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Botanical Society of Britain & Ireland

Edited by Trevor James & Gwynn Ellis

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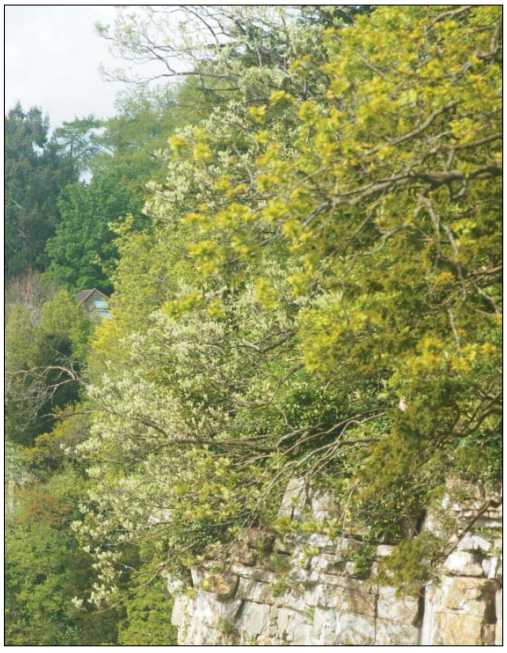
Sorbus herefordensis (flower spray), Doward, Herefordshire (v.c.36). Photo D. Green © June 2013 (see p. 12)



Sorbus domestica (Service-tree) at Lancaut N.R., Gloucs. (v.c.34). Photo M. Hampton © 2009 (see p. 30)

Hordeum marinum on roadside, A14, Northants (v.c.32). Photo P. Stroh © 2015 (see p. 29)

Rumex acetosa ssp. *hibernicus*, Predannack Wollas, Cornwall (v.c.1). Photo F. Rumsey © April 2015 (see p. 10)

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Cover picture: –*Sorbus greenii* flowers, Doward, Herefordshire (v.c.36). Photo D. Green © May 2013 (see p. 12)

IMPORTANT NOTICES

From The President

IAN DENHOLM, *4 High Firs Crescent, Harpenden, Herts., AL5 1NA*;
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The summer seems to have sped by, marked by prolonged spells of indifferent weather. I trust this did not quell members' enthusiasm for field work, and that as many of you as possible were able to participate in events based around recording, training, or simply visiting great habitats and the plants they support. Our meetings aimed at strengthening Atlas recording appear to have been well attended and I look forward to reading the reports published in the next *BSBI Year Book*. I was fortunate enough to spend a week on the northernmost of the Shetland Isles in great company and we covered a lot of ground – some very rewarding and some less so, but with botanical monotony relieved by being dive-bombed by skuas and fantastic views of Red-throated Divers in breeding plumage on remote lochans.

The Annual Summer Meeting in the north of Ireland in June involved a lot of Irish Vice-county Recorders and an impressive number of younger delegates and less experienced botanists keen to be introduced to the rigours of completing recording cards, although fewer members from mainland UK attended than we had hoped. I thank John Faulkner and Louise Marsh for taking on much of the organisation and the University of Coleraine for hospitality, despite a faulty fire alarm in our accommodation block leading to an impromptu 6 a.m. gathering of inhabitants outside the building! In keeping with a developing tradition of alternating the location of the ASM between countries, plans are underway to base the 2016 event at the Field Studies Council's field station at Blencathra in the Lake District, details to be circulated at the end of the year.

Like me, many of you will by now have taken possession of the long-awaited *Hybrid flora of the British Isles*. It is a majestic work and for the first time we have detailed morphological descriptions of hybrids, both sporadic and persistent, along with comprehensive accounts of their occurrence. Huge congratulations go to Clive Stace, Chris Preston and David Pearman for steering this to fruition (a state that many hybrids fail to reach!). Continuing on the theme of publications, this issue of *BSBI News* announces important changes to the way that *New Journal of Botany* will be distributed in future years. This reflects a much wider ongoing transformation in the mode of scientific publishing, and also coincides with our publisher to date (Maney Publishing) having been acquired by the Taylor & Francis Group, who have expressed strong support for the continuation and promotion of *NJB* over years to come. One challenge is to increase the visibility of and citation rates for *NJB* papers through inclusion in the largest bibliographic databases, including 'Scopus'.

The combined Annual Exhibition Meeting and AGM returns this year to the Natural History Museum in London and I hope to meet up with many of you there. As always, we urge members to offer exhibits relating to all aspects of botany, and will have presentations covering field meetings, as well as current and forthcoming BSBI projects. This event will mark the end of my Presidency after a fulfilling and rewarding period of two and a half years. I look forward to congratulating and offering full support to my successor, who will be appointed at the AGM.

From the Company Secretary

CLIVE LOVATT, *57 Walton Road, Shirehampton, Bristol, BS11 9TA*;
(Tel.: 01173 823 577; 07513 458 921; clive.lovatt@bsbi.org)

BSBI Annual Report and Accounts 31st March 2015

The Society's 31st March 2015 Annual Report and Accounts were approved by the Board of Trustees and signed by our Independent Examiners, WMT of St Albans, on 9th September 2015. Their report was unmodified. A PDF copy may be obtained from the link on the home page of our website. Paper copies will be available at the AGM on Saturday 28th November 2015 but any member who requires a copy should send a request to the Company Secretary.

Summarised financial statements have also been prepared, with a Treasurer's' Report, and these are included in the *Annual Review* which accompanies this mailing of *BSBI News*.

BSBI List of Members

A printed *List of members* was last issued in April 2013. The Board believe that it is valuable and important to have a list available to members but have been mindful of the cost of producing and distributing a printed list. Many similar societies no longer print membership lists. The Board therefore propose to prepare the list in electronic form only. This will also allow easier searching and a more frequent updating than has hitherto been possible. The society needs to take reasonable steps to balance access and security and although the precise way this would be done has yet to be concluded, it is likely that the list will be on a password-protected members' page and if in PDF form, the file would also be password protected.

BSBI AGM and revision of Articles of Association

A notice of the second AGM of the Botanical Society of Britain and Ireland which is to be held on Saturday 28th November 2015 at the Natural History Museum in London accompanies this mailing of *BSBI News*.

The Rules of the Botanical Society of the British Isles were replaced by the Articles of Association of the Botanical Society of Britain and Ireland, a company limited by guarantee. In the course of time, certain Articles were found not to be working quite as we might have wanted. Principal amongst these was the realisation that as Council is not a *governance* body membership of Council can include, without election or co-option, office bearers or delegates of the society's committees *ex officio*. Whilst amending the relevant Articles, the opportunity has also been taken to revise the clause on the date by which nominations should be received to a date closer to the now-settled AGM date in late November.

Whilst the changes have been carefully drafted by the Honorary General Secretary and others (to whom thanks are due), and considered by all relevant committees of the society, they can only take effect when approved by the members. In order to allow time for this, the changes are outlined on a posting already accessible through the home page of BSBI's website. Members are invited to look at the documents and if they have any comments, to let the Honorary General Secretary know.

In addition, having in the interim adopted the old Standing Orders of the society (insofar as not incompatible with the

society's Articles), new Standing Orders and Rules (including standing orders, rules, and regulations as defined in Articles 5.4-6) have been prepared by the Board of Trustees for the Botanical Society of Britain and Ireland. These Standing Orders, in place for the smooth running of the AGM, the committees and the society in general, will be issued with the authority of the Board and will not need voting on to be adopted. Comments are again invited from the membership.

Any member requiring paper copies of any material referred to above should request them from the Company Secretary.

New Journal of Botany moves to on-line publication: a message from the Editorial Team

LOUISE MARSH, *The Herbarium, Department of Genetics, Adrian Building, University of Leicester, University Road, Leicester, LE1 7RH;* (njb@bsbi.org.uk)

Starting in 2016, we intend that *New Journal of Botany* will be published almost entirely in electronic form and are currently in discussion with our new publishers, Taylor & Francis, to bring this about. As well as being more attuned to the future direction of scientific publication, this move will represent a financial saving to the society, enabling us to channel more resources towards core activities such as our training, research and outreach programmes, and reducing the need to increase membership subscription rates.

We will still provide print copies for institutional subscribers who have paid the higher subscription rate for both print and on-line access. We will also be able to provide print copies, as well as continuing to provide electronic access, to any BSBI members who feel that this is essential to their enjoyment of *New Journal of Botany*, but there will be a charge for this service, currently set at £10 per year.

A dedicated email address has been set up to provide more information and handle any requests. Please contact: printcopynjb@bsbi.org, or you can write to the Editorial Office at the address above. If you are happy to continue accessing *New Journal of Botany* electronically, you do not need to notify us or pay any extra – just continue logging in via http://www.bsbi.org.uk/NJB/ and using the password.

Meanwhile, Dr Richard Gornall, who has served as Editor-in-Chief of *New Journal of Botany* since its inception in 2011, is standing down at the end of this year, so applications are sought for his replacement. If you would like to know more about what this honorary role entails, if you think you may have the necessary skills – and the time – to take on this prestigious position, or if you would like to propose a colleague for consideration, please contact us at the address above.

2015 BSBI Photographic Competition: open to all BSBI Members

JIM MCINTOSH, *c/o Royal Botanic Garden, Inverleith Row, Edinburgh, EH3 5LR*;
(Tel.: 0131 2482894; jim.mcintosh@bsbi.org)

Thank you to everyone who entered the 2014 BSBI Photographic Competition and who made it such a success! We plan to repeat the competition in 2015, but with

new categories and rules. We would like to use this year's photographs to create a BSBI calendar. So, in order to get a selection of suitable photographs of plants throughout the seasons, our theme will be plants through the seasons and we will have four categories:

1. Plants in Winter
2. Plants in Spring
3. Plants in Summer
4. Plants in Autumn.

You may enter *up to* three images in each category. Photographs should be taken in Britain and Ireland and must be of vascular plants or stoneworts, but do not have to be taken during 2015.

In order to encourage entries and standardise print quality and size, please send entries in electronic format only, along with titles, directly to the 2015 competition organiser, Natalie Harmsworth (natann29@freeuk.com), using the largest possible file size.

Please send them as soon as possible and certainly *no later than 24th October*, to Natalie to allow time for printing and mounting before the Scottish Annual Meeting, where the winners will be chosen by a popular vote. We will mount a display at the Annual Exhibition Meeting and publish a selection of winning photographs in various BSBI publications including *BSBI News*.

Please note that copyright of images will remain with the photographer. However, the BSBI claims the right to exhibit the entries, and to use them to further its aims generally and to promote the BSBI and its photography competition. The BSBI also claims the right to edit or use images in combination with others.

So, get your cameras out and start snapping your autumn photographs!

Notes from the Editors

TREVOR JAMES (Receiving Editor), *56 Back Street, Ashwell, Baldock, Herts., SG7 5PE.* (Tel.: 01462 742684) (trevorjjames@btinternet.com)
GWYNN ELLIS (General Editor), *41 Marlborough Road, Roath, Cardiff, Wales, CF23 5BU* (Tel.: 02920 332338) (gwynn.ellis@bsbi.org)

What a pleasure it is to see a line drawing of an alien plant once more in *BSBI News* (p. 46). Our thanks go to Robin Walls, not only for the drawing in this issue but also for the offer to provide drawings of other alien plants that feature in the Adventives and Aliens News section compiled by Matthew Berry. Perhaps this might encourage more members to send in records and it would certainly be nice to have more aliens from other parts of Britain featured in that section.

Hybrid flora of the British Isles

All prepublication orders for this book have now been dispatched. Any member still waiting for their copy should contact GE at the above address.

Faulty copies

So far only one copy has been reported with faulty pagination. This has page 62 followed by a repeat of pages 55 to 62, then page 79, with pages 63 to 78 missing. It would be very unusual if there was only one instance of this fault so please check your copy and let GE know of any similar problems.

BSBI News deadlines

May we remind all contributors that we do have deadlines for a good reason – if only to limit the damage to our time in sorting out each issue. The late arrivals seem to be getting later and later, and we are going to have to draw a firm line if this continues.

The deadlines, which remain the same each year, are always given on the penultimate page of each issue of *BSBI News*:
December 1st for the January issue
March 1st for the April issue
August 1st for the September issue

In addition the deadlines for receipt of printed inserts and hard copy for printing inserts are the middle of January, April and September.

The deadline for contributions to *BSBI Yearbook* is always December 1st.

It is also important to remember that **ALL** contributions must be sent to the Receiving Editor, Trevor James, with an optional copy to the General Editor, Gwynn Ellis.

Figures, maps and tables are often sent in full colour which is fine so long as there is space in the Colour Section to accommodate them. Sometimes, however, space is limited and they have to go in with the text in black and white. So please choose colours which are easily distinguished if they have to be printed in black & white or send two versions, one in colour and the other in grey-scale.

Membership Number

Do you know your BSBI Membership Number or do know where to find it? Considering that it is required when ordering books from BSBI or Summerfield Books, and when contacting the Membership Secretary, it is surprising how many members do not!

New members have, since May this year, been given a BSBI folder with their membership number printed inside when they join but for all other members, the Membership Secretary at least would be very grateful if you could take the trouble to record your number somewhere where you can easily find it when needed.

On the last page of every issue of *BSBI News* is the message – 'Please quote membership number on all correspondence; see address label on post, or Members List'.

The first line of each address label has the following information:

26673 Mem. No. 029487 v.c.41

where the first number is the mailsort code, followed by the membership number, then by the vice-county.

Eighteen months ago the BSBI membership database was upgraded to a new and much improved system but this introduced a change with how the membership number was automatically generated. Both databases are currently kept up to date with the old database still being used to create mailing labels for *BSBI News*. Thus recent members will see another number – after their name; **this is their correct membership number**; the number on the first line can be ignored.

A new online Members List is planned to be published later this year (see p. 3) which will include the membership number of all current members.

Where are they now?

We are still trying to trace the current whereabouts of the following members:

Mrs H Coyte, formerly of Upper Wolvercote, Oxford.
Mr J Darke, formerly of London Road, Stroud.
Miss J E Ferguson, formerly of Clincart Road, Glasgow.
Ms M Hili, formerly of St Mellons, Cardiff.
Ms C Moore, formerly of Clevedon, Somerset.
Mrs M L Pullen, formerly of Middlestone Village, Bishop Auckland.
Mr M J Skelton, formerly of Hamilton Road, Bournmouth.

NOTES

An apparent hybrid between *Atriplex prostrata* and *A. patula*

JOHN RICHARDS, *High Trees, South Park, Hexham, NE46 1BT*;
(Hightreesgarden@btinternet.com)

In the British Isles, *Atriplex* is well-known for its hybrids, some of which (*A.* ×*gustafssoniana*, *A.* ×*taschereaui*) are more common and widely distributed than their rarer parent (Taschereau, 1985). Thus, it is surprising that the two most widespread species, *A. prostrata* and *A. patula*, which are commonly found as ruderals inland and often grow together, have never been reported reliably to hybridise (Stace, 2015) and this hybrid was not mentioned by Taschereau (1985). However, it had been created artificially and the specimen exhibited (Hulme, 1958). Although the two species are classified within the same section (Teutliopsis), they differ in chromosome number, *A. prostrata* being diploid (2n = 18) and *A. patula* tetraploid (2n = 36). Thus, the hybrid created was a sterile triploid (2n = 27), as predicted, and, being annual, short-lived. It was said that this plant did not resemble specimens representing earlier claims for this hybrid (Jones, 1975).

