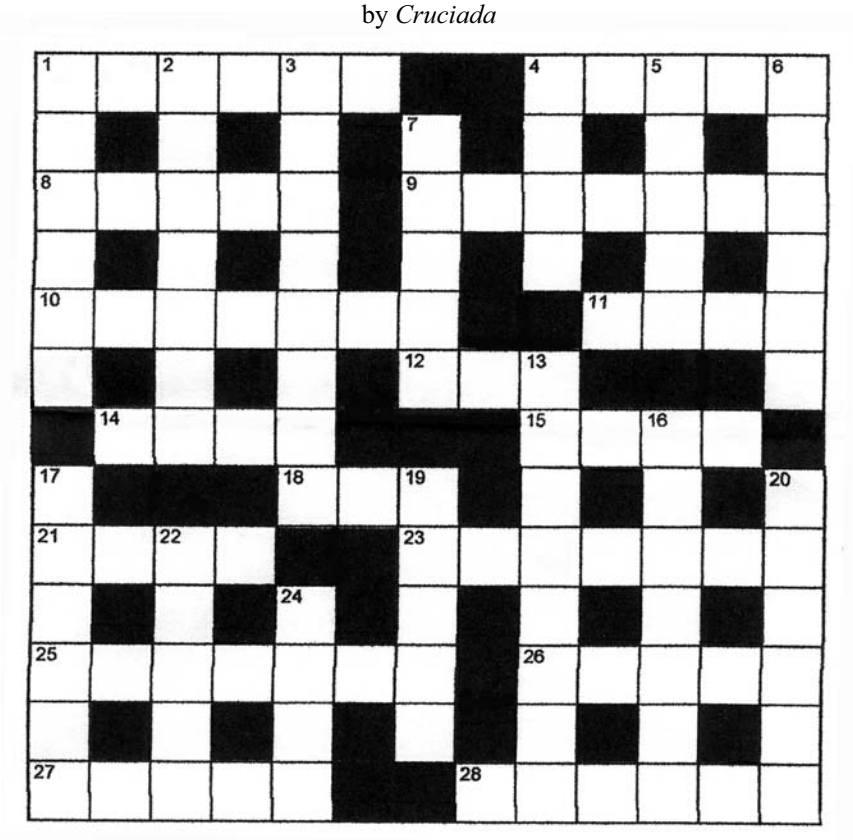
Sometimes, they don't even leave the car park.
Waylaid by ruderals, the party stops
to hoist aloft their finer points; there's talk
of *Stace* and variable phenotypes.

Sometimes, the flower hasn't read the book
and foliage is pressed between the leaves
of *Poland* for a later, longer look;
stigmas are present, but the style deceives.

Always, there is difference and debate,
niceties to stimulate the knowing,
young, and necessary disbeliever;
so, heads down, with mysteries at their feet,
slowly they turn their keys upon this Kingdom,
green and growing, going on forever.

Botanical Crossword 19

by *Cruciada*



Across

1. Get someone's goat with *Urtica* (6)
4. Carrots and beets, for example, rot so easily (5)
8. It's serious to lose a letter from Latin authority (5)
9. Feature of Butcher's broom, for instance, boy discovered in cryptogram (7)
10. Slot I go into posing as unspecified academic (7)
11. What Gwynn Ellis may do to contributions if the tide turns (4)
12. See a ripe cereal - see this part of it (3)
14. Put olive initially in beer made from African succulent (4)
15. You've already mentioned Euphrasias all look the same to you? Just put this (1,3)
18. Lake that is full of unmelted snow (3)
21. Told to see places where plants can be found (4)
23. Are rods operated to reveal this carnivore? (7)
25. Two friends join, like, hands (7)
26. Climb over them or jump across them to get into field, depending on what area you're in (5)
27. Sitting ducks have no right to fruits of coffee, mango or coconut (5)
28. Runic jumble Frenchman takes to indicate Spider lily (6)

Down

1. No supplies are to be cut short of blue-green alga (6)
2. Work over reference to legume, perhaps (7)
3. Tell nice nonsense about pore (8)
4. Harvest first crop of rye, emmer and porridge-oats (4)
5. No empty egg shape (5)
6. It's found below blade of grass on southern moor (6)
7. Vehicle run on alternating current can be sharp (5)
13. S/he lists what has been seen, using instrument (8)
16. *Cucumis* found in the City of London (7)
17. So wear your MP3 player like a crustacean (6)
19. On the margins, not like stems of rushes (5)
20. Herbal sample containing aromatic resin (6)
22. Time you Dutch had the cheek to procure this bulb (5)
24. Giving up in dismay when finding sweet potatoes (4)

ALIENS

Soliva sessilis in Surrey (v.c.17)

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In 2012, Surrey botanists were exhorted by the County Recorder to keep an eye open for small clovers in the interests of the nascent Rare Plant Register. At the end of June, while inspecting the shaven turf of the cricket field in Ripley (TQ05395700) with the attention required for such pursuits, I noticed an unfamiliar, small and much-divided leaf. A prostrate inspection revealed that the plant it belonged to was in flower (see Colour Section, Plate 3). The flowers matched nothing I had ever seen and I had no idea even which family it was in (see Colour Section, Plate 3). Plants seemed to be confined to the periphery of the area of the pitches themselves, being thinly scattered, but with a few concentrations.

A puzzling few hours later, I happened to be speaking to Eric Clement, and he named it as *Soliva sessilis* from my inarticulate telephoned description, a remarkable feat. He also referred me to an informative report in *BSBI News* describing discovery of the similar (or conspecific, depending on your point of view) *S. pterosperma* by Felicity Woodhead in a caravan park in Bournemouth in 1997. There are a few differences: the fruits at Ripley are glabrous, unwinged, and they do not seem to possess the vicious penetrative properties of the Bournemouth plants or of those in mown turf in the south-eastern United States, Australia, New Zealand, southern Europe and other warm places with lawns, where it can be a serious pest and is known variously as bindi weed, onehunga weed, common soliva, lawnweed, burrweed and bindii. Its vernacular name in the UK is given as Jo-jo, for reasons that I cannot determine. It seems not to have been detected by the Ripley cricketers, perhaps because there isn't much of it, they wear shoes, and, as far as I know, the field is used for nothing else.

As it's all mown frequently, the plants are unlikely ever to attain any height, but their distribution suggests they have been there for some years and can survive regular decapitation. I have no idea where it came from. Speculatively, but conceivably, it grows on other cricket pitches, perhaps not in these islands, and the seeds arrived embedded in the players' footwear or clothing.

S. pterosperma features in Stace 3, but a full description of *S. sessilis* at Ripley would be: prostrate annual to 1cm tall and 4cm long; leaves sparsely pilose and bi-pinnatifid, having two or three pairs of divisions with very narrow, flat, acute segments; each plant with a central capitulum and others in the leaf axils; phyllaries c.5, to 2mm, ovate, acuminate, green, sparsely pilose; outer ring of 5-7 female florets; ovaries ovate with beak about same length as body, stigmas 2; inner florets male, 4-5, tubular with 4 teeth; anthers included in floret round central non-functional style; fruit to 5mm, glabrous, body 3mm, oval, slightly flattened but not winged, abruptly narrowed to a 2mm terminal spine. The structure of the male florets is the clue to the family.

At the end of the BSBI report the authors ask "Who can find another colony?" I am pleased to have been able to oblige, even if it took fifteen years, and thank Eric Clement for his helpful comments on this note and his taxonomic skills.

References:

STACE, C.A. (2010) *New flora of the British Isles*. (3rd ed.). Cambridge University Press, Cambridge.

WOODHEAD, F. & CLEMENT, E.J. (1997). '*Soliva pterosperma* established at Bournemouth'. *BSBI News* **76**: 56 and front cover illustration.

An update on *Soliva pterosperma* at Bournemouth

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The caravan park in Bournemouth on which the *Soliva pterosperma* (Jo-Jo-weed) was found in 1997 was re-developed between 1997 and 2003. However, the developer retained large stockpiles of top-soil and these were used to create the grass-seeded areas around the new houses. I have found *Soliva* plants present every year since, and this year, 2012, there were over 40 plants still present. The main location for these plants is around the footpath leading to the adjacent playing field. The species has therefore been present on this site for a total of at least 16 years, making its status here much more than just casual I think.

Sunflowers on walls

MICHAEL BRAITHWAITE, *Clarilaw Farmhouse, Roxburghshire, TD9 8PT*;
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Have you come across depauperate *Helianthus annuus* (Sunflower) growing out of cracks in old walls? I met one in the Berwickshire town of Lauder in 1997 (NT5247) and was puzzled, but thought it something of a one-off. Then, this year (2012) it has happened to me thrice: first in Lauder close to the site of the 1997 record, then in Chirnside (NT8655), then on the wall of our own home (NT5218), in a chink where *Asplenium scolopendrium* (Hart's-tongue) used to grow, before we removed it. It was the one at home that really set me thinking. We do not grow Sunflowers but we do feed their seed to the birds. We have often noticed Coal Tits making off with a seed and coming back for another a minute or two later. The guide books confirm that this caching of food is a standard gambit for Coal Tits and that walls are one of the habitats used for their caches.

So something clicked in my mind and I became as certain as one can be without direct observation that these puzzling self-sown Sunflowers have had a little help from their avian predators. Indeed, research has been published to indicate that Coal Tits have much weaker memories than Jays, and only recover a proportion of their caches (Male & Smulders, 2007), so it all fits.

I have not traced any report of this particular interaction between the two species, but I have traced a record in *Irish Botanical News* of a Sunflower self-sown on an old wall, found by Ian Green on the wall of an old tower in Co. Waterford in 2009 (S68.00) (Green, 2010). Sunflowers self-sown on walls are also reported on the web in a 'Blogspot' from Braye sous Faye (wherever that may be) [Indre-et-Loire department, France at 46°59′32″N 0°20′51″E – ed.] in 2012.

References:

GREEN, P.R. (2010). 'New county records, Co. Waterford (H6)'. *Irish Botanical News* **20**:17.

MALE, L.H. & SMULDERS, T.V. (2007). *Memory decay and cache site preferences in hoarding coal tits - a laboratory study*. Staff Home Pages, Newcastle University (*www.staff.ncl.ac.uk*)

An errant *Eryngium*?

G.H. BALLANTYNE, *Branksome, 193 Nicol Street, Kirkcaldy, Fife, KY1 1PF*; (ghballantyne@live.co.uk)

During early July 2012, Bill Hay came across a large colony of an *Eryngium* occupying a site next to the small harbour of Dysart, a seaside suburb of Kirkcaldy. Although *E. maritimum* (Sea-holly) has not been seen in Fife for years, that was the obvious choice of provisional identity, but when he took me to see it, he demurred at that name, and, after consulting various books, especially horticultural guides, I had to agree – the flowers had been planted, as was shown by their bursting though a black canvas membrane that had been laid for protection. Then I recalled that a year or two previously, Dysart had been the subject of upgrading, revamping and 'beautifying' – could it be that there was a connection between the plants and an 'artwork' that had mysteriously materialised next to the harbour, to the bamboozlement of some residents?

So it proved to be. An enquiry to the local BRC, Fife Nature, elicited the answer that a design firm had been employed by the local Council to draw up and execute improvement plans, with special regard to the harbour area, and, to complement the artwork, Sea-holly had been decided upon. Unfortunately, the firm (based in Glasgow, more than 50 miles away) chose the Moroccan species *Eryngium variifolium*, rather than the British native *E. maritimum*, which would have been much more appropriate, given that that species had been reported as being "on both sides of this Firth [of Forth]" in the late 17th century (Sibbald, 1684).