Although these two familiar species differ in general appearance, and in particular in the shape of the basal leaves, both are very plastic and are most safely separated when in fruit, with the bracteoles fully developed. The bracteoles differ markedly in shape (illustrated well in Stace, 2010: 491); those of *A. prostrata* being triangular with a truncate base and free to the acute angle with this base, whereas those of *A. patula* are more nearly ovate, with a cuneate base, and are fused to about half their length.

On 4th September 2013 I examined a large mixed population of both species growing beside the spur road to Oakwood from the main Hexham roundabout, South Northumberland (v.c. 67) (NY915655). No other *Atriplex* species was present. I noticed particularly one individual with rather large (5-7mm long), 'flabby' herbaceous bracteoles, and it became clear that no fruits had developed within the bracteoles. Most other plants in the populations scattered abundant seed when picked or knocked and the hard swollen fruits could be felt between the bracteoles.

On further examination, it was clear that bracteole shape was intermediate between those of *A. prostrata* and *A. patula*; triangular but with untoothed straight to slightly convex margins and with a broadly cuneate base to which point the bracteoles were fused, so that the degree of fusion was intermediate between the presumed parents (see p. 8). Most of the basal leaves had withered, but stem leaves were lanceolate and did not differ from those of *A. patula*.

This specimen was submitted to Dr J.R. Akeroyd, who wrote as follows (13th February 2015):

"...as good a hybrid between the two common weedy *Atriplex* as I've ever seen. The sterility, and the strange, slightly leafy look about the bracteoles, perhaps reflecting the sterility (which I've seen in other 'difficult' specimens), strongly suggest the elusive hybrid. If its characters were at all obvious, we'd perhaps have more records.....perhaps sheer numbers in a persistently open habitat has created the right conditions. There appears to be no confirmed record for the hybrid."

References:

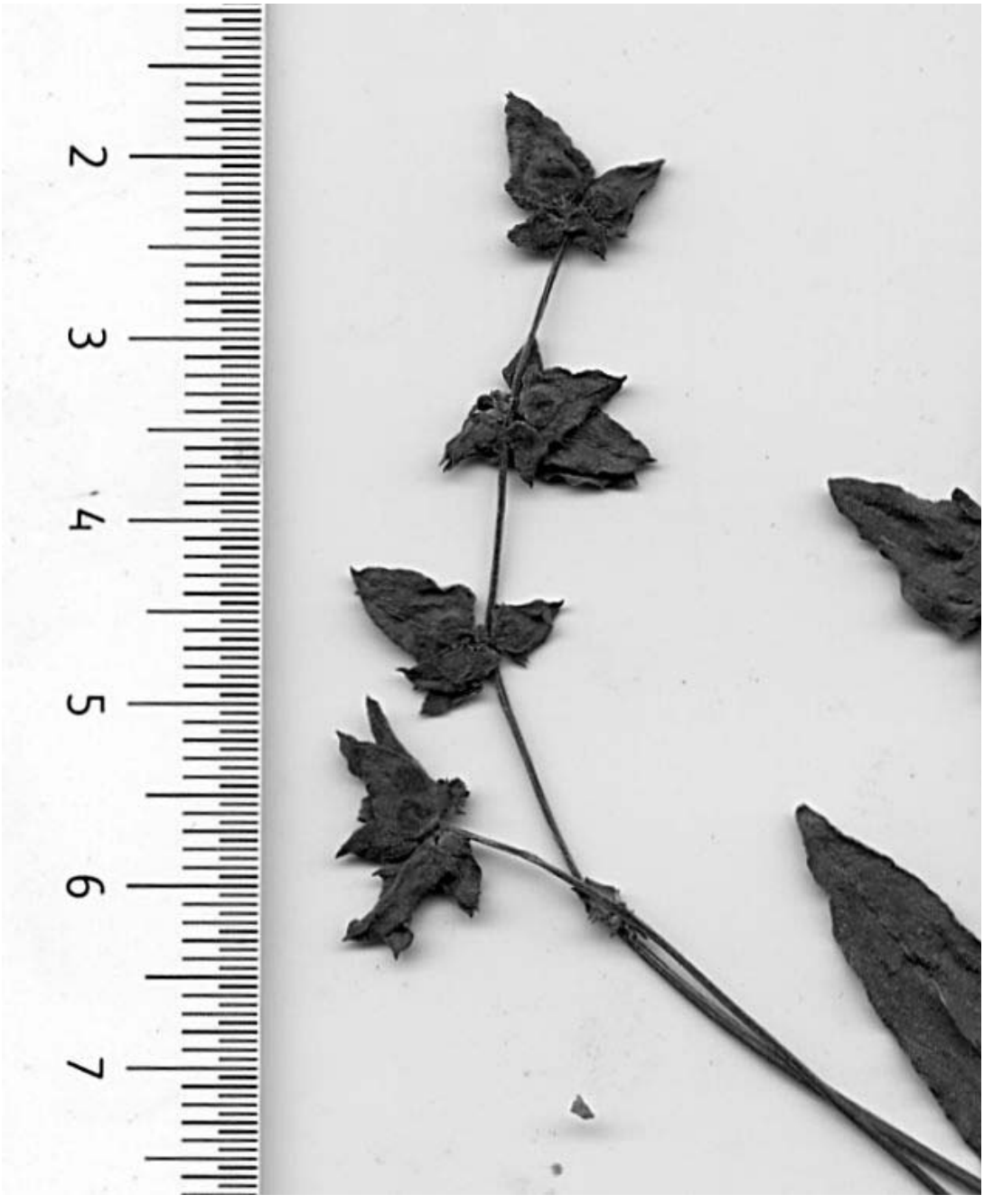
HULME, B.A. (1958). 'Artificial hybrids in the genus *Atriplex*'. *Proc. B.S.B.I.*, **3**: 94.

JONES, E.M. (1975). '*Atriplex*'. In: STACE, C A. (ed.). *Hybridisation and the flora of the British Isles*. Academic Press, London, p. 185.

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

STACE, C.A., PRESTON, C.D. & PEARMAN, D.A. (2015). *Hybrid flora of the British Isles*. Botanical Society of Britain & Ireland, Bristol.

TASCHEREAU, P.M. (1985). 'Taxonomy of *Atriplex* species indigenous to the British Isles'. *Watsonia*, **15**: 183-209.



Atriplex prostrata × *A. patula*, Hexham (v.c.67) Photo A.J. Richards © 2015

Taraxacum ciliare van Soest new to Britain

JOHN RICHARDS, *High Trees, South Park, Hexham, NE46 1BT*;
(Hightreesgarden@btinternet.com)

On a one-day visit to Guernsey on 23rd April 1966, I visited Grande Mare in the south of the island, principally to see *Anacamptis laxiflora*. Close by, I collected seeds of a *Taraxacum*, which flowered in cultivation the following year and proved to belong to *Taraxacum* section Palustria. This was tentatively named *T. austrinum* Hagl., but, when material was shown to J.L. van Soest, he expressed the opinion that it was a new species, which I subsequently named *T. sarniense* (Richards & Haworth, 1984). It was collected at this locality subsequently by David McClintock, and near St Ouens pond, Jersey by Frances Le Sueur.

In their monograph of this section of *Taraxacum*, Kirschner and Stepanek (1998) re-determined these collections as *T. ciliare* van Soest, a widespread species in western France, which also occurs in the mountains of southern Spain, and possibly in Italy and Switzerland. There is an additional note (p.29), which reads as follows: "At present a number of plants grown from seed samples are in cultivation at Pruhonice, coming from S England, New Forest. The plants probably come from the *T. ciliare* group, to a taxon intermediate between *T. ciliare* and *T. palustre*. However, the season in 1996 was not favourable for cultivation of some taxa of the section Palustria, and another generation of New Forest plants should be cultivated to be sure about their identity."

Unfortunately, these preliminary findings were not communicated to Dudman & Richards (1997), who used the outmoded name *T. sarniense* for Channel Island plants. I had examined previously more than 50 gatherings made by R.P.Bowman from a large number of sites in the New Forest, Hampshire (v.c.11) in 1976 and 1977, and although most were *T. palustre* (Lyons) Symons, doubts were expressed as to the correct identity of some. A few were sent to van Soest, but New Forest Palustria are characteristically very small and poorly developed and he expressed no opinion.

On 18th April 2015, the BSBI New Forest *Taraxacum* field meeting, organised by Martin Rand, visited Ossemsley Ford, Holmsley (SU2316.0040). Here *T. palustre* was found to be locally abundant, and, slightly to the south-west but overlapping, good numbers of *T. anglicum* Dahlst. were also found. The latter proved to be a new County record and it is curious that Bowman never collected it. Among the *T. palustre*, and closely resembling them, were small numbers of a plant in which the ovate appressed exterior bracts differed by having only a narrow border, which was notably ciliate (See Colour Section, Plate 4) (*T. palustre* bracts have broad scarious borders, which occupy about half the bract). Also, the ligules were shorter than those of *T. palustre*, scarcely exceeding the interior bracts, and the ligule stripe was a solid brown to the base (those of *T. palustre* are a paler grey-brown and become fainter basally). Photographs were emailed to Jan Kirschner, who identified them as *T. ciliare,* stating that he knew it from "several sites in the New Forest", thereby updating Kirschner & Stepanek (1998). This is only the third Palustria species to occur in Britain (two more are found in Ireland), all of which occur at this locality. All are rare and potentially threatened.

It remains to be seen whether *T. ciliare* occurs in other sites in the New Forest or possibly elsewhere in southern England.

References:

DUDMAN, A.A. & RICHARDS, A.J. (1997). *Dandelions of Great Britain and Ireland.* Botanical Society of the British Isles, London. BSBI Handbook 9.

KIRSCHNER, J. & STEPANEK, J. (1998). *A monograph of* Taraxacum *sec. Palustria*. Institute of Botany, Academy of Sciences of the Czech Republic, Pruhonice.

RICHARDS, A.J. & HAWORTH, C.C. (1984). 'Further new species of *Taraxacum* from the British Isles'. *Watsonia*, 15: 85-94.

It's hairy on the margins! - two more Data-Deficient taxa to check for

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The publication of the England Red List and ongoing work for Atlas 2020 have brought into focus several critical taxa which we strongly suspect to be under-recorded. For some there are real issues surrounding their discrimination, but many readily identifiable plants suffer as already over-stressed recorders (perhaps understandably) do not tackle more infra-specific taxa, feeling there are already enough species to be dealing with! The status and worth of many of these infra-specific taxa is also contentious and their existence and key features may initially only be known to those BSBI plutocrats who can afford Sell & Murrell. It is those which have then passed the approval of Clive Stace and which we have attempted to map in past atlases (albeit often shamefully badly) that are the focus of this ongoing series of gentle provocations and hopefully helpful guidance.

Here I have chosen two taxa whose nominate races are distinctive and frequent but for which records of the subspecies are definitely lacking. Both are easily identified, share a name, a distinctly western distribution (we believe) and the fact that they are distinguished by being decidedly furry in comparison with their common, widespread near-glabrous counterparts.

***Rumex acetosa* L. ssp. *hibernicus* (Rech. f.) Akeroyd**

During recent survey work for *Isoetes histrix* on the Lizard (v.c.1), this sub-species of Common Sorrel, distinguished by its covering of conspicuous long papillae/short hairs on leaves and stems (see inside Back Cover) was found on the serpentine outcrop at Predannack Wollas (SW6731). Consultation with the *Atlas* (Preston, *et al*., 2002) and the BSBI DDB revealed, rather surprisingly to me, that, aside from a couple of records from Bryher in the Scillies, most recently in 2007, the only English record was from the north Cornish coast at Gwithian Towans, made by Chris Preston in 1982. This presumably was in the sort of dune habitat favoured by the taxon in its western Irish coastal epicentre. Interestingly, in the light of the Predannack find, the most recent of the three Scottish records was made on the serpentine debris on Unst (v.c.112). Previously, it had been found on strands on Barra and the Monach islands, both in the 1940s. It has been recorded for Foxdale in Man (v.c.71), probably associated with metalliferous soils, and there are two Welsh records, the only recent one being from Llansannan, (v.c.50), possibly also in a metalliferous area, the other, by H.J.Riddelsdell, on the coastal headland at Burry Holms (v.c.41). It would seem well worth checking Sorrel plants in coastal situations, but also on serpentine and metalliferous sites elsewhere, particularly in more oceanic areas.

***Pedicularis sylvatica* L. ssp. *hibernica* D.A.Webb**

First described from Ireland and the Outer Hebrides by David Webb in 1956, this subspecies is distinguished from the common nominate subspecies by virtue of its uniformly hairy calyx and pedicel. Subspecies *sylvatica* often has some short hairs around the calyx lobe margins and, as Webb (1956) noted, within and particularly at the edges of the range of ssp. *hibernica*, plants could be found which were intermediate in hairiness, the hairs predominantly on the angles of the calyx. These plants, best regarded as hybrids, match the description of ssp. *lusitanica* (Hoffmanns & Link) Cout. Their relationship still needs to be examined and whether uniformly hairy plants referable to ssp. *hibernica* occur in Iberia needs to be established.

The recent *Flora Gallica* (Tison & Foucault, 2014) records only ssp. *sylvatica* in France and limited investigation would seem to suggest that, although distinctly Atlantic-oceanic in its distribution, ssp. *hibernica* is absent from the far south-west of England (Pearman, pers.

comm.), although it occurs as close as S. Wales (v.cc. 35 & 41, *etc*.). Within England it is only currently recorded from several upland sites in v.c.70, where first found in 1994, and from west of Malham Tarn (v.c.64) (Abbott, 2005). The distribution as currently known is not easy to explain but may become clearer as additional records are made. Chater (2010) notes that in v.c.46 there are no ecological or geographical differences between the subspecies, which often occur intermixed within the county.

Care should be taken when rapidly examining *Pedicularis* calyces – those of *P. palustris* are hairy like *P. sylvatica* ssp. *hibernica*, but differ in their possession of a second set of calyx teeth.

References:

ABBOTT, P.P. (2005). *Plant atlas of Mid-west Yorkshire*. Yorkshire Naturalists Union, Bradford.

CHATER, A.O. (2010). *Flora of Cardiganshire*. Privately published, Aberystwyth.

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

TISON, J.-M. & DE FOUCAULT, B. (2014). *Flora Gallica*: *flore de France*. Biotope, Mèze.

WEBB, D.A. (1956). 'A new subspecies of *Pedicularis sylvatica* L.' *Watsonia*, **3**: 239-241.

Juncus inflexus × *J. conglomeratus*

MICHAEL WILCOX, *43 Roundwood Glen, Greengates, Bradford, BD10 0HW*; (Michaelpw22@hotmail.com)

The new *Hybrid flora of the British Isles* (Stace *et al*., 2015) mentions the hybrid between Hard Rush and Compact Rush, *Juncus inflexus* × *J. conglomeratus* (= *J.* × *ruhmeri*). It states that there are no convincing specimens in the wild. The type specimen was said to be in Berlin. Having been in touch with Berlin Dalhem Museum herbarium, Berlin, which was decimated during the war; there are no specimens currently lodged with this hybrid combination.

The two species increasingly grow together, usually due to human influence. For example, in the Grizedale Forest complex near Stock's Reservoir (v.c.64), *J. inflexus* occurs along the rides where the more lime-based chippings have been laid down for cycle tracks. Also at Beamsley Beacon (near Bolton Abbey) (v.c.64), lots of *J. inflexus* grow along the edge of the road (with some *J. ranarius* (Frog Rush) too), and in the rough grassland near to the road, with both *J. effusus* (Soft Rush) and *J. conglomeratus* growing with it. At both these sites *J.* ×*diffusus* occurs.

Although flowering is usually much later in *J. inflexus*, there is likely to be some overlap, as *J. conglomeratus*, though generally early, may have younger plants in a colony that flower as the season progresses. Also, as *J. effusus* also hybridises with *J. conglomeratus* (*J.* ×*kern-reichgeltii*) (see Wilcox 2010), it stands to reason that it is possible some plants of *J. conglomeratus* could be flowering at the same time as *J. inflexus*.

An artificial hybrid between female *J. inflexus* and male *J. conglomeratus* has been made. Four plants exist in cultivation. It is different from *J.* ×*diffusus*, but with a similar general appearance, so could be overlooked. However, it is likely to be extremely rare, and may not occur in the wild. Any putative hybrids can be compared with the artificially produced material. If anyone feels they may have a putative hybrid between these two species and/or even *J.* ×*diffusus*, I would welcome any specimens from anywhere in the world. For Atlas recording, for any hybrid please collect a voucher. There is a referee system but I would be happy in the first instance to try and help.

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Sorbus of the Doward

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Sorbus species belong to the Rosaceae (rose) family, and are closely related to *Malus* (Apple). They tend to be found in three different sorts of habitat: cliff faces and rocky ledges (the most common habitat); broadleaved woodland; and heaths/downland and hedgerows. Some species thrive in more than one habitat type.

Background

The Doward is the generic local name for the Great and Little Doward hills near Ross-on-Wye and Monmouth. It consists of carboniferous limestone and conglomerate outcrops on the western edge of the Lower Wye Valley, on the southern boundary of Herefordshire (v.c.36). It has been known historically as a botanical hotspot, and forms part of an extensive grouping of SSSIs that include Symonds Yat and Lady Park Wood, both in adjoining Gloucestershire (v.c.34).

The Doward has long been recognised as important for its rare and diverse flora, but until recently the recorded history of *Sorbus* was sketchy. The first published *Sorbus* record from the Doward seems to be by Purchas & Ley (1867), although Ley collected a range of specimens at the end of the 19th century. There were few other published records during the late 19th and 20th centuries, and these have needed reinterpreting in the light of developing taxonomy. The original determination of a number of specimens in herbaria, especially those collected by A. Ley, have been re-assessed by T. Rich.

Of the three common British species, *Sorbus aria* (Common Whitebeam), previously known as *Pyrus aria*, has been known in the British Isles since 1570. This species' natural western limit is in or about the Wye Valley. Both *S. aucuparia* (Rowan) and *S. torminalis* (Wild Service-tree) are frequent in suitable habitats. In fact the Wild Service-tree is commoner along the cliff edges of the Dropping Wells than I have seen it anywhere else in the U.K., although it seems to have been first collected on the Doward only in 1911, by Miss E. Vachell. During the second half of the 19th and early 20th centuries many specimens of 'different'-looking *Sorbus* were collected, their accurate determination sometimes taking years - in one case over 150 years.

Recent developments

Trevor Evans was the first to re-investigate the Doward whitebeams in the early 1980s, and Michael Proctor looked at some of the puzzles Evans found in the 1990s, using isoenzymes. Tim Rich also collected material in the early 2000s related to hybrids between *S. aria* and *S. torminalis*. David Price subsequently took this forward in the mid 2000s.

In 2002 a cliff-based *Sorbus* survey of the Upper Wye Gorge was commissioned by English Nature. This work covered rock face habitats in Gloucestershire, Monmouthshire and Herefordshire, where records existed or that were considered potentially suitable. On the Doward, this survey included a number of rope-drop observations by Libby Houston, Angus Tillotson and Colin Charles between 17- 26th September 2002, and covered both the Great and Little Dowards, Dennis Grove, cliff faces of Dropping Wells and Seven Sisters on the Great Doward; and a walk-through study of cliff-edge habitats on the Lord's Wood south-eastern scarp, above Seven Sister and Dropping Wells, by Libby Houston and Tim Rich on 9th October 2002. Identification of material gathered during these studies was determined and confirmed by Tim Rich.

During this survey a number of previously recorded species were identified, their locations recorded and population sizes noted (see inside Front Cover). The species found were:

S. anglica (English Whitebeam)
S. aria (Common Whitebeam)
S. aucuparia (Rowan)
S. eminens (Round-leaved Whitebeam)
S. porrigentiformis (Grey-leaved Whitebeam)
S. rupicola (Rock Whitebeam)

S. torminalis (Wild Service-tree)
S. ×thuringiaca (*S. aria* × *S. aucuparia*) (German Service-tree)
S. ×vagensis (*S. aria* × *S. torminalis*) (subsequently re-named *S. ×tomentella* and now *S. ×decipiens*) (False Service-tree).

In addition, a number of single trees and groups of trees were found that did not conform to these known species. Following on-going re-assessment of these specimens and study of historic material from the Upper Wye Gorge as a whole, two previously unidentified species have subsequently been named as *S. saxicola* (Symonds Yat Whitebeam) and *S. eminentiformis* (Doward Whitebeam).

These surveys and other studies of the *Sorbus* genus nationally led to the publication of BSBI Handbook No.14: *Whitebeams, rowans and service trees of Britain and Ireland* in 2010. This book drew together various papers published over the previous decade, including information from new methods of determining parentage. It clarified the identity of some previously undeterminable material.

My work on The Doward

Between 2009 and 2012, I began collecting *Sorbus* leaf material, attempting to identify the confusing plethora of *Sorbus aria* - type material. I was sending specimens to Tim Rich for determination and producing interesting enough results for us to meet on the Doward one June day in 2011. The outcome of this meeting was that I was able to go forward with accurate determinations of a number of *Sorbus* species that I had previously located. During Tim Rich's visit I showed him one of a number of trees that did not seem to fit the known taxonomy and he said that it was likely to be new to science. These specimens acquired the working name of 'Car Park Clone', but were subsequently named after me - *Sorbus greenii* (Green's Whitebeam) (see Front Cover).

Distribution of selected species

Since 2011, I have been attempting to plot the distribution of five selected *Sorbus* species as set out below.

Sorbus greenii

A walk-over survey in 2011 produced 24 trees, all but one within 150m of the first finding. During summer and autumn of 2012, further trees were found near the first population, and a second large population of mature trees was found some 400m north of the original site, again in a disused quarry. The populations now consisted of 59 individuals (see inside Front Cover

Samples of leaves collected in summer 2012 were sent to Kew Gardens for flow cytometry assessment. The result showed this material to be triploid, indicating it had probably originated as a hybrid between two local species. The presence of two separate locations indicates that fertile fruits have been dispersed (probably by birds), have germinated and have produced new trees of two roughly similar ages across a considerable area. This proved it was fertile, despite being of hybrid origin.

Sorbus greenii appears to need open soils to germinate but is able to survive in sub-climax secondary woodland. It occurs on the western edge of the Great Doward in old quarries.

Sorbus herefordensis

Miner's Rest Reserve is a Hereford Wildlife Trust site on the limestone central dome of the Great Doward. It has elements of ancient woodland, mostly with a history of coppicing and charcoal burning, as well as land clearance by quarry men and squatters in the 17th and 18th centuries. Very few botanists visit this area, normally heading for the famous cliff vegetation of the Seven Sisters. Parts of this site support high concentrations of *Sorbus* specimens, with six species confirmed in November 2012. There are large numbers of *S. aria*, which displays a broad range of leaf morphology. I noted that many of the trees identified as *S. aria* on this site had leaves that were heavily tomentose and with particularly prominent lobes. These trees acquired the working name of 'Miner's Rest clone'. During 2013 a second set of leaf material that showed consistent morphological similarities in a number of trees located in the Miner's Rest Reserve was sent to Kew Gardens for flow cytometry analysis, and it was also found to be triploid. I subsequently named it as a new species,

Sorbus herefordensis (Herefordshire Whitebeam) as suggested by Tim Rich (see inside Back Cover.

From the confirmation of these findings, I undertook a systematic search, initially of the Miner's Rest Reserve, and then fanning out to cover surrounding land and habitats. What became evident was that there are a lot of trees of this new species: to date 118 trees have been located. They grow and compete with forest height trees. They have a history of coppicing and have regenerated, possibly for centuries. Young saplings showed that the tree is fertile and it was also spreading into derelict pasture.

It is now known to be a high forest species that occurs in high densities on the central dome of Miner's Rest Reserve and adjacent Woodside Reserve. Its frequency reduces towards the Lords Wood scarp, east of Dropping Wells.

Sorbus eminentiformis
This is an open high forest species. Its distribution lies behind the eastern end of the Seven Sisters, with populations in the Pits area of Lords Wood and along the north-west disused quarries, with outliers on the central dome. Its population size as of December 2014 was 54 trees.

Sorbus saxicola
This occurs on open aspect cliffs. Its distribution is mainly on Seven Sisters, Car Park Quarry and King Arthur's Cave scarp. The quarry adjacent to the car park on the top of the Doward produced a large number of this species, many of them saplings. This increased the known world population from 17 to 40 as of December 2014.

***Sorbus* ×*decipiens* (*S.* ×*tomentella*)**
This is a high forest tree that occurs behind the Dropping Wells scarp in Lords Wood and behind the Seven Sisters (one young specimen here). This tree is the largest *Sorbus* on the Doward. The hybrid vigour shown by this species has produced a number of spectacular specimens. Its population size as of December 2014 is nine trees.

Other *Sorbus* species on The Doward
During the surveys for the above species, I also noted the occurrence of other *Sorbus* species.

Sorbus anglica
This is usually a small bush growing out of a sheer rock face and occurs in very few places, only on the two cliff faces of the Great Doward and one small tree on Little Doward.

Sorbus aria
This is the commonest species, with vary variable shape and toothing to the leaves.

Sorbus aucuparia
This is frequent in suitable areas, limited to the central acidic area of rocks, occurring in the Woodland/heath of Lords Wood and the Gritstone of the Little Doward.

Sorbus eminens
This occurs sparingly on cliff faces and tops on both Dowards. A very large specimen was confirmed in 2012 in the Woodside Herefordshire Wildlife Trust reserve.

***Sorbus evansii* (Evans' Whitebeam)**
This is a cliff edge and open woodland fringe species. It is most common on the Seven Sisters and Car Park Quarry. This was found by the Monmouthshire botanist T.G. Evans, who showed it on a BSBI field meeting in 1983. Flow cytometry showed this clone to be a triploid and it was named after Trevor Evans in 2014.

Sorbus porrigentiformis
This is very localised on rocky faces, frequent on the central section of Seven Sisters. It was recorded during the 2002 study from cliff faces on Dropping Wells.

Sorbus rupicola
This is a small bush on sheer rock faces, occurring only on Great Doward. Four small specimens have been recorded on Seven Sisters, and there is one standard tree on the boundary of Miner's Rest Reserve.

Sorbus torminalis
This is a high forest tree, occurring in very large numbers in some parts of Lords Wood, frequent throughout the cliff top woodlands, even existing as a cliff edge shrub.

Sorbus* ×*thuringiaca
This is represented by a single small tree on a cliff face on Dropping Wells. It did not seem to be thriving at the time of writing.

Assessment
The detailed data on the five studied species shows some overlap of species location, but strongly indicates distinct geographical centres for the majority of the species studied. Habitat preferences are also evident.

The overall total *Sorbus* species on the Great Doward is 14, which makes this location the second most important site for this group in the British Isles. The site holds seven endemic species: both *S. greenii* and *S. herefordensis* occur nowhere else in the world; whilst *S. evansii*, *S. saxicola* and *S. eminentiformis* have the majority of their world populations here; *S. eminens* and *S. porrigentiformis* occur in a number of locations in England and Wales.

Ongoing work
A number of other clones have been identified as occurring within the Great Doward. Some of these exist as a single tree and others have discrete populations limited to one outcrop or along a section of cliff. Details of these are not set out here, as more work is being undertaken, especially detailed surveys of the various level of cliff and scree encompassing the two cliff systems on the Great Doward. I have a lot of records already and hope to add unnamed and under recorded species to the data base and distribution maps. The appropriate conservation bodies are aware of these new data and are in the process of re-writing their management plans to allow this nationally important group of species to perpetuate themselves.

During 2012/13 I noted and located seven trees that appeared to correspond with the recent description of *Sorbus parviloba* (Ship Rock Whitebeam). Previously, just eight trees were known, all from Coldwell Rocks, Wye Valley, Gloucestershire. The trees I looked at are scattered around and above a combe that lies between two rock outcrops of the Seven Sisters, and above a track that leads down to Symonds Yat East. Material sent to Rich in 2013 was confirmed on a visual basis as *S. parviloba*. He forwarded samples of leaves to Kew Gardens for flow cytometry tests. Although specimens I had collected appeared visually identical, the test results showed that some material was triploid and some tetraploid. Rich visited the site in September 2013 and, on collecting fruit and more leaves, was concerned that the Doward specimens showed some differences in morphology from the Coldwell Rocks population. My ongoing survey work has produced a further five trees. The population on the Doward contains trees of differing ages, some of which have produced fruit. Subject to further study, this population, may turn out to be a Doward form of *S parviloba*, or possibly a separate, as yet unnamed, species of *Sorbus*.

Acknowledgements:
During 2012 Doug Lloyd of Herefordshire Wildlife Trust had contacted Tim Rich, asking if he could visit a number of the Trust's reserves on the Great Doward to identify the *Sorbus* species. During that day, which I attended, Doug was convinced that tagging all the *Sorbus* trees in HWT reserves was a good thing to do and this helped me in my mapping task. Doug's subsequent records have led me to some interesting locations.

I would like to thank Tim Rich, as BSBI *Sorbus* referee, for acting as my mentor, putting up with so many specimens of *Sorbus aria* until I could see the differences and for reviewing and commenting on the text of this article. I would also like to thank Alan Foulds of Natural England, whose perseverance with converting my data into usable maps was very much appreciated.