Perhaps an influential factor in the choice was the fact that *E. variifolium* is listed in *Britain's favourite plants*, published for the RHS (Sweeney, 2007). (A small personal vindication was that I had correctly decided on *variifolium* as the plant's id., confirmed later from material sent to Eric Clement). Word has it that "sea lavender" was also planted, but how a non-Scottish saltmarsh species was expected to survive is not explained – needless to say, it did not!

In order to set the scene, as it were, I asked a local artist friend, Claire Methven, to describe the area (see Colour Section, Plate 4). The 'official' version of the artwork is that "the 'Sea beams' is a grouping of nine 350 × 350mm square section oak beams, varying from 7–9 metres high, the colours derived from photographs of the Firth of Forth (taken by local residents) under different light conditions. The beams sit in a public space occupying a crushed marble ground plane with Scottish sea pebbles and coastal planting". Claire continues: "the painted oak beams can be seen from different viewpoints in Dysart. When put up, they provided a new and exciting dimension to the landscape and a perch for seabirds, as the masts of the whalers and trading vessels must once have done – Dysart was formerly a flourishing little port, with close connections with Continental countries. The paint colours echo the colours of the sea and sky throughout the seasons. Different ones can be recognised in different light and atmosphere each time a visit is made. The planting of the Sea-holly gives a muted echo of the soft purply blues and silvers of some of the pillars".

On our first visit, Bill and I had time only to observe that the colony occupied about an area of some 50/60 × 3 metres, stuffed full of about 200 Sea-hollies, plus a sprinkling of mayweed (appropriately the true *Tripleurospermum maritimum*, Sea Mayweed) and other weeds, all growing on imported gravel. Subsequent visits allowed more detailed inspections and revealed that, away from the main body of introduced plants, there was a scattering of chiefly young *Eryngium* plants, apparently self sown from the first flowerings of 2010/11 (see Colour Section, Plate 4), the original introduction seemingly being in late 2008 or 2009. Thus the initial step towards naturalisation has begun, although an eye will have to be kept on the site to ensure that future seedlings appear

and survive, and that the species thus qualifies as an alien on the 'British list'.

Also present were several clumps of *Puccinellia distans* ssp. *distans* (Reflexed Saltmarsh-grass), adding, at close range, a chance decorative dimension to the scene (interestingly, its sibling, ssp. *borealis*, was on the adjacent harbour pier), while a number of oraches, probably mostly *Atriplex glabriuscula* (Babington's Orache), were intermingled with *Polygonum aviculare s.str*. (Knotgrass) and occasional *Sagina maritima* (Sea Pearlwort). All had previously been observed in the immediate vicinity during 1995 and were now enthusiasticallly enjoying the new man-made strand-line conditions. *Rumex crispus* var. *littoreus*, *Trifolium pratense* and *Agrostis stolonifera* were also noted, while an unexpected weedy incomer was *Lepidium didymum* (Lesser Swinecress) that had spread from a neighbouring border, where it had been seen in 2008, the year it began its invasion of Fife.

My thanks are due to Claire Methven for her painter's-eye view of both artwork and plants, and her photographs; to Bill Hay for his initial curiosity and subsequent assistance in determining species; to Alexa Tweddle of Fife Nature; to Eric Clement for his unfailing knowledge of aliens and continuing courtesy in dealing with enquiries; and to my wife for various forms of encouragement and practical help.

References:

SIBBALD, SIR R. (1684). *A history, ancient and modern, of the Sheriffdoms of Fife and Kinross*. New ed., 1803. Cupar, R. Tullis.

SWEENEY, G. (ed.) (2007). *Britain's favourite plants: over 1000 plants chosen by the nation's top nurseries*. London, Think Books.

Fumaria capreolata (White Ramping-fumitory) ssp. *capreolata* var. *speciosa* on the British mainland

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On our Bradford Botany Group visit to Kent in May 2012, we were being taken around by Owen Leyshon when we came across an unusual fumitory on the dunes at Greatstone-on-Sea, Kent (TR083235). The fumitory was amongst tallish grass on the dunes and was a very distinctive bright red and white. It looked like *Fumaria capreolata*, but I discounted this as, apart from the colour, the sepals appeared too small and round, so I thought it must be an alien species (see inside front cover).

I sent a photo to Alan Leslie in Cambridge, who is quite knowledgeable on fumitories, and he suggested *Fumaria capreolata* ssp. *capreolata* var. *speciosa*, and, checking the description in Rose Murphy's *Fumitories of Britain and Ireland*, t seemed to fit. A specimen was duly sent to Rose Murphy, who confirmed it.

I am quite familiar with *Fumaria capreolata*, seeing it on my frequent visits to my wife's family on the Isle of Man, but from Rose Murphy's book I realise this is *Fumaria capreolata* ssp. *babingtonii*, with very large, long sepals. Subspecies *capreolata* has smaller, rounder sepals, hence the problem of identifying this fumitory as *F. capreolata*.

Geofffrey Kitchener has since reported that "I have been assembling info from Owen Leyshon's other sightings, and it certainly seems scattered enough to be more than casual - for persistence, we'll need to see what happens in future years".

Fumaria capreolata ssp. *capreolata*, although known on the Channel Islands, is only known as a casual on the British mainland. If it persists, we will have a new 'native' *Fumaria* subspecies – 'native', as it seems more than likely the seeds arrived by sea either from the Channel Islands or even from the Mediterranean. It will be interesting to see if it persists and spreads from the Dungeness area of Kent.

Verbena hastata (American or Blue Vervain) in Sark

ROGER M. VEALL, *1 Plant Close, East Wellow, Romsey, Hampshire, SO51 6AW*; (roger.veall@virgin.net)

On the last day of our holiday in Sark, 14th September, my wife, Psyche, and I, with Susan Synnott, were looking round the small garden of a friend, Richard Axton. In his little vegetable patch there were the shrivelled remains of a 'Rocket'. He had sown some the previous year for salad. Among the remains, Susan noticed a plant about 30cm tall, which none of us recognised. It seemed to be a *Verbena* sp. (Vervain). Susan and Psyche took photographs. There was only one plant, so we collected only small samples of inflorescence and leaves, which I kept to bring back to England.

After returning, I tried to identify the plant. It didn't fit any *Verbena* in Stace, 3rd ed. It came close to *V. bonariensis* (Argentinian Vervain), but the leaves were petiolate. I posted the specimens and Psyche's photographs to Eric Clement. I searched on the internet and provisionally identified it as *V. hastata*, called Blue Vervain in the USA. There is a good description at: http://www.minnesotawildflowers.info/flower/blue-vervain.

I heard from Eric that my specimens never arrived. I told Susan, so she posted more specimens and her own photographs (see inside front cover). Eric has confirmed my identification. He thinks some previous records of *V. bonariensis* may have been mistakes for *V. hastata*. This would be easy to do, unless the leaves were examined for the presence of petioles.

I have communicated with Richard Axton, and he told me that, whilst in the Seigneurie Gardens, soon after we came home, he had seen one of the gardeners with a load of 'weeds'. Among them were several *V. hastata*. She told him that, if planted in a garden, it can become "invasive".

Richard had planted Red Lettuce seedlings for salad with the Rocket but they had all been eaten. He had purchased them from Jo Birch, the head gardener at the Seigneurie Gardens. She grows her seedlings in compost from there. This is the probable source of Richard's *Verbena*. A seed from the compost could have survived a year before germinating.

Omphalodes cappadocica at Kilcreggan (v.c.99)

PAUL R. GREEN, *Yoletown, Ballycullane, New Ross, Co. Wexford, Ireland*; (paulnewross@eircom.net)

After reading George Hounsome's article in *BSBI News* **121**, I thought I should report on my find of *Omphalodes cappadocica* in Scotland. Indeed, I found one clump of it, self-sown, on the public side of a 1½m high roadside garden wall, in the village of Kilcreggan, on 12th April 2011. It was in full flower when I saw it. The adjoining garden was rather on the wild side and had become over grown with trees. As hard as I searched, I could not find the parent plant in any gardens in the village. I did also see it on a wall top in the same area, but cannot remember now if it was at Kilcreggan or Rosneath. The wall top site could have been planted, as it was a very beautiful well-kept garden.

I have grown *O. cappadocica* in the garden in the past. The clump just got bigger, but never spread by seed.

Reference:

HOUNSOME, G. (2012). 'Contemplating your Navelwort'. *BSBI News* **121**: 59-60.

A revised vegetative key to cupressoid conifers (Cupressaceae)

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The keys in the *Vegetative Key to the British Flora* (2009) are continually being improved and it is hoped that some of the more important revisions can be shared in *BSBI News*. The cupressoid conifers (Cupressaceae) have similar imbricate and opposite leaves and are notoriously difficult to identify vegetatively. Most keys (including the *Vegetative Key*) are typically reliant on subtle scents, the interpretation of which varies dramatically between observers. Having been inspired by a conifer workshop by Matt Parratt at the BSBI Recorders Conference last April, I have revised the cupressoid conifer key with greater emphasis on alternative characters. The two keys below collectively replace **Group DH** in the *Vegetative Key* (pp.34-35) (minus the illustrations). House style is retained but certain key characters have been underlined for ease of use (and the shortest polyclaves have been put first). For simplicity, the old nomenclature is retained here as, for example, Leyland Cypress has recently undergone at least two changes of scientific name.

I would greatly welcome all comments and corrections from those who test it. Thanks to Eric Clement for comments on an earlier draft.

References:

POLAND, J. AND CLEMENT, E.J. (2009). *The Vegetative Key to the British Flora*. John Poland in association with the Botanical Society of the British Isles, Southampton.

Conifer. Tree or shrub. Lvs opp, decussate (4-ranked), 1.5-4(7)mm, scale-like, imbricate, at least partly adnate to twig, sessile, often with translucent resin gland (usu sunken). Unless otherwise stated, in those species with flat branchlets 'lvs' refers to the flat dorsal facial scale lvs.

❶ Ultimate branchlets parallel-sided with lvs pineapple-scented. ❷ Lvs 4-7mm and bright white below

■**Branchlets flat in TS, mostly in 1-plane (lateral lvs are those along the edge of the branchlets at right angles to the flat facial lvs).....DH**

■**Branchlets usu ± square or round in TS (facial and lateral lvs similar), mostly not in 1-plane.....DI**

Group DH – *Branchlets flat in TS, mostly in 1-plane*

■Facial lvs with raised keel above; resin gland rarely translucent. Lvs without sharp translucent tip

Facial lvs equalling or just overlapping next facial lf, acute to acuminate (v rarely with translucent tip), resinous parsley odour, shiny dark bluish-green above (paler edged), paler below (occ with white marks but no stomata). Bark grey-brown, ridged, flaky……..*Nootka Cypress* **Chamaecyparis nootkatensis***

Facial lvs not overlapping next facial lf (separated by paired bases of lateral lvs forming Y-shape), shorter than lateral lvs, obtuse to ± acute, sweetly resin-scented, shiny dark green above, whitish margins below (but no stomata). Bark reddish-brown, peeling in strips……*Hinoki Cypress* **Chamaecyparis obtusa**

■Facial lvs not keeled; resin gland usu translucent (may be weak or only on lvs nr shoot tips)

Facial and lateral lvs usu with translucent tip, sharply acute to acuminate (or cuspidate)

Lvs without whitish (or stomata covered) patches below

Lvs strongly aromatic or liquorice-scented, ± shiny dark green at least above, resin gland indistinct, abruptly acute, long (3-4mm) facial and lateral lvs (facial lvs 2-3x longer than wide, widening distally); apex of facial lvs usu equalling or overlapping next facial lf. Bark purplish-brown, furrowed, fibrous, flaking ……..……*Incense-cedar* **Calocedrus decurrens**

Lvs usu with whitish or pruinose (or stomata covered) patches below (look carefully)

Lvs strongly pineapple-scented, pale stomata-covered patches below (occ indistinct), tips not spreading, raised resin gland oblong (occ indistinct), ± acutely cuspidate to acuminate (rarely sharply acute and appearing keeled), shiny dark green above; apex of facial lvs usu equalling or overlapping next facial lf. Bark red- to grey-brown, fissured, fibrous ❶……..*Western Red-cedar* **Thuja plicata**

Lvs with resin odour, whitish or pruinose patches below, stomata absent, tips weakly spreading and sharp (esp on lowerside), resin gland oblong-linear, sharply acute to acuminate, shiny dark green above; apex of facial lvs often shorter than next facial lf (separated by paired bases of lateral lvs). Bark red-brown, fissured, stringy……..*Sawara Cypress* **Chamaecyparis pisifera***

Facial and lateral lvs without translucent tip (beware v young lvs with mucro), not sharply acute

Facial lvs mostly not overlapping next facial lf (separated by paired bases of lateral lvs)

Lvs with v obvious translucent oval resin gland (occ raised, rarely linear or absent), strong sour parsley scent, shiny green to glaucous above, paler below, whitish margins usu indistinct or absent below, stomata absent, ± acute to ± obtuse. Branchlets often pendent. Bark red-brown, furrowed, fibrous, spongy . Many cultivars exist!……..*Lawson's Cypress* **Chamaecyparis lawsoniana***

Facial lvs equalling or overlapping next facial lf

Lvs with large bright white patches below, shiny dark green above, weakly translucent linear resin gland (often obscure), obtuse, stiff, paint-scented. Bark reddish- or grey-brown, peeling in strips. ❷……*Hiba* **Thujopsis dolabrata**

Lvs dull yellow-green both side with indistinct pale stomata-covered patches below, raised translucent oval resin gland usu obvious near branchlet tips only, acute to obtuse, hardly stiff, cider or pineapple odour. Bark reddish- to greyish-brown, fissured, fibrous…….*Northern White-cedar* **Thuja occidentalis**

Lvs dull mid-green both sides (but scattered stomata often both sides), weakly translucent linear resin gland (visible as glandular groove esp below), ± acute to ± obtuse, hardly stiff, rancid to scentless. Bark cinnamon-brown, furrowed, fibrous……*Chinese Thuja* **Platycladus orientalis***

Group DI – *Branchlets usu ± square or round in TS, mostly not in 1-plane. Young shoots of* Chamaecyparis nootkatensis *may rarely key out here*

■Lvs (sharply) acute with translucent tip

Some spreading subulate juvenile lvs often present nr shoot tips (3-whorled or in prs)

Lvs 1.5-3mm, with obscure resin gland usu below mid-point, stomata absent. Juvenile lvs with translucent oblong resin gland nr base. All foliage with faint sandalwood (or 'pencil') odour……..*Pencil Cedar* **Juniperus virginiana***

All lvs equally adpressed or spreading
Lvs 2-4mm, strongly parsley-scented, translucent resin gland oblong-oval (occ obscure), not or weakly keeled, acute to acuminate, yellow-green to glaucous (depending on cv's), often with pale margins, stomata occ scattered either side; apex of facial lvs usu equalling or overlapping base of next facial lf. *Chamaecyparis nootkatensis* x *Cupressus macrocarpa*
.....*Leyland Cypress* x **Cupressocyparis leylandii**
Lvs 3-7mm, with resin odour, translucent resin gland oblong-linear (often obscure or absent in cv's), not keeled, tips weakly spreading and sharp (esp on lowerside), sharply acute to acuminate, pale or dark green to glaucous, whitish or pruinose patches below (occ above), stomata absent; apex of facial lvs often shorter than next facial lf. Branchlets in ascending sprays, divergent, with crisped appearance. Bark red-brown, fissured, stringy
Lvs 3-4mm, spreading at narrow angle
……*Sawara Cypress* (cv) **Chamaecyparis pisifera 'Plumosa'**
Lvs 3-7mm, spreading at wide angle
…….*Sawara Cypress* (cv) **Chamaecyparis pisifera 'Squarrosa'**

■Lvs obtuse to acute but without translucent tip
Lvs strongly glaucous, adpressed, parsley- or resin-scented, 1.5mm, ± acute, with oval opaque resin gland, stomata absent. Ultimate branchlets spreading at 90º (some cv's of x *C. leylandii* may rarely key out here but branching not at 90º)
Bark purple, soon blistering and flaking leaving paler circular patches. Lvs with resin gland often encrusted with resin (visible as white spot)
……..…..…….*Smooth Arizona-cypress* **Cupressus glabra**
Bark greenish-brown, shallowly fissured, stringy. Lvs with resin gland rarely resin encrusted (no white spot)……..*Arizona-cypress* **Cupressus arizonica**
Lvs not glaucous
Some spreading subulate juvenile lvs often present nr shoot tips (3-whorled or in prs), often sparse. Foliage usu diffuse
Adult lvs 1.5-3mm, usu obtuse, obscure opaque oblong-oval resin gland at mid-point, deep green, sparse stomata along pale proximal margins. Juvenile lvs with translucent linear resin gland at mid-point. All foliage with faint resin or paint odour……..*Chinese Juniper* **Juniperus chinensis***
All lvs adpressed (juvenile lvs absent or soon lost in *C. macrocarpa*). Foliage usu dense
Lvs 2-4mm, strongly parsley-scented, translucent oblong-oval resin gland (occ obscure), weakly keeled to flat, acute to acuminate, shiny yellow- to dark green (rarely glaucous), often with pale margins above, stomata occ scattered. *Chamaecyparis nootkatensis* x *Cupressus macrocarpa*
……..*Leyland Cypress* x **Cupressocyparis leylandii**
Lvs 1.5-3mm, strongly lemon-scented, bright yellowish or dark green (bright yellowish in the ± fastigiate 'Goldcrest'), obtuse to ± acute (occ with v minute obtuse or acute translucent tip), ± oval-oblong resin gland usu opaque (occ translucent nr branchlet tips esp in 'Goldcrest') but not exuding resin, stomata visible or not; juvenile lvs absent or soon lost
……..……..……*Monterey Cypress* **Cupressus macrocarpa***
Lvs 1-1.5mm, weakly or not scented, dull grey-green, not keeled, ± acute, weakly translucent or obscure narrow-oblong to linear resin gland, often with scattered stomata. Fastigiate tree….*Italian Cypress* **Cupressus sempervirens***

REQUESTS

An undocumented Yorkshire flora

JOHN EDMONDSON, *243 Pensby Road, Heswall, Wirral, CH61 5UA*; (a.books@mac.com)

The late Mike Walpole had an incomparable collection of British floras and associated ephemera, of which I was fortunate to purchase one of the lots when it was sold by Bloomsbury Auctions. This comprised four boxes of material relating to Yorkshire. So complete was it, in fact, that I was later surprised to find a reference to an undocumented Yorkshire flora that was not part of Walpole's collection. The purpose of this note is to enquire whether anyone knows of a copy of this elusive title.

The Bookplates of Miss C. Helard, by Colin R. Lattimore, published by the Bookplate Society in 2012, contains a short biography of the author and expert on heraldry Arthur Charles Fox-Davies (1871-1928), the husband of the bookplate designer Mary Crookes (Helard was her pseudonym). Fox-Davies was a pupil at Ackworth, a Quaker boarding school in Yorkshire, from which he was expelled in 1885, following an altercation with a member of staff. He later pursued a career as a barrister and published several books on heraldry. While working for the Edinburgh publishers T. C. & E. C. Jack on a revision of *Fairbairn's Crests*, he recorded in his diary that "My previous publications had been '*A flora of Ackworth and District*', which I published whilst at School…". This would date the flora as c.1885, the date when he left Ackworth.

A diligent search of on-line library catalogues has failed to locate any copies of this flora, though perhaps its title differs from the version given in Fox-Davies' diary. It is not in COPAC, nor in the British Library catalogue, and no explicit reference is made to it in N. D. Simpson's *Bibliographical index of the British flora.* It may have been published anonymously, as was a later flora written by an Ackworth biology master, N. Victor Mendham, in 1948: *An Ackworth plant list,* which has 13 printed pages and of which a copy was found in the Walpole collection.

Should anyone have knowledge of Fox-Davies' youthful efforts to document the plants of the Ackworth area I would be most interested to have details.

Salix herbacea in Cumbria – records wanted

MIKE DOUGLAS, *Cumbria Wildlife Trust, Crook Road, Kendal, Cumbria, LA8 8LX*; (01539 816312; miked@cumbriawildlifetrust.org.uk)

Cumbria Wildlife Trust is looking to obtain records of *Salix herbacea* (Dwarf Willow) in the county. Volunteers are currently searching the high plateaus and fell tops for this diminutive plant, focusing at this stage on sites with known historical records. Existing records suggest that there are around 60 sites with historical records for the species, but recent surveys have shown an absence at some of these sites and presence at previously unknown (but well-visited) sites. Is the distribution changing and is colonisation of new sites occurring, or has it just been missed in the past? Research suggests that *S. herbacea* has limited dispersal ability in the UK, but is this changing as temperatures rise?

Your observations may help answer these questions and if you do have any records, including a description of location and a date, we will be keen to add your information to our database. If you aim to travel to the area and would like to carry out surveys when you are here, please contact me for a leaflet and survey form.

Tutors needed for beginners' plant identification course

BRENDA HAROLD, '*Farthings', The Green, Sarratt, Rickmansworth, Herts., WD3 6BP*; (brendaharold@btinternet.com)

Are you experienced in recording in your own area? Would you like to pass on some of your skills to a beginner? If so, please consider becoming a tutor for this on-line course, which was described briefly in *BSBI News* **121**: 64 (April 2012). Some BSBI members have already enlisted as tutors, but student applications may have to be refused unless there are a few more.

The course will commence next month (February 2013) and run throughout the season. Students have to find common plant species and answer questions about them. The tutor's role is to check and comment on their answers. The course units are all delivered on-line, so the tutor receives the same information as the students. All correspondence is also on-line. The tutor does not have to take phone calls or go into the field.

You may wonder whether you are good enough. If you can handle the BSBI recording card for your own vice county the answer is almost certainly yes. Consider the following example: the student has to find *Cardamine flexuosa* (Wavy Bittercress) and give the date, location and diagnostic features. You may think "they will confuse this with *C. hirsuta*". Quite right. That is why the species has been chosen. If their list of features was too general to be sure that they had found the right species, you would have to tell them so and give advice about diagnostic characters. If the location also sounded wrong, so that you thought it most likely that they had found *C.hirsuta*, you would have to tell them that. No numerical marks are given and you would not have to require them to try again. I have found that the people who enrol on the course are generally very keen to improve and enjoy hunting for the plants. It is quite unlike school or college. In the case described above, you might receive a triumphant message some time later saying "I have found it at last – and it did have six stamens!"

Answer sheets come in at intervals throughout the summer, so this role is not suitable for anyone who will be away for a large part of the season, without access to the internet. Shorter breaks are no problem.

Finally, I would suggest that no-one should take more than two or three students in the first instance, so the commitment would not be too great.

More information, including a course sample, can be found on the website: www.identiplant.co.uk

You might have beginners in your own area who would enjoy and benefit from this course. Why not suggest it to them and consider becoming their tutor? Please get in touch with me urgently if you are interested because it will not be possible to enrol students unless there are tutors for them. I look forward to hearing from a number of you.