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'Digitised' herbaria – where past and present meet ?

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The article from Richard Bateman: 'Money talks: developing egalitarian 'citizen science' frameworks in the 21st century' (*BSBI News*, **129**: 68-69) struck a chord with me.

For nearly five years I have been associated with the herbarium@home digitisation project, working on the British Isles section of the Hume herbarium at the South London Botanical Institute, at Tulse Hill, in London. I must stress that the project is a joint effort, with a team of people, all working voluntarily. Our input has been in the preparation of digital images, working through the flowering plant material collected over the past two centuries, including material from every vice-county in Britain and Ireland. Our collection is an amalgamation of many contributory herbaria- a significant number having been donated or bequeathed by botanists of note who collected well before the time of the Institute's foundation.

Through the good offices of the BSBI, who loaned photographic equipment, we have made good progress with the imaging of the entire collection. With initial guidance and continued assistance from Tom Humphrey, BSBI Database Officer, and using the Herbaria@home crowd-sourcing (but moderated) 'citizen science' model, a large proportion of these images and their associated data have been made available for public access on the http://herbariaunited.org/ website. Our own input sits alongside that from many other contributing institutions, small and large, in an imaginative and exciting way.

As a relative late-comer to the world of digitisation and the web, it would seem to me that the cost of data handling and securing permanence of the assembled data, must be taken into account when any such venture is undertaken. Making stored information available to the public in this way requires both specialist technical skills and computer hardware. These do not come free.

One way to recover the unavoidable costs would be for a charge to be made for access to the final data (that on the HerbariaUnited website) through a registration scheme requiring a subscription. Any subscription would probably need to be on a sliding scale, rising from that for individuals, through charitable organisations, libraries and academic institutions, to *e.g.* commercial agencies. Whether a charge could readily be tailored to reflect level of usage of the website I am not in a position to say. Such a scheme would need oversight, but bureaucracy would need to be minimised. The accessibility, for record keeping, study and research, of significant parts of Britain's botanical heritage is at stake.

Since its foundation the BSBI has excelled at the bringing together of amateurs and professionals in their field. It would appear that there is still some way to go before responsibility and financial realism take hold regarding the safeguarding and future maintenance of data from herbarium collections in this digital age. Are the necessary skills and the commitment required for such a task available within our membership?

Runnymede - a botanical perspective

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Introduction

In this year of the 800th anniversary of the sealing of Magna Carta, I thought it appropriate to consider Runnymede from a botanist's viewpoint as the site has much to offer us. Modern day Runnymede might be described as that area owned by the National Trust on the south side of the River Thames, plus the small area associated with the Kennedy Memorial, now American soil. However, in ancient times it would probably have stretched further upstream towards Windsor and also further downstream on what is now private land, roundabouts and the M25. Runnymede is tucked into the north-west corner of Surrey (v.c.17), not far from the boundary with Berkshire (v.c.22), and with the Thames forming the northern boundary for the most part of v.c.17. The site covers 122.39 ha with a central grid reference of TQ002721. A hectad boundary runs N – S through the site, which covers seven monads. Such niceties did not concern earlier botanists and consequently it is not always possible to assign their records precisely to specific squares. Runnymede is one of our iconic sites, covering as it does a range of grasslands, a series of ponds, woodland, hedges and the banks of the Thames itself. It rivals many others for its abundance of taxa and rarities. This is despite the popularity of the riverside and the Magna Carta and Kennedy Memorials and the ever present road and aircraft noise. The busy A308 now divides the meadows from the riverside. The extent of the Runnymede holding is defined by a pair of kiosks at the east end and a pair of lodges to the west, both designed by Edwin Lutyens (see map, Colour Section, Plate 1).

History

What would it be like to go back to Runnymede in 1215? Would it be a reedy, rushy place with lush damp meadows by a meandering river lined with willows, backed by the woods and fields of the more acid slopes to the south? Across the river was Ankerwyke Priory, founded near the ancient Yew of that name. Quite why the flat grasslands of Runnymede were chosen for the sealing of such an important document, the Magna Carta, can be left to historians, but it must have been a special place even then. One suggested explanation of the name is its being a compound of ME 'runinge', an island or taking counsel, and maed, a meadow. The name suggests that the mead had been the scene of earlier unrecorded assemblies from which it had already earned this significant description. That seat of authority, Windsor Castle, is, after all, just a short distance north.

The whole site has a long and complex history, changing from a braided river system with many eyots, small islands, and swampy woodland to the highly managed landscape of today. Runnymede and Ankerwyke would have been part of the same system. The whole area was used in Neolithic and Bronze Age times through to the medieval period, with much river trade. Gradually the woodland would have been cleared to form grassy eyots with a southern branch of the river along the foot of the sloping ground to the south. It is thought that Magna Carta was sealed on one of these islands, now a meadow in the east of the site. Gradually the grassland developed into flood meadows managed on the Lammas system, with strips in different ownerships. Seasonal flooding would have helped to sustain the fertility and this continued until at least 1817. A map of 1604 shows the southern branch of the river still connected to the main river, but by the 19th century at least all that remained of this was a ditch system and a series of ponds. The main river was kept in control by wooden revetments in the 19th century.

Egham Races were held on a course around two of the present day eastern meadows from 1734 until 1884, on land included in the

Egham Enclosure Act of 1814, which stated that the "land should remain at all times hereafter open and unenclosed". Even today this area is unfenced, with consequences for its management. Parts of the current meadows were in arable cultivation in the 18th and 19th centuries. Whilst it is not known how continuous this type of management was, some of the fields were under the plough as part of Langham Farm until 1952. The meadows and riverside were bought to protect them from development in the 1920s and given to the National Trust in 1931 by Lady Fairhaven.

The sloping ground of Cooper's Hill had a rather different history, being at one time part of the then vast hunting ground of Windsor Forest. After this link was severed, probably in the 17th century, part of the hillside was divided into small fields. Some of these remain, others have become wooded. Clay for brick making was dug from the slopes, evidence for this being in an old field name 'Brickground' and the presence of small depressions, former pits. 110 acres of the hillside were given to the Trust in 1963. Red Kites are now seen regularly over the meadows, a reminder of former times.

Geology and geomorphology

The flat meadows and riverside lie over the London Clay Formation, with superficial Quaternary deposits of alluvial clay, silt, sand and gravel. The soils lying over these are mainly calcareous clays. A ditch marks the boundary between these flat meadows and the north-facing slopes to the south-west. The more acidic ground of Cooper's Hill Slopes is part of a river terrace deposit of slowly permeable, seasonally water-logged fine loam over clays. The meadows are about 16m AOD, whilst the slopes rise to *c*.90m AOD.

Site status

29.5ha of the site, including the ponds and their immediately surrounding grassland plus the wooded slopes to the south-west, was notified as Langham Pond SSSI in 1986. The remainder of the site has been selected as two Sites of Nature Conservation Interest: the grasslands and the riversides.

Species recorded

To date, at least 425 taxa have been recorded at Runnymede. Of these, rather less than half are Surrey axiophytes. The species of conservation importance that still occur at Runnymede or have been recently recorded are as follows: using the GB Red List 2005, there is one species in the Endangered category, 3 in the Vulnerable and one in the Near Threatened category. Following publication of the England Red List in 2014, the situation is now one species classified as Endangered, seven as Vulnerable and six Near Threatened. In addition, two Rare and nineteen Scarce species are to be included in the Surrey Rare Plant Register.

Habitats

Ponds

Although called Langham Pond SSSI, there are now three linked ponds with a fourth pond much further east. Originating as an ox-bow, these three ponds would once have been one long pond and before that, they would have been part of a flowing river. The most westerly pond, Top Pond, is now becoming overgrown, especially with *Salix cinerea* ssp. *oleifolia* (Rusty Willow) and *Glyceria maxima* (Reed Sweet-grass). *Persicaria mitis* (Tasteless Water-pepper) and/or *Persicaria minor* (Small Water-pepper) used to occur here but have not been seen for a few years. The marshy area between this and the main Long Pond supports *Mentha aquatica* (Water Mint), *Mentha arvensis* (Corn Mint) and their hybrid *Mentha ×verticillata* (Whorled Mint). The small pond to the south-east is currently shaded by willows and is rather silty. In the open area to the south *Alopecurus geniculatus* (Marsh Foxtail) can be seen and nearby its hybrid with *Alopecurus pratensis* (Meadow Foxtail), *Alopecurus ×brachystylus* can occasionally be found.

The pond with the main botanical interest is Long Pond, the pond people envisage when referring to Langham Pond. For the most part the south-west side is unfenced and so open to grazing by cattle. This allows the low-growing species, such as *Alopecurus aequalis* (Orange Foxtail) and *Apium inundatum* (Lesser Marsh-

wort) to survive in spite of *Crassula helmsii* (New Zealand Pigmyweed) enjoying the same conditions. The north-east side is fenced to allow vegetation such as *Glyceria maxima* and *Salix cinerea* ssp. *oleifolia* to grow thick as cover for nesting birds. Other marginal vegetation in the open area includes *Eleocharis palustris* (Common Spike-rush), *Carex otrubae* (False Fox-sedge), *Oenanthe aquatica* (Fine-leaved Water-dropwort), *Oenanthe fistulosa* (Tubular Water-dropwort), *Rorippa amphibia* (Great Yellow-cress), *Rorippa palustris* (Marsh Yellow-cress) and *Veronica scutellata* (Marsh Speedwell).

The open water provides a habitat for species such as *Alisma lanceolatum* (Narrow-leaved Water-plantain), *Alisma plantago-aquatica* (Water-plantain), *Butomus umbellatus* (Flowering-rush), *Ceratophyllum demersum* (Rigid Hornwort), *Hydrocharis morsus-ranae* (Frogbit), *Nymphaea alba* (White Water-lily), *Potamogeton pusillus* (Lesser Pondweed), *Potamogeton trichoides* (Hairlike Pondweed), *Ranunculus trichophyllus* (Thread-leaved Water-crowfoot) and *Sagittaria sagittifolia* (Arrowhead). Four duckweeds are noted in the SSSI citation: *Lemna gibba* (Fat Duckweed), *Lemna minor* (Common Duckweed), *Lemna trisulca* (Ivy-leaved Duckweed) and *Spirodela polyrhiza* (Greater Duckweed). The latter has not been seen for many years, but *Lemna minuta* (Least Duckweed) now occurs. In some years the pond has been red with the non-native *Azolla filiculoides* (Water Fern) but this has hopefully been successfully treated.

The north-east side of Long Pond is where the iconic species *Sium latifolium* (Greater Water-parsnip) occurs at its only site in Surrey. The main area was the ditch on the north side of Long Pond but this has now also become overgrown. Fortunately the *Sium* has migrated to the pond edge, where it is closely monitored by the NationalTrust. In recent years numbers have rarely been more than 20. Also having migrated away from the ditch is *Juncus compressus* (Round-fruited Rush), this time to west of the ditch, where cattle are allowed access to a small area of the pond for water. Open poached ground has created just the right conditions. Nearby, where cattle reach over the fence to eat the highly palatable *Glyceria maxima, Stellaria palustris* (Marsh Stitchwort) has emerged from the formerly dense vegetation.

Around and between the ponds in places are dense stands of vegetation which may represent stands of more original vegetation. Prominent species here are *Phragmites australis* (Common Reed), *Phalaris arundinacea* (Reed Canary-grass), *Bidens tripartita* (Trifid Bur-marigold), *Carex acuta* (Slender Tufted-sedge) and *C. disticha* (Brown Sedge), both the latter scarce in Surrey. *Carex riparia* (Greater Pond-sedge) and *C. acutiformis* (Lesser Pond-sedge) are locally abundant, as are *Filipendula ulmaria* (Meadowsweet), *Juncus articulatus* (Jointed Rush), *Lysimachia vulgaris* (Yellow Loosestrife), *Thalictrum flavum* (Common Meadow-rue), also scarce in Surrey, with occasional *Galium palustre* ssp. *elongatum* (Great Marsh-bedstraw) and *Stellaria palustris*. Would there have been much more of this type of vegetation and was it this or just what he imagined when Rudyard Kipling wrote his poem '*The Reeds of Runnymede"*?

Tucked away in the south corner of the site is the fourth pond, shown on an OS map of 1872 as a fish pond. Now it has dense stands of *Typha latifolia* (Bulrush), *Rumex hydrolapathum* (Water Dock), *Epilobium hirsutum* (Great Willowherb) and occasional *Carex otrubae* and *C. riparia*, but in the 1950s it supported *Butomus umbellatus* and *Sium latifolium*.

Grasslands

The flat meadows are, despite their varied history, essentially relic flood meadows. They still support an interesting range of species characteristic of the few remaining Thames valley grasslands in Surrey. This is in part due to the neutral to slightly alkaline soils. Grasses recorded include *Alopecurus pratensis*, *Avenula pratensis* (Meadow Oat-grass), *Avenula pubescens* (Downy Oat-grass), *Briza media* (Quaking-grass), *Bromopsis erecta* (Upright Brome), *Bromus commutatus* (Meadow Brome), *Bromus racemosus*

(Smooth Brome), *Hordeum secalinum* (Meadow Barley), *Schedonorus pratensis* (Meadow Fescue) and rarely the hybrid ×*Schedolium loliaceum* (*Schedonorus pratensis* × *Lolium perenne*). *Carex flacca* (Glaucous Sedge) is scattered. Prominent forbs include *Crepis biennis* (Rough Hawk's-beard), *Filipendula vulgaris* (Dropwort), *Galium verum* (Lady's Bedstraw), *Geranium pratense* (Meadow Crane's-bill), *Knautia arvensis* (Field Scabious), *Leontodon hispidus* (Rough Hawkbit), *Leucanthemum vulgare* (Oxeye Daisy), *Lotus corniculatus* (Common Bird's-foot-trefoil), *Pimpinella saxifraga* (Burnet-saxifrage), *Poterium sanguisorba* (Salad Burnet), *Rhinanthus minor* (Yellow-rattle) and patches of *Trifolium fragiferum* (Strawberry Clover). *Silaum silaus* (Pepper-saxifrage) appears confined to the large meadow to the east, where *Poterium sanguisorba* ssp. *balearicum* (Fodder Burnet) is frequent. This is perhaps from introduced seed, as is *Onobrychis viciifolia* (Sainfoin) in the adjacent field.

One of the best of the meadows is the small one immediately to the north-east of Long Pond. It was here in 2005 that Michael Keith-Lucas discovered *Carex filiformis* (Downy fruited Sedge). It is interesting that such a well-botanised site should yield such an important species as this so recently. Up until then, the only existing site for this sedge in Surrey was a few miles away at Thorpe in a similar hay meadow.

The larger meadows have had a mixed history. At least one, Great Meadow, has been re-sown after being used as arable. Another is often grazed quite hard during most of the year whilst others are kept for hay with aftermath grazing. The large meadow to the east is cut for hay but is not grazed. Sussex Red cattle graze most of the remainder of the grasslands on a long term farm tenancy agreement.