2012 issues of *BSBI News* & *Yearbook* wanted

GWYNN ELLIS (General Editor), *41 Marlborough Road, Roath, Cardiff, Wales, CF23 5BU* (02920 496042; membership@bsbi.org.uk / rgellis@ntlworld.com)

Due to the remarkable success of various publicity initiatives in 2012, the influx of new members has used up all the stock of *BSBI News* nos **119**, **120** & **121** and *BSBI Yearbook 2012*. I normally like to have a number of copies in stock to supply new members with back numbers and to replace lost or damaged copies.

If any member has any copies of the above that they have finished with I would be very pleased to receive them and would of course refund the postage costs.

OFFERS

Botanical journals for disposal

JOHN OSLEY, *30 Ffordd Tan Yr Allt, Abergele, Clwyd, LL22 7DQ*; (johnthebot@yahoo.co.uk)

These are offered free, on a first come first served basis, to anyone who cares to collect them from my home address in Abergele, North Wales. Enquiries please to: johnthebot@yahoo.co.uk

Watsonia – unbound including indices: Vol. 1 (1949) – Vol. 28 (2010) – missing some nos. in the first five vols. and nos. 1 and 2 in Vol. 10, all other vols. complete.

BSBI Abstracts – unbound: Part 1 (May 1971) – Part 29 (August 2001) inclusive.

BSBI News – unbound, including indices: No. 27 (April 1981) onwards.

BSBI Welsh Bulletin – unbound, including indices: no. 41 (Spring 1985) onwards.

Also:

Biologist (Journal of the Institute of Biology/Society of Biology) – unbound: - (November 1989) onwards.

The joists in the loft are beginning to groan under the weight! Any problems/questions about, this please ask. Thank you for your assistance.

The Botanical Research Fund

The Botanical Research Fund is a small trust fund which makes grants to individuals to support botanical investigations of all types and, more generally, to assist their advancement in the botanical field.

Grants are available to amateurs, professionals and students of British and Irish nationality. Where appropriate, grants may be awarded to applicants in successive years to a maximum of three. Most awards fall within the range of £200-£1000.

The 2013 deadline for applications has been extended until February 28th 2013.

Potential applicants are encouraged to contact the Hon. Secretary of the Fund, from whom further details may be obtained: Mark Carine, Hon. Secretary, The Botanical Research Fund, c/o Department of Life Sciences, The Natural History Museum, Cromwell Road, London, SW7 5BD. Email: m.carine@nhm.ac.uk

Gofynne seed list 2013

ANDREW SHAW, *Gofynne, Llanynis, Builth Wells, Powys, LD2 3HN*; (andrewgshaw@hotmail.com)

A small quantity of seed from any of the following is available upon receipt of a SAE. Please put a large letter first class stamp on your SAE.

Alisma gramineum
Apium repens
Arabis scabra
Arisarum proboscideum
Cirsium tuberosum
Cyperus fuscus
Damasonium alisma
Galeopsis speciosum
Hieracium cilense
Hornungia petraea
Hypericum montanum
Mertensia maritima
Potentilla rupestris
Saxifraga rosacea ssp. *rosacea*
Silene baccifera [= *Cucubalus baccifer*]
Silene noctiflora
Trifolium incarnatum ssp. *molinerii*

Seeds from Ware in 2012

GORDON HANSON, *1 Coltsfoot Road, Ware, Herts., SH12 7NW*

Please send labelled packets for those which catch your eye, not forgetting a S.A.E.
Achillea taygetea – Greece
Aconitum lycoctonum – cult.
Adenophora tashiroi – Japan
Agastache scrophulariifolia – Hungary
Akebia quinata – Japan
Althaea officinalis – Isle of Wight
Angelica archangelica – cult.
Aquilegia canadensis – Canada
Aquilegia longissima – USA
Aquilegia skinneri – Mexico
Arabis glabra - ex Herts.
Arum dioscoridis – Greece
Calamovilfa longifolia – cult.
Canarina canariensis – Tenerife
Campanula makaschvilii – Caucasus
Carthamus melitensis – wool alien
Digitalis trojana – Turkey
Dipsacus pilosus – cult.
Erodium cygnorum – wool alien
Fumaria occidentalis – ex Scillies
Geranium psilostemon – cult.
Habranthus texanus – USA
Lavandula lanata – cult.
Linum perenne – USA
Mecanopsis villosa – Nepal
Onopordum bracteatum – Turkey
Onopordum illyricum – Turkey
Onopordum nervosum – Spain
Pavonia urens – wool alien
Physalis angulata – USA
Physospermum cornubiense – Bucks.
Physostegia virginiana – Canada
Potentilla glandulosa – cult.
Salvia hypargeia – Turkey
Scilla autumnalis – cult.
Silene catholica – Worcs.
Solidago rigida – USA
Thalictrum speciosum – cult.
Verbascum blattaria var. *albiflorum* – cult.
Verbascum nigrum – Herts.

NEWS OF MEMBERS

John Parker awarded the RHS Victoria Medal of Honour

DAVID PEARMAN, *'Algiers', Feock, Truro, Cornwall, TR3 6RA*; (dpearman4@aol.com)

We should have had a note in the last issue of *BSBI News* that John Parker had been awarded the Victoria Medal of Honour, by the Royal Horticultural Society. This is their top award. I think that the only previous member to receive this award was Prof. Sir Ghillean Prance, so a great honour!

In the words of Wikipedia:
"The Victoria Medal of Honour ('VMH') is awarded to British horticulturists resident in the United Kingdom whom the Royal Horticultural Society Council considers deserving of special honour by the Society. The award was established in 1897 'in perpetual remembrance of Her Majesty's glorious reign, and to enable the Council to confer honour on British horticulturists.' The Society's rules state that only sixty-three horticulturists can hold the VMH at any given time, in commemoration of the sixty-three years of Queen Victoria's reign. Therefore the honour is not awarded every year, but may be made to multiple awardees in other years."

OBITUARY NOTES

CHRIS LIFFEN, *3 Grangecliff Gardens, LONDON, SE25 6SY*; (c.liffen@btinternet.com)

Since the publication of *BSBI News* **121**, we regret to report that the news of the deaths of the following members has reached us. We send regrets and sympathies to all the families.

Miss S Cooper, 174 Murray Terrace, Smithton, Inverness, IV2 7WZ. She joined the BSBI in 2006

Dr C T David, St Cergue, St Martins, Guernsey, GY4 6JA. He joined the BSBI in 2005.

Mr J W Donovan, The Burren, 5 Dingle Lane, Crundale, Haverfordwest, Dyfed, SA62 4DJ. He joined the BSBI in 1962. An obituary will appear in *BSBI Yearbook 2014*.

Mrs A C M Duncan MBE Bsc, Oronsay,20 Westville Avenue, Ilkley, West Yorkshire, LS29 9AH. She joined the BSBI in 1962. An obituary is in *BSBI Yearbook 2013*.

Mr M Fitzgerald, 4 Chevington Road, Chedburgh, Bury St Edmunds, Suffolk, IP29 4UP. He joined the BSBI in 2012

Mrs M L Long, Ozarda, Les Hamonnets, St John, Jersey, JE3 4FP. She joined the BSBI in 1962. An obituary is in *BSBI Yearbook 2013*.

Dr A J E Smith MA DPhil DSc, 5 Queens Gardens, Llandudno, Conwy, LL30 1RU. He joined the BSBI in 1956. An obituary will appear in *BSBI Yearbook 2014*.

Prof G A Swan PhD DSc, 81 Wansdyke, Morpeth, Northumberland, NE61 3QY. He joined the BSBI in 1958. An obituary is in *BSBI Yearbook 2013*.

Blue plaque for Hewett Cottrell Watson (1804–1881)

IAN BONNER, *'Cae Trefor', Tyn y Gongl, Anglesey, LL74 8SD*; (bsbi@caetrefor.co.uk)

On a beautiful sunny Saturday in September, a blue plaque was unveiled in Firbeck, near Rotherham to commemorate the birth of H.C. Watson at nearby Park Hill.

At the age of 36, Watson was elected a Vice-president of the Botanical Society of London, the fore-runner of the BSBI. He also took on the post of Curator of the Society, and in this role, over many years, he examined thousands of pressed plants and their labels – confirming his view that such a study would bring an understanding about the distribution of the British flora.

In 1847, he published a book on this subject, *Cybele Britannica*, sub-titled '*British plants and their geographical relations*'. He spent the rest of his life adding to and refining this work, culminating in 1873 with his final book, *Topograhical botany*. In this, he divided Britain into 112 roughly equal-sized units for the purpose of recording and mapping the distribution of the British flora – he called these Vice-Counties.

Vice-Counties held sway as recording units for all forms of natural history until, in the 1950s, the BSBI decided to use the 10km squares of the National Grid as the basic units for its first *Atlas of the British Flora*, published in 1962.

This initiative to commemorate his birthplace was promoted jointly by the Friends of Firbeck Hall and the Rotherham District Civic Society. In the presence of the Mayor and Mayoress of Rotherham, I, as BSBI President, performed the unveiling ceremony.

Our local member and botanical artist, Valerie Oxley, had prepared an exhibit about the life of Watson, and this went on to be shown at the Annual Exhibition Meeting in Cambridge in November. A picture of the blue plaque, Valerie and myself appears on the inside of the rear cover.

REPORTS OF INDOOR MEETINGS 2012

Biological Recording since the 1962 *Atlas of the British Flora*: Conference report

LOUISE MARSH, *The Herbarium, Dept. of Biology, University of Leicester, University Road, Leicester LE1 7RH*; (publicity@bsbi.org.uk)

116 delegates attending the joint BSBI/Royal Botanic Garden, Edinburgh Conference were welcomed on 20th September by Peter Hollingsworth (RBGE) and David Pearman (BSBI). This was the first international two-day conference the two organisations had organised jointly. This report aims not just to tell you smugly what a great conference you missed but, more helpfully, to draw your attention to the conference booklet, with abstracts of the talks, and the sumptuously-illustrated Mapping booklet, both handed out to delegates, and now downloadable free at: http://archive.bsbi.org.uk/conference_reports.html.

A printed copy of the Mapping booklet can also be purchased from Summerfield Books for £4.30. Ian Denholm, Chair of the Organising Committee, points out in the preface that the conference was "intended as a tribute to those who brought to fruition the 1962 *Atlas of the British flora* and a celebration of the *Atlas'*s major and lasting influence on European scientists and naturalists studying diverse taxonomic groups". Twenty-five speakers from the UK, Sweden, Belgium and Czech Republic considered the *Atlas'*s legacy "in terms of providing a 'baseline' for documenting and interpreting changes in the abundance, spatial distribution and co-occurrence of communities and individual taxa" and some of the path-finding research which it inspired.

History, legacy and impact of the *Atlas*

Author and botanist Peter Marren opened the conference, sketching out the history of the *Atlas* from its beginnings in 1950, and offered this analysis: "The Maps scheme was a success because it tapped into the strengths of British field botany: a long tradition of detailed plant recording; a strong desire to record change and establish a quantifiable basis for nature conservation; the intellectual striving to understand why plants grew where they did; and perhaps because of the complexity of the British landscape, as a result of which British plants have *interesting* distributions."