The sloping grassland of Cooper's Hill Slopes is also grazed by the same cattle and is topped periodically, sometimes too early in the season. Currently these fields are not particularly species rich. *Ophioglossum vulgatum* (Adder's-tongue) used to occur in several places, especially around the wet flushes, but in 2015 only one sterile frond was seen. Typical species include *Anthoxanthum odoratum* (Sweet Vernal-grass), *Agrostis capillaris* (Common Bent), *A. stolonifera* (Creeping Bent), *Cardamine pratensis* (Cuckooflower), *Carex hirta* (Hairy Sedge), *C. leporina* (Oval Sedge), *Cynosurus cristatus* (Crested Dog's-tail), *Festuca rubra* (Red Fescue), *Hypochaeris radicata* (Cat's-ear), *Lotus corniculatus*, *Luzula campestris* (Field Wood-rush), *Lysimachia nummularia* (Creeping-Jenny) and *Stellaria graminea* (Lesser Stitchwort). The mixes of *Potentilla reptans* (Creeping Cinquefoil) and *Potentilla ×mixta* (*P. anglica* × *P. reptans*) always keep botanists occupied. The small area of grassland included as part of the Kennedy Memorial is not grazed and good stands of *Succisa pratensis* (Devil's-bit Scabious) are a feature of this area.

Woodland

Only about half of the woodland on Cooper's Hill Slopes is included in *A revision of the Ancient Woodland Inventory for Surrey*. The remainder appears to have become established on a series of small fields. These were delineated by earth banks, some of which are visible today, with their ancient boundary oaks on them. The mixed history of the woods is indicated by the relatively small number of species regarded as ancient woodland indicator species (AWI) in the south-east of England. Examples include *Acer campestre* (Field Maple), *Anemone nemorosa* (Wood Anemone), *Carex sylvatica* (Wood-sedge), *Dryopteris affinis* (Scaly Male-fern), *Hyacinthoides non-scripta* (Bluebell), *Lysimachia nemorum* (Yellow Pimpernel) and *Polystichum setiferum* (Soft Shield-fern). There are some planted exotics, including *Rhododendron ponticum* (Rhododendron), and both *Acer platanoides* (Norway Maple) and *Acer pseudoplatanus* (Sycamore) are scattered throughout. Parts of the ground flora are dominated by *Impatiens parviflora* (Small Balsam), despite the efforts of NT volunteers to remove non-native species. As in the grassland on the slopes, wet flushes occur in the

woodland, occasionally developing into streams. Perhaps the most botanically rewarding area within the woods is a recently cleared wet area below the Commonwealth Air Forces Memorial, where *Ranunculus hederaceus* (Ivy-leaved Crowfoot) was recorded recently. These wooded slopes are included in the SSSI mainly because of their breeding bird interest. Interestingly, the woodland bordering the path to the Kennedy Memorial has a similar number of AWI species as the woodland to the south, even though it is much smaller. Species recorded here included *Iris foetidissima* (Stinking Iris), *Lamiastrum galeobdolon* ssp. *montanum* (Yellow Archangel), *Milium effusum* (Wood Millet), *Moehringia trinervia* (Three-nerved Sandwort) and *Poa nemoralis* (Wood Meadow-grass).

Hedges and trees

There are numerous hedges and hedgerow trees on the site. Not only are they a good habitat in their own right but they do help to separate areas, affording protection for some places and also a sense of discovery when one explores. Many of the hedges are old and some are sinuous, marking the lines of former river channels and drainage ditches. Others are of more recent origin, especially the ones dividing the A308 from the meadows. The older hedges are mainly unmanaged and some of those on the slopes, having no stock-proof function now, are more gap than hedge. The bases of these hedges do provide protection for herbaceous species, such as *Silene dioica* (Red Campion), *Sison amomum* (Stone Parsley), *Stellaria holostea* (Greater Stitchwort) and *Symphytum officinale* (Common Comfrey). The hedges are a mix of *Crataegus monogyna* (Hawthorn), *Cornus sanguinea* (Dogwood), *Corylus avellana* (Hazel), *Prunus spinosa* (Blackthorn), *Rhamnus cathartica* (Buckthorn) and *Sambucus nigra* (Elder). Roses include *Rosa canina* (Dog-rose), *R. obtusifolia* (Round-leaved Dog-rose) and *R. andegavensis* (*R. stylosa* (Short-styled Field-rose) × *R. canina*). Scrambling through all of these are *Bryonia dioica* (White Bryony), *Calystegia sepium* (Hedge Bindweed), *Humulus lupulus* (Hop), *Rubus caesius* (Dewberry), *Rubus fruticosus* agg. (Bramble) and *Tamus communis* (Black Bryony). More rarely and nearer the river *Cuscuta europaea* (Greater Dodder) has long been a feature.

There are numerous hedgerow trees, such as *Acer campestre*, *Fraxinus excelsior* (Ash) and *Quercus robur* (Pedunculate Oak). There are many willows recorded, including *Salix alba* (White Willow), *S. caprea* (Goat Willow), *S. cinerea* ssp. *oleifolia*, *S. viminalis* (Osier), *S.* ×*holosericea* (*S. cinerea* × *viminalis*), *S.* ×*fragilis* (Crack Willow) vars. '*furcata*' and '*russelliana*' and nothovar. *basfordiana* f. *basfordiana*. Some of these trees were pollarded in the past.

Thames riverside

There is a narrow strip of land between the river and the Egham to Windsor road, A308. Some of this is mown amenity grassland and parking. The remainder is either true riparian vegetation or occasionally mown grassland. The river edge is a mixture of hard and soft edges, with the latter supporting most of the flora. Typical woody species include *Alnus glutinosa* (Alder), *Clematis vitalba* (Traveller's-joy), *Cornus sanguinea*, *Crataegus monogyna*, *Euonymus europaeus* (Spindle), *Fraxinus excelsior*, *Prunus spinosa* (Blackthorn), *Rubus caesius* and *Salix* ×*fragilis*. Bunches of *Viscum album* (Mistletoe) grow on Hawthorn hanging out over the water. Forbs clinging on here include *Barbarea vulgaris* (Winter-cress), *Carduus crispus* (Welted Thistle), *Hypericum tetrapterum* (Square stalked St John's-wort), *Lycopus europaeus* (Gypsywort), *Persicaria amphibia* (Amphibious Bistort), *Lythrum salicaria* (Purple-loosestrife) and *Symphytum officinale*. There are also vigorous stands of *Dipsacus fullonum* (Wild Teasel), *Helminthotheca echioides* (Bristly Oxtongue) and other ruderals. Patches of *Trifolium fragiferum* are a feature here, at the edge of the grassy path, as they are lining the drive to the South Lodge car park and elsewhere in the meadows. The river itself supports occasional patches of *Nuphar lutea* (Yellow Water-lily) and *Sparganium emersum* (Unbranched Bur-reed), but this popular stretch of the river experiences much boat

traffic. Further east, the edges of Runnymede Pleasure Grounds, not National Trust property, are all neat and tidy, with little of interest.

Species lost?

We will never know what was originally at Runnymede, although pollen analyses have shown some species to have been present for a long time. There would have been losses with every change of land use, through mediaeval times to the present day. A browse through Salmon's *Flora of Surrey*, shows a number that were present in the 19th century. These include *Campanula glomerata* (Clustered Bellflower) on Egham Racecourse, *Genista tinctoria* (Dyer's Greenweed) on Cooper's Hill, *Hottonia palustris* (Water-violet) in a pool by the Thames at Runnymede, *Limosella aquatica* (Mudwort) in a ditch between Runnymede and Glanty and *Pedicularis palustris* (Marsh Lousewort), also on the racecourse. It is likely that many species were lost in the 20th century. Those not seen for some time include *Groenlandia densa* (Opposite-leaved Pondweed), *Myriophyllum verticillatum* (Whorled Water-milfoil), *Potamogeton pectinatus* (Fennel Pondweed), *Schoenoplectus lacustris* (Common Club-rush) and *Utricularia vulgaris* (Greater Bladderwort). One can also speculate what may have been there but not recorded. There have been gains, both archaeophytes and neophytes. Whatever we have lost, it is important to recognize what we still have. By recording, we help to conserve this precious habitat. Thank goodness the area was not bought by a developer in the 1920s or dug for gravel, the fates of many good sites further downstream.

Access

The area is open at all times. There are car parks and a tea room by the lodges, in the north-west corner of the site, and Egham station is fairly close, as is the M25.

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Higher Education and the future of field biology skills: too much gloom?

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It may be that Ashton *et al*. (2015) are too gloomy in their assessment of the state of field biology and identification skills in UK higher education. Shreeve & Riddoch (2015) also draw attention to widespread concern over the loss of field skills and especially identification skills, but challenge the view of Ashton *et al*. that less than ten new graduates per year throughout the UK are sufficiently proficient in field identification skills to be employable. They point out that more than ten appropriately qualified students graduate each year from Oxford Brookes University alone. Perhaps Ashton *et al*. are using hyperbole to make the point that few graduates are likely to bring to their immediate post-university employment a detailed taxonomic knowledge of difficult groups. Our view is that if employers require highly specialised skills and knowledge they might be expected to provide appropriate task-specific training, or allow time for skills to be learnt on the job. In truth there are many graduates from UK universities who have the theoretical and practical knowledge and enthusiasm to allow them to develop specialised identification skills and apply these in an ecological context.

The concerns of Ashton *et al*. are supported by a number of authors who have perceived a decline in biological fieldwork in UK universities and schools (*e.g*. Barker, Slingsby & Tilling, 2002; Smith, 2004). More recently, however, renewed interest in the prominence of field studies in the curricula of both schools and universities has demonstrated that the decline has at least halted and perhaps in some areas reversed (*e.g.* O'Donnell, Morris & Wilson, 2006; Maw, Mauchline & Park, 2011).

The criticism by Ashton *et al*. of the state of field-studies learning and teaching in UK higher education is swingeing. They express the view that field studies are undervalued and regarded as being too simple and that the associated skills of recognising, identifying and naming organisms are relegated to the lowest level of cognitive skills and are excluded from university courses. It is, however, easy to find evidence to the contrary. Today's UK degree programmes are modular. Students undertake a number of modules, some being compulsory and some optional. It is common to find modules in organism diversity, through which students are exposed to the key anatomical features that are used to define/describe taxa and which underpin species identification. These modules typically involve first hand observation of curated or recently collected specimens in a laboratory setting, and often involve students in the construction of simple taxonomic keys.

It is also common to find individual modules that consist of biological field studies or a field course. Such modules tend to be compulsory for students following environmental/ecological programmes and optional for those following more general biological programmes. Each module is described by a module specification. This is a technical document written using a template that provides information about the content and intended outcomes of the module. These module specifications, unlike more glossy descriptions of programmes, can be difficult to unearth on university websites and sometimes access is restricted. Nevertheless, less than two hours searching of somewhat randomly chosen UK university websites yielded a sample of module specifications for field based modules at diverse levels of study that specifically referred to the identification of plants and/or animals. Modules, for example, offered by the Universities of Birmingham, Durham, Edinburgh Napier, Essex, Hull, Leeds, Leicester, Newcastle, Nottingham and Sheffield – we suspect a far from complete list.

Furthermore, half of these specifically refer to the use of taxonomic keys.

From the evidence of the module specifications referred to above and from experience at Hull University of teaching field courses and designing programmes and modules with field content, we conclude that it is usual for students participating in biological field courses to learn identification skills and to apply these to ecological interpretation. This applies at all levels of study, from pre-certificate (roughly A-level equivalent) to final-year undergraduate. By way of illustration, our pre-certificate level students enjoyed learning to identify forest trees and ground flora and were able to apply that knowledge to field projects (Goulder & Scott, 2009); while final-year students, although they had little prior experience of traditional botany, became competent in identification, recording and the recognition of communities of heathland plants and were able to go on to use this knowledge to undertake complex ecological projects (Goulder & Scott, 2006). Moreover, another point in favour of biological field studies in UK universities is that they are enjoyable for the students. Most students appreciate field work and would rather do field work than attend lectures. They are not necessarily put off by bad weather and they believe that fieldwork teaches them valuable skills (Goulder, Scott & Scott, 2013).

Ashton *et al*. also hold schools to be guilty. They believe that, from primary school onwards, the trivialities of the nature table lead to a dismissive message about identification skills that is reinforced throughout later schooling. It is true that school teachers face many constraints that may hinder them in enabling children to learn about the organisms in their environment: for example lack of experience; lack of physical and timetable space; limited support from managers; the pressures of national testing and inspection (Scott *et al*., 2014). With a little support, however, these can be overcome. One of us (GWS) has worked with primary school children and shown that, with very little practical help, teachers and their charges can be encouraged to work together to develop their own field-based plant and animal identification skills (Scott & Boyd, 2014). To argue that the nature table is trivial is perhaps to underestimate the significance of a child-centred process of individual discovery that, if appropriately nurtured, might very well be the first step on a road towards a life long interest in the cataloguing of diversity in either an amateur or professional capacity.

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Saving field biology skills from extinction: a further comment

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Much as I support the sentiments behind the letter to the *Times Higher Education Supplement*, reprinted in *BSBI News*, **129**: 6-7, dare I suggest that it is missing the point? There are intellectual and practical reasons in support of the acquisition of field identification skills, but to cite them as the primary justification for such skills falls neatly into Benjamin Bloom's own trap.

Surely, the real point is that the identification of plants is fascinating, life-enhancing, even addictive, and like many other complex and testing disciplines (classical music, drama, the history of art, archaeology, astronomy, geology, you name it) is worthwhile in its own right as something that adds to one's quality of life?

As someone who attempted to teach field identification skills in universities over four decades, I am convinced that it is not an academic discipline and as such not really suitable material for a university syllabus. University courses are conceptual and deal with theories and ideas, not with practical skills. It is possible to offer an excellent course on the theoretical and historical basis of plant taxonomy and classification, but the only way to encourage students to learn the correct names of plants is to get them to do it themselves.

Students can be provided with an environment which gives them reasons to learn plant names (ecological survey/quadratting, local floristics, collection projects, distributional mapping, even WFS diaries (!)). Given gentle initial support in regard to technical vocabulary and suitable identification guides, young people learn plants amazingly rapidly (to an oldie!). The problem is to get them to maintain their initial interest and sense of achievement.

This indeed is the crux of the issue. The younger generation is bombarded with so many competing calls on their spare time and interests. It is easy to blame social media, but Facebook or Twitter can be excellent ways to disseminate one's botanical activities or discoveries (illustrated!). There are great identification apps and software downloads that can be used in the field.

Rather, the problem seems to be that exposure to so many media has tended to dilute the intellectual stamina of the younger generation. They become interested in plants easily, and learn them readily, but then they find that there are an awful lot of them, and telling many apart from one another is far from easy. Really worthwhile accomplishments are acquired with difficulty, and this is just too much bother. Let's not blame universities, but rather the pace of modern life.