Chris Preston reflected on the *Atlas*'s influence from 1962-2002, the BSBI's role in the nascent plant conservation movement, and why the Atlas project was more successful than other post-war proposals for enlisting naturalists as 'amateur scientists'. A full account of his talk will be in *New Journal of Botany* in April 2013. He and *New Atlas* co-editors Trevor Dines and David Pearman posed later for a celebratory photograph (see Colour Section, Plate 4). David told me that "Having spent seven years on the second *Atlas*, with all the advances of technology, I can pay testament to the extraordinary achievement of my 1962 predecessors. We had their work to build on – they had virtually nothing!"

Biological records and analysis of spatial distribution patterns and temporal trends

Trevor Dines talked about biogeographical patterns in the British and Irish flora and new ways of classifying distribution maps (see rear cover); and Robert Crawford mused on curious gaps in the distribution of British plants in relation to their ecophysiology, such as White Water-lily (*Nymphaea alba*): found in Hebrides and Shetland but not in Orkney. This led nicely to Richard Ennos explaining how current distribution patterns of European forest trees had been shaped by glacial refugia and postglacial migration routes; and Alison Jukes looked at how climate and land use are affecting the distributions of non-native plants with different levels of establishment in Britain.

Recording protocols and our changing flora

Simon Smart tried to match predictions with observations on ten years of vegetation change

since the BSBI 'Future Flora' Conference and addressed the rise of the ecosystem services concept, attempting to answer the question "which single plant species delivers the most ecosystem services across Britain?" David Pearman's presentation, on identifying native from alien flora in Britain and Europe, considered the recording of a set of late-discovery petaloid monocotyledons and some interesting "clumping" of records! He also challenged the British divide between treatment of natives and aliens, due to the perceived threat to the native flora from aliens and the relative failure to balance this in the wider conservation world. The theme of native "thugs" was later picked up in a presentation by Rob Marrs on shading out of woodland ground flora. By popular demand, both Rob and David's presentations are to be written up for the *NJB*.

Mark Hill also challenged our preconceptions, asking "How much apparent change is real?", showing recording bias and how to correct for it. We saw an example of the international influence of the *Atlas,* as Wouter Van Landuyt of the Research Institute for Nature and Forest, Belgium, closed the session with a fascinating presentation on 'Regional variation in floristic change: a comparison between plant atlases of Britain and Flanders'.

The enthusiastic schoolboy!

After the Conference Dinner (for which many thanks to the RBGE Catering Team), Ray Harley, a contributor to the 1962 *Atlas*, told us how he got involved in botanical recording as a schoolboy, prompting some of us to wonder how many mothers today would let their school-age children 'bunk off' to a BSBI conference! Ray's invaluable contribution to recording for both atlases and his subsequent career at Kew and as the BSBI's *Mentha* referee, confirm that Mrs Harley was a wise woman, and Ray's continuing enthusiasm for botany after decades in the field, coupled with his self-deprecating modesty, led to a charming and amusing after-dinner talk.

Any minds drowsy after sampling Edinburgh's hospitality were roused the following morning as former BSBI President Michael Braithwaite examined changes in his vice-county's flora since the 2002 *Atlas.* This is also scheduled for publication in *NJB*.

Climate change and recording other taxa

The themes of the *Atlas*'s influence on recording of other taxa, and how biological records relate to information on land use, climate and genetics, were picked up by Helen Roy, who gave an illuminating presentation on 'Responses of phytophagous insects to a changing flora', and later by Chris Thomas, whose lively talk about 'Animal distributions and climate change' had an unsurprising bent towards butterflies!

Challenges and advances in species recognition and data analysis

Petr Pysek offered his experiences of building a national database of alien species in the Czech Republic and the pan-European DAISIE database by using botanical literature and regional checklists, as part of a talk on 'Standing on the shoulders of giants: from floristic data to understanding plant invasions'. There was loud applause for his closing comment that the "giants" in his title referred to the many volunteers who had contributed data to distribution atlases across Europe.

Keith Porter's talk 'How botanical recording benefits conservation' set out how the plant conservation work of statutory agencies like Natural England relies increasingly on records by volunteer recorders, and how these data underpin targets, decisions and measures of change. As after David Pearman's talk, a sea of hands went up at the words "Any questions?" and many delegates regretted that the tight schedule necessary to accommodate 25 eminent speakers in only two days meant short Q&As. Keith has agreed to write up his talk for *NJB* so we can all find out more about how agencies use BSBI data and how we can work together more effectively for botanical conservation. Feedback via the Editor will be encouraged!

New technology, new opportunities

We had been promised presentations on new opportunities made possible through advances in computer technology, theoretical analyses

and molecular genetics, and were rewarded with two such presentations on the final afternoon. The first, from Natasha de Vere on Barcode Wales, looked at the creation of the DNA barcode database for all Welsh native flowering plants and conifers, and its uses, from characterising pollinator ecosystem services to drug discovery using DNA barcoded honey.

Pete Hollingsworth spoke about the insights that molecular genetics can afford us regarding species diversity and limits in British land plants. He summarised emerging opportunities, based on recent developments, that can improve our understanding of taxonomically complex groups, and considered the strengths and limitations of DNA barcoding in the context of identification, delimitation and species-level mapping data.

Are we recording the right things?

Mick Crawley had his work cut out to provide a killer closing talk after that lot, but it took him about ten seconds to nail his audience. Glancing up at a slide asking "Are we recording the right things?" he said "yes" and walked off. Fortunately, he came back for the "but…", telling us that while volunteer recorders deserve credit for providing an estimated £150 million worth of distribution data, we are hopeless at recording abundance because it isn't as much fun!

He suggested firstly that we record by habitat rather than squares. Using *Viscum album* and *Pentaglottis sempervirens* as examples, he showed how monitoring profiles of species across habitats, and of habitats by species composition, might yield some interesting observations. He raised laughs when he pointed out "Campanula posch" in affluent SW7 and how different Ellenberg values for *Sonchus asper* and *S. oleraceus* were reflected by the latter's distribution in London habitats with a higher incidence of dog-poo, presumably not a term mentioned too often in the RBGE Lecture Theatre (or in the pages of *BSBI News*).

A cautionary tale followed: Mick thought he had re-found Druce's *Crambe maritima* (Sea-kale) on the Scottish coast near Dunrobin Castle – until a chance encounter with the chap who had planted it there! He then considered how we apply status to records of naturalised garden species like *Aubrieta deltoidea*. Simply knowing that something is naturalised, planted deliberately or accidentally introduced tells us nothing about whether it might become abundant or rare in future (*e.g*. how much viable seed might be set?). He recommended recording whether seedlings or juveniles are present, if likely parents are nearby, and if significant local impact is considered likely.

Mick's suggestions certainly made us think – might they help provide better baseline data for subsequent re-survey and make it easier to quantify changes in abundance and community structure?

Looking forward…

Ian Bonner, BSBI President, said of the 1962 and 2002 *Atlases* that "they provide the basis for our understanding of plant distribution in Britain and Ireland and are a testament to what can be achieved by voluntary effort. They are also the springboard for future atlases capable of more sophisticated interpretation of the changes in our flora."

Kevin Walker, Head of Research and Development at BSBI's Plant Unit, added that while "the first *Atlas* was a landmark publication that influenced the biological recording of living organisms worldwide", the Conference aimed to "bring together amateur recorders, academics and policy-makers not only to celebrate its legacy but also to look ahead to what the next 50 years might hold."

Was the Conference a success?

Comments overheard, and backed up on the feedback forms where the Conference rated 4.81 on a scale from 1 (poor) to 5 (excellent), were that speakers had informed and inspired us, challenged some of our preconceptions and reminded us how much fun botany can be. The repeated thanks and acknowledgement offered to every volunteer whose recording effort had contributed to the success and influence of the *Atlases* made many delegates feel part of a wider botanical community that really had made a difference over five decades.

Ian Denholm, closing the Conference, paid tribute to the 1962 *Atlas* as "a seminal work representing a quantum leap in species distribution recording and mapping" and said: "We are grateful to an outstanding line-up of speakers for agreeing so readily to participate and for the time spent preparing their contributions. Equally importantly, we thank all delegates for their support, and hope that the conference proved stimulating and enjoyable, and also generates new ideas for research and productive collaboration." Thanks also went to Meetings Secretary John Bailey; Scottish Officer Jim McIntosh, only recently back at RBGE after his sabbatical in Tristan da Cunha, who made sure that everything from tea-breaks to timekeeping worked precisely; Liz Kungu and her team of RBGE volunteers who handled the registration process so smoothly; and RBGE Director Pete Hollingsworth. We are very grateful to RBGE for hosting such a successful joint Conference, and especially to Ian Denholm, Chair of the Organising Committee.

So here's to the next BSBI Conference, whenever and wherever it is, Meanwhile, abstracts from the Edinburgh Conference are at: http://archive.bsbi.org.uk/conference_reports.html

Flora of Cold Regions Conference and Annual Exhibition Meeting

JONATHAN SHANKLIN, *British Antarctic Survey, High Cross, Madingley Road, Cambridge, CB3 0ET*; (j.shanklin@bas.ac.uk)

The Conference was held on the afternoon of Friday, 23rd November and the Exhibition Meeting on Saturday 24th November. The two events were hosted at the British Antarctic Survey (BAS) in Cambridge, and largely organised by myself. The Conference was fully booked by early October, as were the tours of the BAS Herbarium, giving some concern about the numbers who might attend the A.E.M.

Appropriately, the subject of the conference was the 'Flora of cold regions'. Meetings Committee 'helpers' checked in the participants and for those booked there was a visit to the BAS Herbarium. The BAS Conference Room was at its capacity of 100 for the 1pm start of proceedings. After an introduction from the President, Alistair Headley (PlantEcol) began the proceedings with a talk on 'The Montane flora of Scotland – what is its future?'. The montane vascular flora of Scotland is not necessarily particularly diverse or unique in a European or global perspective, but it does have many nationally rare species. The hypothetical threats to these plants come from climatic warming, land-use changes, renewable energy infra-structure, recreational disturbance, atmospheric pollutants, erosion and increased grazing pressure from Red Deer and Sheep. The single population of *Diapensia lapponica* (Diapensia) in Scotland is potentially vulnerable to climatic warming as it is situated on the summit of a single hill in western Scotland. However, as it must have survived the Holocene hypsithermal since the end of the last ice-age it must have survived temperatures that were warmer than they are today. Climatic warming impacts on *Koenigia islandica* (Iceland-purslane) will become evident much quicker on this, the only arctic annual that grows on the basalt barrens and flushes on the Isles of Mull and Skye. Autecological studies on this plant by Qasair Rashid showed that this plant readily copes with high temperatures (at least 45º C) for short periods, but is dependent on mobile substrates of low fertility. Increased mortality of plants is associated with drier summer months. An attempt at re-visiting some of the quadrats taken in the Scottish Highlands by McVean & Ratcliffe showed that those quadrats on ground accessible to large herbivores had become grassier and the cover of dwarf-shrubs had decreased. In contrast, quadrats in inaccessible locations appeared to have changed little, which is where many of the arctic-alpine species are to be found.

Mark Watson (Royal Botanic Garden, Edinburgh) continued the session with a talk on 'The flora of Nepal'. Nepal is well known

for its snow-capped mountains and alpine scenery, yet this is but part of a diverse mosaic of ecosystems found in this fascinating Himalayan country. With an immense altitude range from tropical jungles, at just 60m above sea level, to the top of Everest at 4848m, there are dramatic changes in vegetation within short distances and a huge diversity of plant species – Nepal is smaller than the UK but is thought to have some 7000 species. The diversity of habitats, rainfall patterns and isolation of mountain chains partly explains the large number of species, but this is augmented by Nepal's position at the cross-roads of several major floristic regions. Several genera display rapid speciation, linked to the geologically recent mountain-building events during the Himalayan uplift. *Berberis* (barberries) is one such group, where new research is questioning the geological dating of the rise of the Himalayas. The different ecological patterns found in Nepal were introduced – with emphasis on the colder regions – along with current research on exploration, documentation and production of the Flora of Nepal.