I suspect and hope that today's youth will become much more interested in field skills as they age, just as the last generation did. Sadly, they will find plants harder to learn the older they get!

Mibora minima in the north-west of Scotland, on Baleshare Island, North Uist (v.c.110)

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In the course of tetrad recording for a new flora of the Outer Hebrides, PAS has made efforts to visit many habitats at different times of year. Spurred on by the prospect of interesting *Taraxacum* (dandelions), this has led to several early season visits in recent years, and this year a group of botanists visited North Uist in early May. On one excursion to the north end of Baleshare on 8th May to look at the *Taraxacum* on the dunes (PAS with Oli Pescott and Alison Wilson), there was an additional objective, to locate *Cerastium semidecandrum* (Little Mouse-ear), for which there are several records in v.c.110, but which needed confirmation and localisation. Oli's sharp eyes soon found it, standing out as a paler, more upright plant among the *C. diffusum* (Sea Mouse-ear). While Paul was photographing it, Oli continued to examine the community of small annuals, and soon found a tiny grass, immediately under suspicion of being *Mibora minima* (Early Sand-grass), and quite unlike the *Aira praecox* (Early Hair-grass) growing near it. Later examination showed the characteristic hairy lemmas of *Mibora*. Cope & Gray (2009) suggest that the two subspecies described by Ortiz should not be formally upheld, but the Baleshare plants would fall in ssp. *littorea*, with larger, apparently two-rowed spikelets. A specimen (conf. T.A. Cope) will be lodged in **E**.

Mibora minima is an annual species of bare sand, germinating in the autumn and known for flowering very early in the year (often in February on Anglesey), which contributes to its elusiveness. *Mibora* is a rare grass in Britain, found as a native in the Channel Islands, Studland, Gower and Anglesey, and recently on the Sefton coast in Lancashire. There is also a scattering of casual records. It has been known at Weaklaw Rocks in v.c.82 East Lothian as a presumed introduction since 1851 (John, 1999; data from BSBI Distribution database), the only previous Scottish site. It is assessed as Least Concern in the GB red data list (Cheffings & Farrell, 2005), reflecting the stable populations in known sites. It is not included in the Scottish Biodiversity List.

Oli had to return to the south the day afterwards, but some of the second week's participants (PAS, SJB, Mary Inglis and Beth Newman) duly returned to Mol Greannach on 13th May to survey the extent of the population. Even with the GPS showing the exact coordinates, and knowing what we were looking for, it was initially hard to relocate! But, as we gained experience, it became a little easier to spot the plants and the habitat they preferred.

Mibora was mostly in fairly open, stable sandy areas at the top of the taller fixed dunes (*i.e.* on dune ridges, Fig. 3, Colour Section, Plate 3, on the leeward side of a spit maybe 200m across. It seemed to be strongly associated with *Cerastium semidecandrum* and *Saxifraga tridactylites* (Three-fingered Saxifrage), and was not found in the absence of both of these (which served as helpful indicators in the field). It was a component of a community of annuals and mosses, and in a few places there were plants growing rooted in the mosses as well as in bare sand. The habitat was quite specific and distinctive and after a concentrated surveying effort it became quite easy to pick out the areas where *Mibora* would be likely. All the plants were diminutive (Fig. 1, Colour Section, Plate 3), with the largest no more than 3cm tall. Bigger plants formed clumps with many flowering shoots (Fig. 2, Colour Section, Plate 3). This population was counted in some detail, and contained around 1000 plants. However, since *Mibora* is an annual, this may fluctuate according to the suitability of conditions.

Mibora did not grow on the dunes nearest the sea, although these were searched carefully. There was one dune ridge which held a large population of several hundred tiny plants, and this seemed to be the centre of the distribution,

with smaller patches to either side. Altogether there were around 1000 plants in 10 patches that we counted. There were probably other small patches within the habitat that we did not investigate. *Mibora* was present in five 100m grid cells, all in the same monad (NF7663).

Associated species were: *Cerastium semidecandrum* , *C. diffusum*, *Saxifraga tridactylites*, *Erophila glabrescens* (Glabrous Whitlowgrass), *Valerianella locusta* (Common Cornsalad), *Festuca rubra* (Red Fescue), *Galium verum* (Ladies Bedstraw), *Viola tricolor* (Wild Pansy), *Trifolium repens* (White Clover), *Ammophila arenaria* (Marram), *Taraxacum* section *Erythrosperma* (dandelion) and *Plantago coronopus* (Buck's-horn Plantain). The perennials in this list were close by rather than a part of the community containing the *Mibora*.

Some other recording expeditions during our visit were to other areas of sand dunes. Dunes on Berneray in the Sound of Harris were much more vegetated 'grey dunes', with no real bare areas, so clearly not all dune habitats are suitable. SJB, however, returned to the larger, southern end of Baleshare Island, with limited time before catching the ferry on 15th May, and found *Mibora* to be widespread, recording it in 22 further 100m squares, in NF7860 and NF7859 – thus extending the area occupied to a second hectad. The distribution as so far discovered is shown in Fig. 4. 365 plants were counted in this second area, but this is likely to be a very considerable underestimate. A more detailed examination is needed here to see how far the population extends. SJB assesses that *Valerianella locusta* is the most constant associate across these sites. The locality on Baleshare Island is part of the Baleshare & Kirkibost SSSI, so there is already some statutory protection for *Mibora*.

It seems likely that *Mibora* was more detectable in 2015 because the spring was so late, and that it is overlooked in places unless there is a conjunction of late spring and early botanists. Of course it is impossible to know whether it is native here, but it seems unlikely that it would have been deliberately introduced. Baleshare is used mainly for sheep grazing, so it is conceivable that it has come in with movements in livestock, but then it would require a long distance movement from its currently known range. On balance it is perhaps most likely to be native.

Fig. 4: Currently discovered distribution of *Mibora minima* on Baleshare Island, North Uist (v.c.110). Contains O.S. data © Crown copyright and database right (2014)

V.c.110 is endowed with large areas of machair, much of which is formed of dunes. It seems that some really early season visits might be in order to look for *Mibora* elsewhere in this habitat; and of course it would be worth looking anywhere with suitable coastal sandy habitats, as there is a chance that there will be more *Mibora* to find. SJB has already looked on Canna, Eigg, Kilmory (Rum) and Glenbrittle (Skye), the only sandy areas in v.c.104, but says it is not there.

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Hazels continued – additional information

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There are still difficulties around what we call Hazel (*Corylus avellana*), Filbert (*C. maxima*) and any putative hybrid between the two. This year, I have looked at a number of Hazels for their male catkins and female flowers, the latter being of little use. The plants looked at included what I consider to be the native *C. avellana* and previous ones I have seen that are either some form *C. maxima* or (more likely) a form of their putative hybrid. The non-native types (including putative hybrids) might be more frequent than one might expect so we need further differences to help us decide what to record (assuming any of this information is reasonably correct!). One of the problems is in part due to planting and re-introductions in hedgerows *etc*., where the plants used are said to be *C. avellana* but possibly of dubious provenance (all of which spread once established). I have seen these in a number of places where one expects it to be the native that they have planted, but looking at their fruits, it tells me some are not *C. avellana*. Even at the catkin stage it should be possible to tell native from *C. maxima* including putative hybrids.

Whether plants are the native, or the non-native *C. maxima* or some kind of fertile hybrid, they are nearly all fully fertile; I have only seen one 'Filbert' that had a lot of sterile anthers as well as some reasonably good ones – but it also produced abundant fruit (see Marshall, 2015, plate 2, '*C. maxima* – nuts'). It seems the sterility in that case was just an anomaly. If many of the *C. maxima* types are some kind of fertile hybrid producing good fruit it will be near impossible to know what true *C. maxima* looks like. [Interestingly, in addition, a few 'Corkscrew Hazel' catkins looked at suggest they also belonged to the *C. maxima*/hybrid types rather than the native, though all these were from gardens]. The plant illustrated in *BSBI News* **128** (Kay, 2015, plate 2, colour section, and see p. 44) as '*C. avellana* var. g*randis*' is almost certainly not *C. avellana* and is either a form of *C. maxima* or more likely with the larger open bracts, a putative hybrid; catkins would be useful as it would at least show whether it is native or not.

This preliminary look at the flowers of Hazels has shown there are apparent differences at least between what I would consider the native and *C. maxima*/hybrid types. The native has narrow catkins (*c.* ≤ 5mm) with ± mostly quite small anthers (*c.* ≤ 1 mm × 0.5 mm) and the '*C. maxima*/putative hybrid' types have fatter catkins (*c.* 7 mm) and larger anthers (often > 1(-2) mm × ≥ 0.5 mm (remember there are two halves to anthers). It may be useful, if recording from catkins, to call those with the fatter catkins and large anthers "*C. cf. maxima*" for the time being so that it includes both putative *C. maxima* and any putative hybrids; but to indicate whether it is *C. maxima* or a putative hybrid, the nuts/bracts need to be seen, (see below).

Previously, bracts have been used to separate them (Wilcox, 2013; Marshall, 2015). 'Filberts' with large, leafy, completely fused bracts around the nut and partially or ± forming a sleeve over the nut, is a good starting point for *C. maxima*, but cultivars and putative hybrids could 'muddy the waters' so to speak. Given that most plants seem to be fertile, for putative hybrids the intermediate bracts as reported previously (Wilcox, 2013) might go some way to suggesting a hybrid origin. This character could be used to record putative hybrids and it would be useful to see catkins for more difficult plants. The putative hybrids usually have a combination of bracts that are large, leafy (coarsely fimbriate at their apex) and fused on one side and smaller ± overlapping bracts at the base on the other side, though some may be quite mixed or tend toward one or the other parent so more than just a couple need to be seen (Wilcox, 2013).

Here (in Bradford) we have a nice Filbert cultivar (for which I do not have a name) with strong, purplish, leafy bracts (see Colour Section, Plate 4). It is more than likely a *C. maxima* cultivar given the completely fused bracts (but a hybrid cannot be ruled out). It is

definitely not a cultivar of *C. avellana*, and this is additionally borne out by the size of its catkins and anthers. Note that it is very similar in its large leafy bracts (except their colour, and being more enclosed over the nut) to the 'var. *grandis*' of Kay (2015) and is further evidence the latter is not *C. avellana*. I cannot tell if 'var. *grandis*' has fused and or a mix of fused/overlapping bracts from the photo but it is either a form of *C. maxima* or a putative hybrid. The open bracts showing the nut may suggest the latter, but it is very difficult to tell from the photo shown. Therefore, from my preliminary study of the flowers, it seems possible to separate them as *C. avellana* or *C. maxima*/hybrid based on their catkins and anthers. The bracts around the nut are still the most useful indicator of a putative hybrid. Once the catkin/anther type has been established, some difficult plants of *C. maxima* or a putative hybrid, might be better recorded (perhaps) as '*C. cf. maxima*' to include putative hybrids and cultivars. Cultivars which are placed under *C. avellana* may actually be hybrids.

Initially look at catkins, which appear later in the winter and early spring; this must then be coupled with looking at nuts in the autumn or the other way round, making a note of which trees you have looked at. Catkins are best looked at fresh with at least a number of anthers that haven't dehisced properly. It may help to decide what we have in the countryside and urban areas. Often the cultivars and hybrids have large, coarse, scruffy leaves and may look like they are introduced. Don't be fooled by what look like 'native' hedgerows as often these have been reinstated with stock not necessarily from native stock.

Perhaps only a DNA study would help to differentiate between true *C. avellana*, *C. maxima* and the hybrid types, but the main difficulty would be starting with the correct parental material, as some suggest many (if not all) Filberts and Cobs could be hybrids of one form or another.

Acknowledgement:
Tony Marshall is thanked for his help.

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Hordeum marinum in Northamptonshire (v.c.32)

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My drive to Cambridge has changed over the years, with noticeably more traffic, often leading to desperately slow journeys. With a glass-half-full perspective, this does lend the frustrated driver the opportunity to look at the rapid spread inland of a range of now commonplace halophytes, such as *Atriplex littoralis* (Shore Orache), *Cochlearia danica* (Danish Scurvy grass), *Plantago coronopus* (Buck's-horn Plantain), *Puccinellia distans* (Reflexed Saltmarsh-grass) and *Spergularia marina* (Sea Spurrey). On a wondrously traffic-free journey home to Islip one day in mid-June, I spotted a neat-looking *Hordeum* along a *c.*100 metre stretch of verge on the A14 Junction 12 slip-road. Closer inspection revealed abundant *Hordeum marinum* (Sea Barley), growing with *A. littoralis*, *P. distans* and *S. marina*. A flick through the new *Flora of Northamptonshire* (Wilson & Gent, 2014) when I arrived home revealed that this was the second record for the county (v.c.32), just over 100 years since the last casual occurrence. It is certainly nice to have such an attractive grass so close to home, especially as I live about as far from the coast as it is possible to be! The continued spread inland of halophyte species is likely to be evident when the next *Atlas* is published, so why not take the opportunity (when stationary!) to look out of the car window when everyone else is staring into the middle distance and perhaps add a species or two to your local flora.

Sorbus domestica in the Wye Valley

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Following the finding of the Cornish *Sorbus domestica* L. (Service-tree) on hard rock and in partial shade by David Pearman, it was decided to re-examine the areas looked over some years ago with this in mind. Previously, the tree has only been found on horizontal beds of relatively friable Lias Limestone or basal conglomerate of a similar age and in positions in receipt of the full arc of the sun. It was not thought likely to find the tree in either the Avon Gorge or the Wye Valley because they had been intensively studied over some years; nevertheless the lower Wye around Chepstow was examined closely in January. This was because *Sorbus domestica* has very characteristic branching, which is, with familiarity, far more revealing than the tree in full leaf, when the branching is obscured. In addition there was the observation of the Welsh monk Nennius of 830, in a document of the 11th century, which suggested that this tree, said to be the seventh wonder of Britain, must be somewhere in the lower Wye area:

> *Iuxta flumen, quod vocator Guoy, poma inveniuntur super fraxinum in proclivo saltus qui est prope ostio fluminis*

A group of around six trees was found in the Lancaut Nature Reserve (v.c.34) having the correct branching and it was decided to return in May when the flowers emerge to confirm the identity. The trees proved to be *Sorbus domestica,* demonstrating its characteristic features, a silvery '*Sorbus*' style of emerging leaves, but pinnate, and an elongate paniculate inflorescence. Even observing from perhaps 40 metres away the flowers could be seen to be considerably larger, at 16-18mm, than the flowers of Rowan (*S. aucuparia*). The habitat is a high west-facing, horizontally-bedded Carboniferous Limestone cliff. Deposits of this rock are usually tipped over in Wales and elsewhere at lower altitude and it was decided that this horizontal layer echoed the formation of Lias Limestone, allowing the tree to sucker and continue to endure over a long period. Nennius's observation is confirmed in fairly precise details.