Rod Corner concluded the session with a visit to the Arctic to look at 'The flora of Greenland'. Greenland is the largest island in the world, extending over 2500km from 60°N to over 83°N latitude, where it forms the nearest point of land to the Pole. It is considered to be part of North America, with an American floristic element on the west side and a European element on the east. It is dominated by its huge ice cap but has extensive areas of snow-free land on parts of the east and west coasts as well as in Peary Land to the north. The geology is complex, with the oldest rocks in the world being found there. Various different geo-botanical zones have been delineated for this large area by different authors and are subject to continuous alteration and fine tuning. High and low arctic is the simplest division, with the high arctic boundary extending further south to 70°N on the east coast than the west because of the influence of the cold East Greenland current. The high arctic climate has a wide temperature range, with a July mean below 5°C and low precipitation, compared with a July mean above 5° and a smaller temperature range, with high to moderate precipitation in the low arctic. A small sub-arctic zone exists in sheltered interior parts of the south-west fjords, where a low scattered forest of *Betula* (Birch), *Alnus* (Alder) and *Salix* (Willow) occurs. The most important of plant families in Greenland are the grasses, sedges and members of the Asteraceae and Brassicaceae, with 50-75 species out of a total of 513 species. The number of higher plant species falls northwards from 350 in the south to 120 in the north, as conditions become more extreme. The cryptogams make up an increasingly important part of the biomass from south to north. It is thought that almost all the higher plants colonised the country over the past 11,500 years, although it is possible that some species were periglacial survivors in ice-free refugia during the last glaciation. Two such species, *Draba sibirica* (Siberian Whitlowgrass) and *Potentilla stipularis* (Stipulated Cinquefoil) found far to the east in Siberia, are used to support this view. The huge geographical latitudinal range of Greenland makes it an ideal area for climate change studies in relation to plant distribution.

After tea, Jonathan Shanklin (BAS) took us on a journey to the Antarctic and described 'The flora of Antarctica and South Georgia'. There are only two flowering plants native to Antarctica: *Deschampsia antarctica* (Antarctic Hair-grass) and *Colobanthus quitensis* (Antarctic Pearlwort), whilst South Georgia has 25, though there are around 40 introduced species that have persisted here. The introduction of alien species is a cause for concern, but efforts to exclude humans as a vector for their spread may obscure natural introduction of species. In future, the area of the Antarctic Peninsula and South Georgia may become more hospitable to flowering plants through environmental changes induced through the action of ozone depleting and other greenhouse gasses. Climatologists usually consider 30 years the minimum period for determining climate 'normals', but other researchers sometimes claim effects of climate change in a period as short as a decade. The Antarctic

Peninsula region has been warming for over 50 years. Two major ice-shelves have disintegrated and 87% of its glaciers are in retreat. By contrast, the temperature over much of the Antarctic continent has not significantly changed over the same period. The ozone hole was discovered in 1985, and in addition to changing the u.-v. environment, it has changed the atmospheric circulation, enhancing the temperature changes over the Antarctic Peninsula, but blocking them over the continent.

John Birks (Department of Biology, University of Bergen) concluded the meeting with a review of 'Arctic-alpines and climate change'. Many arctic-alpine plants (namely alpine plants that primarily grow above the potential altitudinal forest-limit and arctic plants that primarily grow beyond the latitudinal forest-limit) are considered to be sensitive to climate change directly through warming, or directly or indirectly through competition from tall and/or fast-growing lowland plants. In his lecture, he outlined how changes in the occurrence and distribution of arctic-alpines are studied using the techniques of Quaternary palaeoecology (pollen analysis, plant macrofossil analysis, DNA analysis). He discussed the changes in the distribution of arctic-alpines at two major climate changes: i) the very marked climate changes at the transition from the last glacial stage to the Holocene (post-glacial) about 11,700 years ago and ii) the recent climate shifts at the onset of the Anthropocene at about AD 1850, due to increased human impacts on atmospheric composition, particularly rising CO_2 levels. There is abundant evidence from fossil remains for local or regional extinction of arctic-alpines at the onset of the Holocene but no known global extinctions at this time in Europe or eastern North America. Botanical re-surveys of mountain areas originally surveyed in the 1930s in Scandinavia and the Alps show that summit floras are becoming more species-rich as montane dwarf-shrubs and grasses move up altitudinally into the lower and even the upper-alpine zones, presumably in response to climate warming. There is, however, very little evidence from botanical re-surveys (about 100 such re-surveys in Europe) for local extinction of high-altitude upper-alpine species. These findings contrast with predictions from broad-scale (50 × 50km grids) modelling of species distributions in relation to present-day and future climate in Europe that predict a loss of about 60% of the European alpine flora by 2080. The reason for this major discrepancy between model predictions and re-survey data is one of spatial scale. The most likely reason for the resilience of high-altitude species to recent climate warming is that there is very considerable local landscape heterogeneity in an alpine area. This leads to local climate heterogeneity and hence a wide range of environmental niches for arctic-alpines within a small area, which in turn confers considerable biological resilience to climate change. Landscape heterogeneity and associated local climate heterogeneity are providing resilience to change, just as they did in the past, by providing local micro-refugia in which plants could persist locally in otherwise regionally unfavourable conditions.

After the meeting closed a large group of 48 headed for the Cambridge Chop House for a meal and convivial evening.

On Saturday, exhibitors started arriving well before the scheduled opening of the Annual Exhibition Meeting, and several additional helpers were press-ganged to help set up. Summerfield Books and Acanthophyllum Books had their stalls immediately inside the reception entrance, and carried out a good trade. There were two more herbarium tours in the morning, though as many again would have liked the opportunity to take part. The Special General Meeting took place in the Conference Room at noon and is reported elsewhere (see p. 3). Fortunately, the number actually attending was not as high as the number indicating an interest in the event, so with some re-organisation, it was possible to fit all those that wanted to attend the talks into the Conference Room.

Afternoon proceedings began with a members' session. Bob Ellis gave an update on the 'Threatened Plants Project'. 2012 was the last year of the five year project, covering

50 species. However there will be some more work in 2013 to fill in gaps. About half of the 4000 randomly selected populations have been visited. Because there are hot-spots of declining species, the number of sites in some counties was much greater than in others. Volunteers and special field meetings to fill in some of the gaps would be appreciated. Once completed, results will be published in a book with species accounts, and as papers in the *New Journal of Botany* and a high-impact journal. Tom Humphrey continued with an update on the 'BSBI Distribution Database', demonstrating it live over the internet. The DDB now contains some 33 million records, amassed from various sources. The front-end is continually improving. The public can view dot maps, replacing the maps scheme, but recorders and authorised users can access the underlying records, display data at various resolutions and where appropriate carry out quality control. The session concluded with Louise Marsh & Geoffrey Hall briefing on perceived threats to British and Irish herbaria, and the response of the v.c.55 BSBI local group. Feedback from national outreach events indicated a need for local groups and training, volunteering and recording opportunities, as enjoyed by the v.c.55 group, thanks to a close working relationship with the local Wildlife Trust, University and Botanic Garden, where Plant i.d. and annual Field Identification Skills Certificates courses are held.

'Museum to Meadow' volunteer projects currently underway at the University of Leicester Herbarium, using herbarium sheets of roses and elms to re-find extant populations in v.c.55, were outlined. Herbaria in the UK are threatened by the adverse impacts of funding cuts. Likely consequences, and their impact on BSBI members, were outlined. BSBI involvement in championing herbaria was encouraged, and its 'Herbaria@Home' project was promoted as a way to make collections more easily available to members and to the public.

After tea there were three keynote talks on the theme of the exhibition: 'Conservation Management for Flora'.

Chris Gerrard began by describing the Wildlife Trust project at Great Fen. The project aimed to recreate a small corner of the fenland that once covered much of Lincolnshire and Cambridgeshire. This area had slowly changed as drainage became more effective and was now mostly arable. However, the rich peat was getting thinner, with the Holme Fen Post being a graphic illustration of how far it had shrunk. The fenland area still has high biodiversity (*e.g.* 1530 vascular plants of which 183 are designated), so it was worth making space for it. Different habitats have different hydrological requirements, so drainage modelling had been done to plan the habitat re-creation, although implementation was complicated by the requirements of the Drainage Boards. Although planned as a 100 year project, progress is ahead of schedule and there will soon be new areas of wetland to enjoy.

Simon Webb continued by describing Natural England's work on restoration of arctic-alpine plants in the Lake District. Victorian collecting and overgrazing by sheep had caused major impact on the flora, but if you knew where to look (mostly out of grazing range), species were still hanging on. Modern threats included recreation by walkers and climbers, and climate change, though the latter was perhaps not yet a limiting factor. Simon demonstrated the cycle of "Plant present or extinct?", "Flowering or vegetative?", "Viable seed produced and dispersed?", "Seed falls on suitable germination niche?" and "Seedling survives and progresses to adult plant" for four plants: *Saxifraga nivalis* (Alpine Saxifrage), *Silene suecica* (Alpine Catchfly), *Salix lapponum* (Downy Willow) and *Woodsia ilvensis* (Oblong Woodsia). Each was trapped at different parts of the cycle, but with help, initially by growing on in cultivation, populations were being restored.

Tim Pankhurst, Plantlife's Regional Conservation Manager, concluded the session with a talk on The Brecks. Breckland is an area centred on Thetford, and is unusual for having chalky sand, with a rather continental and dry climate. This makes the area "one of perhaps five areas in the British Isles which stand out

as floristic Meccas". 283 designated species are known from the area, including eight that are confined to it, *e.g. Scleranthus perennis* ssp. *prostratus* (Perennial Knawel). Many of the rarities are intolerant of competition, requiring disturbance, and are in decline. Traditionally, agricultural practices were for a short period of cultivation, followed by a long (30 years or more) period of fallow. The Brecklands Project aimed to address the losses by establishing, through research and monitoring, effective methods of managing the small-scale habitats required by most of the threatened species. This would then go towards a comprehensive landscape-scale plant conservation strategy for the area. Trials had already been successful with species such as *Silene otites* (Spanish Catchfly) and *Petrorhagia prolifera* (Proliferous Pink).