The two main apparent populations are at Porthkerry, 60+ trees, smaller plants and low suckering plants, spread over 250m, and Fontygary, about 10, with an equal range, over 120m, both being south-facing cliffs. In researching the place-names at these sites a critical source is available, dating from 1968. It pre-dates the apparent knowledge of the trees. The 34 forms of Porthkerry dating from 1254, are discussed and the meaning of the first element is clear, it is Latin *Portus,* giving Welsh *porth*, inlet or creek. The second element *Ceri* has been 'the object of considerable speculation', and 'it has been suggested that this element is the W[elsh] saint's name *Curig*, and it would appear that several of the forms listed which are dated after *c.* 1566 have been inspired by this interpretation and, and possibly, formed deliberately to conform with it. The earlier forms evidenced do not seem to bear this out' (Pearce, 1968). In a partial Latin/Welsh/English dictionary of 1592 occurs the name as '*Ceri, cerien, servis, sorbum, Pren Ceri*' (*Geriadur Prifysgol Cymru*, p.467), and the name also occurs in the *Cad Goddeu*, the 'Battle of Trees', a 14th century manuscript of the Book of Taliesin of an earlier unidentified date, in which the Britons take the forms of trees in battle (Haycock, 1990: 321), a fanciful idea thereby giving a complete listing of early tree names, which in her critical translation of the relevant passage is:

KERI kywrenhin (the strong SERVICE TREE)

Gwrthrychyat gwrthrin (one who anticipates the battle)

This term can apply to two species of tree. There do not seem to be many examples of place-names indicating *Sorbus torminalis* (Wild Service-tree). This species is *Sarff* or *Sarth* in Welsh, clearly derived from Latin,

possibly *via* English. In botanical texts, terms like *Cerddinen folwst* are recent coinages, and can be discounted (Wade, Kay & Ellis, 1994). The only two place-names featuring the former are in Gwent, and therefore close to the border, occurring as '*Penllwynsarth*'. There are several creek-side localities in north Pembrokeshire which do not occur in the place-names, and the tree does not seem to have been generally worthy of note.

It should be noted that the word *Ceri* has an entirely different origin from the river and personal name *Ceri*, from *Caru*, to love. In fact it is of considerable age, being used in the Irish and Welsh names for the Rowan, *Caorthan* and *Cerddin*, which have *Caora* and *Ceri* as a first element (M. Haycock, pers. comm.). It is not now possible to be certain of the meaning of the second element, but it is possibly a diminutive. The word also occurs at Fontygary (+ mutation) and therefore can hardly be discounted, as the two places having this name are the only localities of *Sorbus domestica* having Welsh names. At Porth kerry there is a distinct population, differing from all others, in its wide, coarsely serrated leaflets and round fruit (maliform). This distinction is identical over 250m of cliff, which is therefore derived from suckering across this considerable distance from a single source, a feature which, in the case of an extremely slow growing tree, would have taken considerably longer than the <2000 years estimated for an introduction by the Romans, as has been put forward by professionals. There is also the concern that an introduction would have included a Latin derived name, as is usual in these cases, whereas instead we have a wholly native name. For these reasons the introduction of the species must be a mistake. There is much evidence from French, which preserves Celtic names in archaic form, that there was a cognate form on the Continent, until supplanted by Latin. That material is beyond the scope of the present brief outline.

It seems likely that, although only known to science relatively recently, there must have been knowledge of the trees a considerable time ago, possibly as far back as the middle of the first Millennium. It is noted that there was a considerable knowledge of trees, and the natural world generally, among the Celtic peoples. Evidently the trees were considered important enough for commemoration in the place-names at these two sites. In addition there are other mentions in the Book of Taliesin, possibly pertaining to the fruit of this tree, but the preservation of this and other medieval books is, for the most part, Christian.

The place-name at Lancaut was researched. Although west of Offa's Dyke, but on the English bank of the river Wye, the place-name was not included in Welsh texts. Although the region came under English kings in 950, it was formerly Welsh. It occurs as an early record from *c*.700 as *Podum Ceuid* or *Lann Ceuid* (Liber Landavensis), which would seem to be problematic, with the *u* for *r*. This is used throughout the Liber Landavensis to indicate the mutations of a variety of letters, but not usually an r. It is possible the name was already influenced by Saint Cewydd, the obscure saint to whom the area was subsequently dedicated. There is a ruined 12th century church in an odd setting with a full view of the cliff, with little else nearby. It is again possible that an early pagan knowledge of the trees was replaced with a Christian one, as at Porthkerry. The early form of the name at Lancaut possibly indicates an earlier final *d* or *t*, as suggested by the names for Rowan, lost in the later forms at our two sites, but proven to occur elsewhere.

Some five miles away from the new find is the Romano-British town of Caerwent, which remained steadfastly pagan until at least the mid-fourth century (Brewer, 2004). In 1908 a statue of a 'mother goddess' was found in a temple, which was dated to the 2nd or 3rd century AD, the face is deeply Celtic. This bears a pinnate leaf in one hand and a distinctly oval fruit in the other, at a correct scale for *Sorbus domestica*, and held between the breasts (see page 33). This statue was first noted some ten years ago. However, with the finding of the Lancaut site, and the close similarity of the place-name, it now seems rather more likely. Professor Miranda Green has written variously about the statue,

attempting to find an identity, and was not aware of *Sorbus domestica* and its very particular combination of a pinnate leaf and large oval fruit. Her opinion is that the identification with the tree may well be correct. It seems unlikely that the Rowan could be intended, for it is far too frequent and the scale of fruit to leaf is quite wrong. Only in *Sorbus domestica* is a moderately large fruit in combination with a pinnate, rather than an entire leaf. It seems likely that the group of six trees have been re-growing over and over, as observed elsewhere, and represent the identity noted by Nennius and by the craftsman of the 3rd Century mother goddess. There are other similar types of goddesses; however none, including those from the Continent, has anything similar in its grasp. If one were to choose some characteristic of *Sorbus domestica* to show its uniqueness, it would be a leaf and a fruit. The statue is designed for a niche, possibly put up at a small height to represent the position of the actual trees. They would make an interesting trip to see a marvel, with a steep, although accessible climb, as we know that the Celts actually did. Looking closely at the statue it seems as though the mouth is open, indicating speech, or a declamation, such as a goddess might be expected to make (Aldhouse-Green, 2012). Mention should be made of the witch in the Book of Taliesin, variously called *Ceridwen* or *Cerritwen*, *-wen* being female. However, this book, dating from *c.*1400 is unlikely to be correct in details, separated from the mother goddess by over a millennium. Nevertheless, the final *t* or *d* in the earliest place-name and in the names for Rowan is again present.

Lastly there is an identification at Lydney, at the Temple of Nuada, a Celtic god with cognate name forms in Irish and Welsh (Wheeler & Wheeler, 1932). This is close to the easternmost site. The depiction is of a leaf and fruit having greater detail than the Caerwent goddess. Again the scale is such that the identification with *Sorbus domestica* is very likely. An unknown figure carries a basket and an agricultural implement on the same plate. Unfortunately there is only this piece, which is a fragment of a bronze, ornamented in *repoussé*. The site represents periods from before the arrival of the Romans, and continued in use after they had left. However, it represents a depiction of a lesser god at the Temple of Nuada. The main focus does seem to be the Severn Bore, although it should be noted that *Sorbus domestica* is particularly prone to bores, growing low on the river cliffs.

The line of populations along the upper Severn shore from Fontygary to Lydney was clearly known and the peculiar nature of the trees was exploited in a way which suited the times. Perhaps this continued until it became known that there were, in fact, trees of the same characteristics on the Continent, but there is no evidence of this. There has long been sought some characteristic which ties Lydney and Caerwent, and these rare trees provide one. According to the available evidence there was never, during the period of recorded time, any appreciable change of population. It is interesting that the archaeological characters of both Caerwent and Lydney were resolved a long time before the trees were re-discovered. Lastly, there is a trend towards multiple disciplines in science, and this is highly desirable. However, in this case the lack of a Roman name and the presence of a Celtic one of considerable age has not been given sufficient consideration, which is why this brief exploration is given.

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Celtic mother goddess statue from Caerwent (v.c.35). Photo © Newport Museum & Art Gallery
(see p.31)

Pollination of *Platanthera* orchids

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Both the *Platanthera* species, *P. bifolia* (Lesser Butterfly-orchid) and *P. chlorantha* (Greater Butterfly-orchid), found in Britain are widely distributed throughout Europe, extending down to the Mediterranean, and up to northern Scandinavia. There are also pockets in the Middle East and Asia. In Britain they are widespread. *P. bifolia* occurs in 949 out of 2,810 10km squares, whilst *P. chlorantha* occurs in 1,163. The distribution of *P. bifolia* is more westerly and northerly, as witnessed by its greater level of occurrence in Ireland (308 compared to 251 10km squares out of the total of 985) (see Biological Records Centre: *Online atlas of British and Irish flora*). *P. bifolia* is a BAP priority species throughout the UK because of habitat loss.

Molecular studies have shown that *P. bifolia* and *P. chlorantha* are almost indistinguishable (Bateman *et al.,* 2009) even though morphologically there are clear differences (Sexton & McQueen, 2004). Hybridisation between the two species also occurs.

On our one-time three-acre shoreline croft on Skye both orchids are found, and whilst there are some habitat preferences one to the other, there are also areas where they intermingle, and where there appears to be introgression. We have monitored their progress over seven years, with the position of individual flowering spikes marked for identification. Our examination of the root systems of *Platanthera* showed that they are not extensive and the marking of flowering spikes equates to the position of plants and their tubers.

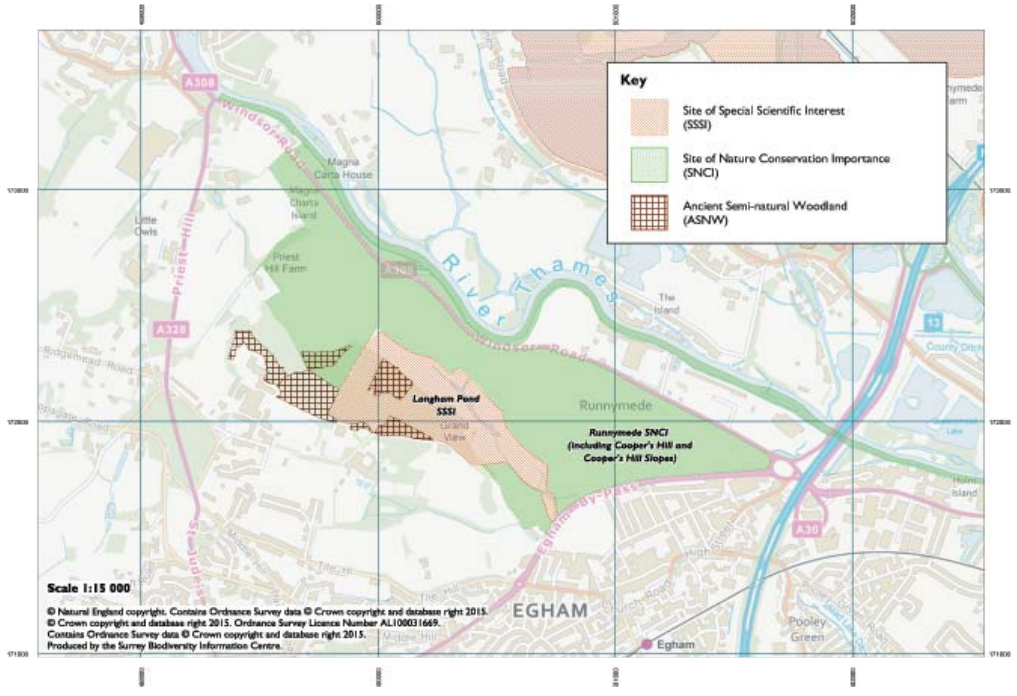
This note concentrates on the efficiency of fruit-set and the mechanism of pollination, comparing the two species, which, because they are growing together, means that macro-environmental variables, such as climate, are taken out of the equation, being the same for both. We were also looking for differences in the pollination mechanisms of the two species.

Fruit-set efficiency

The fruiting efficiency – the proportion of flowers that eventually set fruit – of *Platanthera* species appears to be very variable. It is also not clear that there is consistency between reported studies in the way that data has been reported. Observations of both species in southern Bohemia (Kindlmann & Jersakova, 2006) gave efficiencies of 65-93% for *P. bifolia* and 64-83% for *P. chlorantha*, with significant annual variability. In a rather similar long-term study to our own, in Poland, two isolated populations of *P. bifolia* were monitored and the fruit-set efficiency was reported as around 80-90%, although 60% of these high levels was attributed to autogamy (Brzosko, 2003). Again, the annual variability was significant. In the southern Caucasus, Nosrati *et al*. (2011), in 2 small, separate populations, found that the fruit-set in *P. bifolia* averaged 62.7%, ranging from 45-87%. Nilsson (1978) found for *P. chlorantha* an efficiency of 54.0%.

On Skye, flowering is over by the end of July and by early September the plants have set seed. Post-flowering there can be three outcomes. Firstly, pollination of flowers succeeds and at least some seed-set occurs. Secondly, pollination fails and none of the flowers set seed. Whether pollination is or is not successful, a third outcome is that the spike disappears, either simply by rotting away, or more probably disappears after being chewed off by slugs, or, less often, field voles.

Seed pods were counted when they had fully developed and it was clear that they contained seeds (gentle pressure on the pod to confirm the point). Some seed pods looked to have developed but were empty. Table 1 (p. 35) provides the results, showing the number of flowering spikes, the aggregate number of flowers and the aggregate number of seed pods. If the spike had disappeared for whatever reason then this was counted as a zero.