The exhibits were shown in two areas: posters in the main downstairs corridor, and those requiring tables in the BAS canteen, where there were also plenty of seats to sit and renew acquaintances over unlimited tea, coffee and biscuits. Ken Adams had a new non-technical illustrated 'Key to taxa of *Chara* and *Nitella*'. Following on from his Conference talk, Rod Corner showed some herbarium sheets of 'Greenland plants'. Ian Denholm exhibited '*Galium tricornutum* (Corn Cleavers) from Broadbalk, Rothamsted'. Teresa Farino showed pictures from the BSBI overseas field meeting to the Canary Islands in February 2012. Lynne Farrell showed '*Daphne laureola* (Spurge Laurel) in Huntingdonshire'. Monica Frisch showed '*Epipactis phyllanthes* (Green-flowered Helleborine) from Robinson Crusoe Island in Cambridge'. Paul Green exhibited 'Recording in Co. Wexford since 2000'. Mark Gurney explained 'Conservation management for plants at RSPB reserves'. Geoffrey Hall, Uta Hamzaoui & Louise Marsh demonstrated 'Botanical recording in a landscape-scale conservation project'. Alan Leslie showed herbarium sheets of 'New botanical records for v.c.29 (Cambridgeshire)'. Susanne Masters showcased the 'Society for Economic Botany'. Valerie Oxley had a display on 'Hewett Cottrell Watson', which included a letter to Darwin mentioning "lumpers and splitters". Jonathan Shanklin had a poster on 'Biodiversity Management at the British Antarctic Survey', which combined with a live exhibit that could be viewed when walking from the local Park & Ride. Sarah Stille illustrated some 'Missing Parents – Northern Deer-grass *Trichophorum cespitosum*, Least Water-lily *Nuphar pumila* and Alpine Enchanter's-nightshade *Circaea alpina*'. Stella Taylor brought along a selection of her "pet weed" seeds and showed how they grew, with samples to take home. Bill Walston showed 'Henslow, father and son', including a delightful botany book for children. Francis Watkins had a poster describing 'Native British plants used in Anglo-Saxon wound healing formulations in 10th century England'. Sarah Whild brought information about 'Manchester Metropolitan University identification courses and Field Identification Skills Certificates'. Julia Wilson had a poster on 'Harebell (*Campanula rotundifolia* L.): western British populations are unique'. The Institute for Analytical Plant Illustration showed 'Illustrations of species of *Geranium*' by Sue Nicholls. There were posters on the '*Atlas*' and 'Botanical recording' produced by the Centre for Ecology & Hydrology. The BSBI had several displays, with the list of 'Field Meetings for 2013 and hopes of offers for 2014'; 'Publicity and Outreach', the 'BSBI Wales Christmas Cards', and a help desk to identify specimens.

Thanks are due to the British Antarctic Survey for hosting the meetings, and for the assistance of their staff. Thanks are also due to the BSBI members who lent a hand on the day and to the speakers and exhibitors. Together these contributions made a memorable two days. You can view some of the extended abstracts, talks and exhibits via links on the Conference and A.E.M. web page at http://www.cnhs.org.uk/BSBI2012AEM.htm, which also has links to some follow-up material.

RECORDERS AND RECORDING

Panel of Referees and Specialists

MARY CLARE SHEAHAN, *61 Westmoreland Road, Barnes, London, SW13 9RZ*; (m.sheahan@kew.org)

We are glad to welcome some new referees: Matt Parratt is joining Cameron Crook as general referee for coniferous trees; Irina Belyaeva is replacing Desmond Meikle as referee for *Salix*; Mike Wilcox is prepared to identify *Aphanes* and subspecies of *Montia fontana*, and Quentin Groom is going to referee *Amaranthus*.

We are sorry to learn of Dr A.J.E. Smith's death, which means that we no longer have a referee for *Melampyrum*.

As usual there have been some changes to referees' requirements and to the address list, so please be sure to look them up before sending in specimens.

Panel of Vice-county Recorders

DAVID PEARMAN, *'Algiers', Feock, Truro, Cornwall, TR3 6RA*; (dpearman4@aol.com)

New recorders and changes:

113(G) Guernsey: Vacant. Charles David, VCR since 2008, has died.

113(J) Jersey: Vacant. Margaret Long, VCR since 1996, has died.

7 & 8 Wilts.: Richard Aisbitt as joint (correspondence to Sharon Pilkington as before).

30 Beds.: John Wakely as joint (correspondence to Chris Boon as before).

42 Brecon: John Crellin as joint (correspondence to Mike Porter as before).

61 S.E. Yorks.: Peter Cook (previous VCR) as joint (correspondence to Richard Middleton as before).

90 Angus: Robin Payne (correspondent) with Theo Loizou & Mark Tulley as joint, to replace Barbara Hogarth, VCR since 1993.

109 Caithness: Helen Crossley as joint (correspondence to Ken Butler as before).

H13 Co. Carlow: Ms Lisa Dowling to replace Dr M. McCorry & Dr F. MacGowan, VCRs since 2010.

H14 Laois: Dr M. McCorry & Dr F. MacGowan to replace Dr E. Moorkens, VCR since 1996.

H15 S.E. Galway: Dr C.M. Roden as joint (correspondence to Dr. M Sheehy Skeffington as before).

H17 N.E. Galway: Dr C. Peppiatt to replace Dr. C.M Roden, VCR since 1992.

H31 Co. Louth: Ms Melinda Lyons to replace Mr D.M. Synnott ,VCR since 1967.

All addresses for the above are in the BSBI Yearbook, 2013, dispatched with this mailing.

As ever, I would like to thank those retiring for their sterling efforts over so many years. This simple thanks seems so inadequate after often 30 or more years of help, and we could not do what we do without that entirely voluntary help.

Change of address:

v.c.68 N. Northumberland: Chris Metherell to Woodsia House, Main Street, Felton, Northumberland, NE65 9PT.

West Sutherland Vice-county Recorder vacancy

JIM MCINTOSH, *BSBI Scottish Officer, Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh, EH3 5LR*; (jim.mcintosh@bsbi.org.uk)

We are looking for one (or more) keen, fit and proficient botanists to work as Vice-county Recorder(s) in West Sutherland (v.c.108). Good Recorders are critical to the BSBI's success. The focus for all Recorders is helping to fulfil the ambitious aims set out in the BSBI's *Recording the British and Irish flora 2010-2020* strategy (see the BSBI website). The principal roles of a Recorder are the collection, validation and maintenance of vascular plant records. It would be a great opportunity to improve plant identification skills, whilst making a valuable contribution to the work of the BSBI. If a joint appointment is made, then that might provide an opportunity to serve an apprenticeship with a more experienced and time-served recorder.

Being a reasonably competent botanist is important, but knowing one's limits is even more important. No one can be an expert in all aspects of a county's flora – especially when starting out. Our referees are happy to help with identifications and confirmations. Competency with computers, particularly e-mail, the internet and MapMate, would be highly desirable, although training and support will be provided with MapMate.

Living in or near the vice-county is obviously an advantage, but is not essential - some Recorders live remotely and operate very successfully. But you would have to be able to spend a reasonable time in the vice-county during each field season. I would suggest at least three weeks total survey time per year.

If you are interested in this vacancy, please contact me by email or by post to the address above.

NOTES FROM THE OFFICERS

From the Hon General Secretary – *LYNNE FARRELL*

41 High Street, Hemingford Grey, Cambs., PE28 9BJ
(01480 462728; lynneonmull@btinternet.com)

Members of long-standing

We would like to offer our congratulations to the following people who have now been members for 60 years: Sir T.W.J.D. Duprée, Mrs P.A. Gay, Mr D.R. Glendinning, Dr R.M. Harley, Mr R. Maycock, Mr M.G. McFarlane, Mrs R.M. Race, Mr W.B.H. Sowerby, Dr J.T.Williams.

Congratulations go to Dr. Margaret Bradshaw who is the recipient of the Marsh Botany Award for 2012. This award is for a lifetime achievement and outstanding contribution in the field of botanical research and conservation. [The Eds. have also been made aware, before going to press, that Libby Houston has been awarded the H.H. Bloomer award (an award to an amateur naturalist who has made an important contribution to biological knowledge) by the Linnean Society.]

Annual Exhibition Meeting and Flora of Cold regions conference, Cambridge 23/24 Nov. 2012

This was another very successful venture, with 150 attendees, 131 members and 19 visitors, and held this time at the British Antarctic Survey headquarters, just outside Cambridge. Even the inclusion of a Special General Meeting did not deter participants! In addition to the usual attractions of talks, exhibits and lectures, tours of the herbarium were included, which proved very popular, as we saw specimens of species that many of us have never seen before. One of the photographs provides a glimpse of a few things that take place behind the scenes at the AEM (see inside back

cover). This time we were honoured by a visit from Linnaeus! (see inside back cover) We would like to thank all those at BAS who helped us both on the two days themselves and in the preparation and tidying up.

Membership

Many people have helped with new recruitments this year, but Louise Marsh and her team of Leicester locals have been very active at various events, which you will have read about elsewhere in *BSBI News*. We are pleased to welcome one of our latest members, Dr Martin Warren, Chief Executive of Butterfly Conservation, whom I 'captured' at the recent B.C. AGM in Nottingham (see back cover). Luckily, I did not need a net for this exercise, but it might have something to do with the fact that Martin and I used to play tennis together, where we did indeed benefit from the use of a net.

A note from the Hon. Treasurer – *ANTONY TIMMINS*

154A Warley Hill, Brentwood, Essex, CM14 5HF; (antony.timmins@hotmail.co.uk)

I was really pleased with the level of engagement and support from members at the Special General Meeting. Thank you very much everyone. Linnaeus the dog also enjoyed his visit to see you all (see inside back cover). The President is dealing with the business aspects in his note.

The Society is continuing to benefit financially from the good work of Kevin Walker and his team, and as you already know, the subscriptions remain unchanged again next year – partly due to this work. I hope you are finding your membership value for money and that you will renew next year. Our members are our life blood and that is the other reason I did not recommend an increase – but we will need to discuss 2014 rates at the next AGM.

Occasionally members and even members of Council forget that your Treasurer no longer initiates anything to do with money requests (in or out) or membership. These need to go to Clive Lovatt, our Administrative Officer, or Gwynn Ellis, Membership Secretary, who are set up to deal with them. You send them to me at your peril! If it is a matter of some new idea, initiative or activity that needs financial support and you need to discuss principles – I am your man. If you want to discuss the principle of supporting us in some way or you need some help on that – I am also your man. So, basically, ideas to me, cash and day-to-day stuff to Gwynn and Clive. Many thanks, and a great New Year of botany.

From the Scottish Officer – *JIM MCINTOSH*

c/o Royal Botanic Garden, 20A Inverleith Row, Edinburgh, EH3 5LR;
(0131 2482894 or 0791 7152580; jim.mcintosh@bsbi.org.uk)

Tristan da Cunha

I cannot tell you just how nice it is to be back as BSBI Scottish Officer after my one year sabbatical! Not that I didn't enjoy it. I always knew it was going to be the biggest adventure of my life, but nothing could have prepared me for the experience. The remoteness and isolation was extraordinary, and not helped by the difficulty and unreliability of getting there (and back). You travel by small boat from Cape Town that is scheduled to take six days but frequently takes much longer, due to stormy conditions. In my case the outward leg took nine days and my luggage languished in the lea of the island for another five until the swell abated enough to permit full unloading.

Our survey was of Tristan - the main and only inhabited island (pop. 261) in the Tristan da Cunha archipelago. It is situated in the mid South Atlantic 2,500km from the nearest land at Cape Town and St Helena, and over 3,000km from South Georgia, the Falkland Islands and South America. The archipelago is at 37° S, which is quite close to 40° S - where the roaring forties get their name from! Hence the stormy weather.

The island is 12km in diameter with a central 2,060m high volcanic cone, surrounded by a steep peripheral escarpment that reaches 800m in places. The three most iconic species on the island, all dominants in their respective habitats, are *Blechnum palmiforme* (Bogfern), the shrubby *Phylica arborea* (Island Tree) and *Empetrum rubrum* (Peak Berry). The *Blechnum* is like no other *Blechnum* you will have seen – more like a *Cycad* or Tree fern with a trunk that is up to 2m in height and 30cm in diameter, with stiff interlocking fronds. Surveying such a mountainous landscape covered with dense Bogfern and Island Tree is hard, really hard. I'm sure that SAS training would be easier!

I'll write a fuller account for a future *BSBI News*. Meantime, if this has whetted your appetite for more, you can read my blog by typing "Tristan Travels" into a search engine.

BSBI Scottish Officer

In my absence, Angus Hannah kindly stepped into the breach and did a great job. Thanks are due to him. I started back in mid-September with a handover meeting. Since then it has been very eventful, helping with the *50 Years of mapping the British and Irish flora* two-day Conference and giving the main talk (on Tristan) at the BSBI Scottish Annual Meeting. We successfully renewed the SNH grant that supports the Scottish Officer post for a further two years. I was promoted to (Acting) Senior Country Officer – to line manage the newly appointed Irish & Welsh Officers. That duty began with a two-day Training & Induction Workshop for the new recruits and we are now working up the notes as a BSBI Country Officer Handbook.

50 years of mapping the British & Irish flora

This BSBI conference, jointly held and organised with the Royal Botanic Garden Edinburgh in September, was one of the best and most enjoyable I've ever been to. It was great to hear of the extraordinary range of scientific, survey, conservation and political endeavour BSBI data has been put to.

One of the most fascinating accounts was by Natasha de Vere of the National Botanic Garden of Wales who talked about the project to create and use a DNA barcode database for all native UK vascular plants – a project which relies heavily on BSBI expertise and data to collect and positively identify species before DNA barcoding. So far, some 1,143 species have been coded. The data have been used in a variety of rather surprising ways – to identify fragments of plants, like seeds or grass clippings, or to analyse dung pellets to find out about animals' diets. They have even been used to identify the pollen in honey – in an attempt to find out which plants might contribute to honey's well known antibiotic effect on the hospital superbug MRSA!

There has never been a better illustration of the importance of making our data widely available and many speakers voiced their appreciation for the BSBI data and expertise. It fell to me to make the closing remarks and I made the point that as a BSBI volunteer myself, and as one who supports BSBI volunteers, I was absolutely delighted to hear that the data we collect – at ever increasing accuracy and resolution – are being put to such good use. What is the point otherwise?

From the Irish Officer – *MARIA LONG*

BSBI Irish Officer, National Botanic Gardens, Glasnevin, Dublin 9, Ireland;
(00 353 87 2578763; maria.long@bsbi.org.uk)

Hello! My name is Maria Long, and I have recently been appointed BSBI Irish Officer (see Colour Section, Plate 4). I took up the post on 1st October 2012. I am based at the National Botanic Gardens in Glasnevin, Dublin, and will work two days a week in the position over the next two years (for my contact details, see above).

My main role as Irish Officer will be to help and support the VCRs (Vice-County Recorders) throughout the island of Ireland with their work as plant recorders. This will

include things such as: one-to-one meetings and/or field visits with VCRs; facilitating training (*e.g*. tricky plant groups, computer packages); help in planning recording strategies for vice-counties; support with technology issues (*e.g*. digitisation of records, submission of records); facilitating improved communication between BSBI 'central' and VCRs; support in working towards the updating of records for the next Atlas; and general team-building within the VCR network, and 'BSBI Ireland' in general.

Basically I'm here to help VCRs in whatever way I can! The equivalent posts in Scotland and Wales have resulted in a great improvement in the functioning of the BSBI recording network – so let's hope that similar results can be achieved in Ireland!

Communication and support are at the core of this position.

Outline of planned work

First I need to assess what support is needed where. This will vary substantially between recorders and between areas. This process has already begun. Once support needs are identified, I will begin to focus on: supporting/ encouraging the digitisation of data, helping with individual recording strategies, and also supporting/encouraging the submission of data.

Along with the BSBI Committee for Ireland Field Secretary, I hope to facilitate, organise, and/or lead educational field meetings. These will be for all levels: beginners, improvers and VCRs. I will also facilitate or organise workshops specifically for VCRs. Here tricky groups can be tackled at an intermediate to advanced level, and VCRs can learn/practice/ tackle computer-related issues (*e.g*. MapMate). I hope at every opportunity to foster a sense of belonging to the BSBI, and of general 'team-building' in the organisation!

I plan to take every opportunity I can to raise the profile of the BSBI in Ireland. This will hopefully generate some interest, some more members, and maybe some more records!

The Steering Committee

The agenda and priorities for this position are set by the Steering Group. There are three members:

Plant Unit representative - Kevin Walker and/or Jim MacIntosh (Scottish Officer), the Chair of the BSBI Committee for Ireland – Gerry Sharkey and the Vice-Chair of the BSBI Committee for Ireland – John Faulkner.

The Irish Officer, and the Steering Group, will make regular reports to the Committee for Ireland.

A little background

I have been a member of the BSBI since 2006, and have worked in the field of ecology since 2001. I have a degree in Zoology (shhhh – don't tell anyone!) (1999; Univ. College Cork), a masters in Conservation and Management (2001; NUI Galway), and a PhD in Ecology (2011; Botany Department, Trinity College Dublin). I have extensive ecological and plant survey experience, having worked on projects such as the National Survey of Native Woodlands, the Irish Semi-Natural Grasslands Survey, and indeed from the fieldwork for my own PhD.

I am also a very experienced teacher. I am an occasional lecturer in Trinity College Dublin and have led numerous outings on many aspects of natural history. My other main interest is molluscs – but don't hold that against me!

Progress so far

I have set up office at the National Botanic Gardens, including email address and phone number specific to the post of Irish Officer. I have updated the contact details for Irish VCRs (still one or two gaps!). Initial contact has been made with all 38 Irish VCRs (mostly by email), and all responses have been acknowledged. Follow-up with VCRs who haven't replied is in hand. I have dealt with queries from individual VCRs – *e.g*. MapMate issues, etc.; made contact with key partners - e.g. CEDaR, National Parks and Wildlife Service, etc.; and am developing the workplan for Year 1 of the Irish Officer post. A BSBI Ireland webpage has been created (http://www.bsbi.org.uk/ireland.html)

Final word – for now!

Please don't hesitate to get in touch with me with any queries or comments relating to the BSBI or plant recording in Ireland.

Diary for 2013

LYNNE FARRELL, Hon. Gen. Sec., *41 High Street, Hemingford Grey, Cambs., PE28 9BJ*; (lynneonmull@btinternet.com)

19 Jan Irish Committee, Glasnevin, Dublin
23 Jan Records Committee, London
6 Feb Meetings Committee, Natural History Museum, London, 12.30pm
13 Feb Publications Committee
14 Feb Database Committee, Leicester
16 Feb Welsh Committee
19 Feb SSA Working Group
20 Feb Executive Committee, Brewin Dolphin offices, Smithfield, London
5 Mar Training & Education Committee, Shrewsbury
9 Mar Scottish Committee
20 Mar Council, Astronomical Society, Council Room, Burlington House, Piccadilly, London
13 May Scottish Committee
11-14 June Coast & fens of Anglesey, Beaumaris
12 June AGM, Beaumaris, Anglesey
14 June Welsh Committee

Solution to Crossword 19

Across
1. NETTLE; 4. ROOTS; 8. STERN; 9. CLADODE; 10. OLOGIST; 11. EDIT; 2. EAR; 14. ALOE; 15. E.AGG; 18. LIE; 21. SITE; 23. DROSERA; 25. PALMATE; 26. DYKES; 27. DUPES; 28. CRINUM

Down
l. NOSTOC; 2. TREFOIL; 3. LENTICEL; 4. REAP; 5. OVOID; 6. SHEATH; 7. ACUTE; 13. RECORDER; 16. GHERKIN; 17. ISOPOD; 19. EDGED; 20. BALSAM; 22. TULIP; 24. YAMS

Crib to Crossword 19

Across
1. double definition; 4. anagram ROT SO; 8. STE(A)RN; 9. C <LAD> ODE; 10. anag SLOT I GO; 11. reverse TIDE; 12. seE A Ripe; 14. AL<O>E; 15. (just) possible to write *Euphrasia* aggregate like this if *Euphrasia* already mentioned; 18. L/I.e.; 21. sight; 23. anag ARE RODS; 25. PAL/MATE; 26. depending on whether 'dyke' means 'wall' or 'ditch'; 27. D(R)UPES; 28. anag RUNIC + M

Down
1. NO STOC(K); 2. T <REF> OIL; 3. anag TELL NICE; 4. Rye Emmer And Porridge-oats; 5. O/VOID; 6. S/HEATH; 7. AC/UTE; 13. double definition; 16. aka 30 St Mary Axe; 17. I <SO> POD; 19. 'sedges have edges...'; 20. herBAL SAMple; 22. T/U/LIP; 24. Reversed in diSMAY

CONTRIBUTIONS INTENDED FOR *BSBI NEWS* 123
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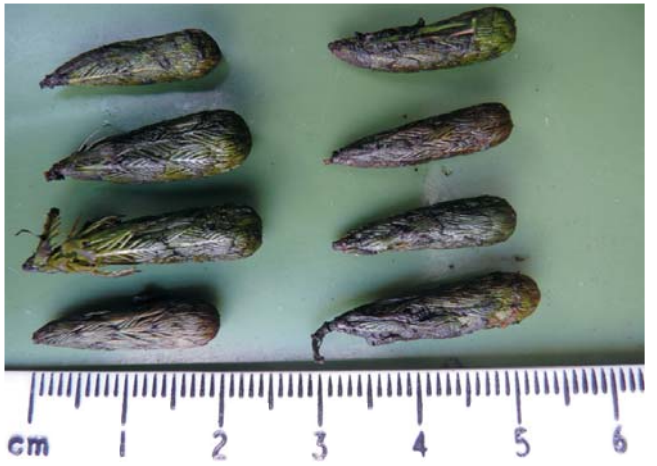
Frankenia laevis at Bidford-on-Avon, Warwickshire (v.c.38). Photo J. Roberts © 2012 (p. 12)



Myriophyllum spicatum turions from dredgings, Malltraeth Marsh, Anglesey (v.c.52). Photo J. Bratton © 2010 (p. 18)

Peloric flowers of *Melittis melissophyllum* (Bastard Balm), Builth Wells (v.c.42). Photo A.G. Shaw © 2012 (p. 11)

Turions on *Myriophyllum spicatum* from Left-hand Main Drain, Anglesey (v.c.52) in November. Photo J. Bratton. © 2011 (p. 18)

Viola reichenbachiana (frontal view) Gubbins Wood, Arnside

Viola riviniana (frontal view) Sun Lane, Burley-in-Wharfedale

Viola hirta, 2 spurs, Perham Down (v.c.12). 2009

Viola hirta, 3 spurs, Perham Down (v.c.12). 2011

Viola reichenbachiana (lateral view) Gubbins Wood, Arnside

Viola riviniana (lateral view) Sun Lane, Burley-in-Wharfedale

Viola hirta, 2 spurs, all flowers affected, Perham Down (v.c.12). 2009

Viola hirta, 4 spurs, Shipton Bellinger (v.c.12). 2011

Strong rosettes of *Viola rupestris*, Crummackdale (v.c.64) (p. 31)

(Upper) short indumentum on petioles of *Viola rupestris*, Crummackdale (v.c.64); (lower) longer hairs on leaves of *Viola riviniana*, Aira Force (v.c.70) (p. 30)
All *Viola* photos J. Roberts © 2012

Soliva sessilis (general appearance)

Soliva sessilis (close-up)

Both photos taken at Ripley (v.c.17) by G. Hounsome © 2012 (see p. 37)

Maria Long, our new Irish Officer, looking at specimens in Knocksink Nature Reserve, Co. Wicklow, Ireland. Photo P. Lenihan © 2012 (p. 61)

Eryngium variifolium

Authors of the 2002 *Atlas* (l to r): David Pearman, Christopher Preston and Trevor Dines at the Edinburgh Conference.
Photo L. Marsh © 2012 (p. 50)

Sea Beams with *Eryngium variifolium*
Both photos taken at Dysart, Kirkcaldy, (v.c.85) by C. Methven © 2012 (p. 39)