Map of Runnymede (v.c.17), showing area designations. Courtesy Surrey Biodiversity Information Centre

Sium latifolium (Greater Water-parsnip) by Long Pond

View NW along Long Pond

Both photos taken at Runnymede, Surrey (v.c.17) by L. Pitkin, © 2015 (see p. 17)

Ann Sankey and fellow botanists examining *Trifolium fragiferum* (Strawberry Clover). The possible site of sealing of Magna Carta is in the middle distance

The grassland of Cooper's Hill with the meadows beyond. The River Thames is marked by the line of trees beyond the road

Both photos taken at Runnymede, Surrey (v.c.17) by L. Pitkin, © 2015 (see p. 17)

Fig. 1: Diminutive plant of *Mibora minima* with a 5p piece for scale

Fig. 2: Larger plant of *Mibora minima*

Fig. 3: Two views of the habitat of *Mibora minima*

All photos taken by P.A. Smith on Mol Greannach, Baleshare (v.c.110) © 2015 (see p. 26)

Francoa appendiculata, Dartmouth, (v.c.3).
Both photos P. Pullen © 2015 (see p. 48)

A probable form of *Corylus maxima* with purplish-red bracts, Gaisby Lane, Bradford (v.c.63).
Photo M. Wilcox © 2015 (see p. 28)

Taraxacum ciliare showing notably ciliate narrow border, Holmsley (v.c.11).
Photo M. Lynes © 2015 (see p. 9)

Saussurea alpina in Ballycroy National Park, W. Mayo (v.c.H27). Photo R. Hodd © 2015
(see p. 60)

Platanthera bifolia (Lesser Butterfly-orchid) showing collapsed pollinia column.
Photo: T. Swainbank © 2015 (see p. 34)

Table 1. Seed pod development

Year	*Platanthera bifolia*				*Platanthera chlorantha*			
	No. of spikes	Total no. of flowers on spikes	Seed pods	Seed set (%)	No. of spikes	Total no. of flowers on spikes	Seed pods	Seed set (%)
2011	20	268	69	25.7	21*	232	121	52.2
2012	36	412	157	38.1	105	1229	524	42.6
2013	41	545	168	30.8	108	1020	309	30.3
2014	34	368	112	30.4	77	824	184	22.3
Total	131	1225	394	32.2	311	3305	1138	34.4

There is considerable variability in the fruiting efficiency, one year to the next, for both species. These annual differences are so large, owing no doubt to environmental factors, that they mask any difference in seed-set efficiency between the two species, if indeed it exists. Time of flowering, availability of pollinators, climate at flowering time, such as rain or strong winds, and at seed-set, the number of slugs and other agencies that can damage flowering spikes make for a complex situation. Having said that, the efficiency of seed set may not be terribly important of course, because each seed pod contains very large numbers of very fine seeds (which we estimate from the seed pod size and packing density at 500 seeds per pod).

Approximately a third of flowers are pollinated and stay the course to a fruit set. These results are much lower than are reported elsewhere. As noted earlier, we have included those plants that have been damaged in some way or indeed have been completely annihilated, and this might be inconsistent with other studies. Even so, we found only a very small number of flowering spikes achieved a fruiting efficiency of over 75%. Ranking the extent of seed-set of the individual spikes by quartile gave the following result (Table 2.).

Table 2. Extent of conversion (flowers to seed pods) of flowering spikes

Seed pods / flowers (%)	*P. bifolia* – % of spikes	*P. chlorantha* – % of spikes
	Total	Total
0	41	41
1-25	15	16
26-50	23	18
51-75	17	14
76-100	5	10
Total	100	100

Over 40% of the flowering spikes of *P. bifolia* and *P. chlorantha* do not produce any seed pods irrespective of how many flowers are produced. Some of these will have been damaged, but undamaged spikes without fruits were commonplace, with only a withered stem remaining. Only around 5% of the spikes of *P. bifolia* see at least three-quarters of the flowers develop into seed pods. The conversion efficiency for *P. chlorantha* looks rather similar, although a larger proportion, 10%, reach the upper quartile.

Pollinators

We were keen to see if there were different pollinators for the two species. Most studies have concluded that pollination of *Platanthera* flowers is achieved by night-flying moths, particularly hawk-moths of the Sphingidae family. In the Stirling area of Scotland, Sexton (2014) and a team of volunteers trapped moths amongst populations of *P. chlorantha* looking for pollinia attached to the eyes of moths to confirm pollination activity. Pollinators of *P. chlorantha* included the moths, Silver Y, Beautiful Golden Y, Plain Golden Y, Burnished Brass, Lesser Elephant Hawk-moth, Straw Dot, Spectacle, Gold Spangle, Gold-spot, Lempke's Gold Spot, Large Yellow Underwing (occasionally) and Marbled Coronet. They had less success in finding pollinators for *P. bifolia*, having 'only once caught a Beautiful Golden Y moth with *P. bifolia* pollen masses on its tongue in the great outdoors'. Nilsson (1992) and Maad (2000) found long-tongued moths from the Sphingidae and Noctuidae families were attracted by the sweet scent of and nectar produced by *P. bifolia*. On the Isle of Skye, Keith Sadler found a Marbled Coronet with pollinia of *P. chlorantha* attached in 2013, and a Golden Y in 2015. In a Dutch study, the noctuid moth *Cucullia umbratica* (The Shark) regularly visited flowers of the hybrid (Cleassens *et al.*, 2008) and was capable of removing pollinia.

The possibility of autogamy has not been considered extensively, although Brzosko (2003) did find that it was a significant contributor to fruiting efficiency.

Platanthera species are believed to reward pollinators by providing nectar from their long spurs, so that when a pollinator accesses the nectar, the orchid pollinia attach to its eyes or face. Rewarding orchids rely on a restricted range of specialist pollinators (Neiland & Wilcock,1998), in contrast to other members of the Orchidaceae, which use deceit to attract pollinators and pollinators are therefore more casual and less specialised. Because of the importance of reward, moth interaction and the spur length have received considerable attention to try to explain specialisation, where floral traits are altered in response to selection of a subset of pollinator species (for example Bloch, 2009).

We found that the spurs of the two species are of different lengths and is a discriminating morphological feature between the two. In our case, we found that the spur of *P. bifolia* averaged 1.6cm compared with those of *P. chlorantha* at 2.5cm, based on measurements made over five years. In Britain, a definite inverse correlation was found between geographical latitude and spur length by Bateman & Sexton (2008), although they recognised that this relationship does not appear to hold in parts of Scandinavia. Our data agree closely with their data for north-west Scotland. More generally, spur lengths in the 37 species in the *Platanthera* genus found throughout the world vary greatly, from long (6cm) to very short (1cm), and it seems to be rather evolutionarily plastic (Efimov, 2011).

We have not been able to replicate the published moth pollination findings. During daylight hours, we have never seen any insect activity on any of the orchid flowering spikes, other than one unidentified true fly (Diptera) – far too small to effect pollination of a *P. chlorantha* flower. A trail camera was put in front of one plant of each species when fully in flower, covering 24 hours. Despite taking over 700 photos of the *P. bifolia* plant and 3,000 photos of the *P. chlorantha*, owing to breeze and the sensitivity of the trigger, not a single one showed a moth or any other insect.

To see what the moth cohort was at flowering time we put out a Skinner moth trap amongst the orchids (once in 2010, twice in 2011 and three times in 2014). The trap was left out throughout the hours of darkness and inspected at around three hours after sunrise. Sadly, weather conditions on Skye are not very friendly to moth trapping out in the open, which limited the number of trapping nights to just these few. Table 3 (p. 39) provides a summary of the moths which might be sufficiently large to effect pollination caught in the moth trap (micro-moths have been excluded). The trapping data are grouped: firstly, those

caught before the average flowering date for *P. bifolia*; secondly after the average date for *P. bifolia* but before the date for *P. chlorantha*; and lastly after the date for both species. (*P. bifolia* flowers between seven and nine days before *P. chlorantha*, based on our study over seven years, the difference between the two species being remarkably consistent one year to the next).

All the moths trapped were photographed but at no time were any moths found to have pollinia attached. Ten species representing five families could be found throughout the flowering period of both species. On our list hawk moths feature but only one Elephant Hawk-moth was caught (and none in 2014) and only one Poplar Hawk-moth was captured. In the period coinciding with the flowering of *P. bifolia* there were 17 moth species representing eight families, but in the period coinciding only with the peak flowering of *P. chlorantha* there were 13 species from just two families. There are some clear differences, but, in the absence of any pollinia attachment, the results remain frustratingly inconclusive. Different moth species are around at the peak flowering time for the two orchids, but without positive pollinia attachment it is not possible to conclude whether there are any preferred moth – plant interactions.

Sexton (2014) listed 11 moths which were pollinators, but only one of these appeared on our list, Beautiful Golden Y. Of the other ten moths, four have not been recorded on any part of our croft in the last five years, and the other five are not on the wing until well after the peak of flowering and at a time when *P. bifolia* have definitely gone over. It does therefore appear to be the case that if moths are the primary pollinators on Skye, then the species involved are not the same as those 200 miles away to the south. Bateman & Sexton (2008) counselled caution when assuming strong pollinator specificity.

However, moths might not be the principle agent of pollination and we suspect that the commonly asserted pollination model for *Platanthera* may be too simplistic. Our results are not in line with the expectation that nectariferous orchids show high fruit-set rates, often 100% (Gill, 1989), whereas those orchids that offer no reward show much lower efficiencies. It has to be recognised that pollination failure is common in plant species (Wilcock & Neiland, 2002), owing to environmental effects (Burd, 1994; Larson & Barrett, 2000). The first explanation for low fruit-set is that environmental effects have limited pollinator activity. Staying with the reward model for the moment, it may be that there just are not enough moths around to generate high fruiting efficiencies. We do need to recognise the different conditions moving north and, for example, the hours of darkness in June and early July are very short (four hours at most) on the Isle of Skye, which will limit moth activity, especially if it is cool, windy or wet (or all three), yet a decent number of moths would surely be needed to be able to achieve the levels of pollination seen. The total counts in the moth trap ranged from a lowly ten to a modest 45 in 2014. The single hawk moth that we did find would hardly seem to be sufficient, especially as the orchids are spread out over more than an acre.

A second explanation is that the reward model does not hold true and that, if moths are involved, then some of the other moths on our list, especially in the families Noctuidae and Lasiocampidae, might be pollinators – not necessarily seeking nectar but attracted by the orchid scent, more akin to the deceit pollination model – and there is a wider range of pollinators than is commonly thought. Our lower fruit-set efficiencies are more consistent with orchids that deceive their pollinators, and we would therefore expect that a wider, less specialised cohort of moth species would be involved. This is consistent with our trapping results, save that we found no evidence of actual pollination activity by any of the cohort.

There is a third possibility. Moths may not be the main pollination mechanism for either orchid species in the northern and western extremities of their range, and the failure to find any moths bearing pollinia, irrespective of moth species, points in this direction. In the absence of any other viable animal pollinator, then autogamy looks to be a realistic possibility, as was seen in the Polish study of

P. bifolia cited earlier. Indeed, on quite a number of flowers in 2014, it was very hard to determine if the pollinia had been removed, and in a few examples the pollinia column had collapsed (see Colour Section, Plate 4). Such a possibility applies to both species.

This supposition is consistent with our finding that there was no correlation between the number of flowers on a spike and the fruiting efficiency of that spike. Nor was there a correlation between the height of the spike and the fruiting efficiency. Evidence elsewhere has shown that taller flower spikes and more flowers on a spike do indeed encourage pollination, probably because the pollinator is able to satisfy its nectar needs with the minimum of effort (*e.g.* Tremblay *et al*., 2006). With no such link found in our study, the moth pollination model is less likely than autogamy.

Conclusions

We are unable to shed light on whether there are differences in the pollination vectors of the two *Platanthera* species, although the cohort of moths around at the different peak flowering times show some marked differences. Our fruiting efficiency results are lower than have been seen elsewhere which may be related to the plants being at their north-western distribution limits in an open area where the number of pollinators may be low. There was further trapping in 2015, but the results were similar to previous years. We suspect therefore that autogamy may play a part in fertilisation.

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Table 3. Moths caught in a Skinner trap placed near *Platanthera* orchids at flowering time

			Pre P.bifolia average flowering date		Post bifolia pre chlorantha	Post average flowering date for both species			
		Family	06/06/2014	11/06/2010	15/06/2014	28/06/2014	03/07/2011	11/07/2014	
Buff Ermine	*Spilosoma lutea*	Erebidae	X	X	X	X	X	X	Moths around when both species are flowering (10 species)
Drinker	*Philudoria potatoria*	Lasiocampidae		X		X	X		
Beautiful Golden Y	*Autographa pulchrina*	Noctuidae	X				X	X	
Dark Brocade	*Mniotype adusta*	Noctuidae	X			X		X	
Flame Shoulder	*Ochropleura plecta*	Noctuidae	X	X	X	X			
Middle-barred Minor	*Oligia fasciuncula*	Noctuidae			X		X		
Small Square-spot	*Diarsia rubi*	Noctuidae			X	X	X		
Buff –tip	*Phalera bucephala*	Notodontidae	X	X	X		X	X	
Elephant Hawkmoth	*Deiliphila elpenor*	Sphingidae	X	X					
Poplar Hawkmoth	*Laothoe populi*	Sphingidae		X	X			X	
Poplar Lutestring	*Tethea or*	Drepanidae	X						Moths around when *P. bifolia* is at its peak (17 species)
Clouded Buff	*Diacrisia sannio*	Erebidae		X					
White Ermine	*Spilosoma lubricipeda*	Erebidae	X	X	X				
Brimstone	*Opisthograptis luteolata*	Geometridae	X	X					
Ruddy Highflyer	*Hydriomena ruberata*	Geometridae	X	X					
Brown Silver-line	*Petrophora chlorosata*	Geometridae		X					
Map-winged Swift	*Hepialus fusconebulosa*	Hepialidae	X		X				
Fox Moth	*Macrothylacia rubi*	Lasiocampidae		X					
Broom Moth	*Ceramica pisi*	Noctuidae	X	X	X				
Glaucous Shears	*Papestra biren*	Noctuidae	X	X					
Knot Grass	*Acronicta rumicis*	Noctuidae	X						
Small Angle-shades	*Euplexia lucipara*	Noctuidae	X		X				
Clouded Bordered Brindle	*Apamea crenata*	Noctuidae		X					
Dusky Brocade	*Apamea remissa*	Noctuidae			X				
Iron Prominent	*Notodonta dromedarius*	Notodontidae	X						
Pebble Prominent	*Eligmodonta ziczac*	Notodontidae	X						
Narrow-bordered Bee Hawkmoth	*Hemaris tityus*	Sphingidae			X				
Mottled Beauty	*Alcis repandata*	Geometridae					X		Moths around when *P. chlorantha* is at its peak (13 species)
Barred Straw	*Gandaritis pyraliata*	Geometridae						X	
Magpie	*Abraxas grossulariata*	Geometridae						X	
Purple Bar	*Cosmorhoe ocellata*	Geometridae						X	
Ingrailed Clay	*Diarsia mendica*	Noctuidae				X		X	
True-lovers Knot	*Lycophotia porphyrea*	Noctuidae				X	X	X	
Purple Clay	*Diarsia brunnea*	Noctuidae					X		
Smoky Wainscot	*Mythimna impura*	Noctuidae					X	X	
Antler	*Cerapteryx graminis*	Noctuidae						X	
Dotted Clay	*Xestia baja*	Noctuidae						X	
Heart and Dart	*Agrostis exclamationis*	Noctuidae						X	
Spectacle	*Abrostola triplasia*	Noctuidae						X	
Triple-spotted clay	*Xestia ditrapezium*	Noctuidae						X	

Foraging in the Anthropocene

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The exploitation of wild plants in a western culture in the 21st century raises many questions. Some of these questions go to the heart of the human relationship with plants through the ages and challenge our concepts of future conservation and guardianship of the environment.

Foraging folk

Some people believe they have the right to forage wild plant material and usually develop a code of conduct, often based on environmental ethics, to facilitate their activities, while others are driven by economics and may be only constrained by market forces and the law. There are also those who, worried by the drastic falls in numbers of people engaging with the natural environment, wish to use foraging as a means of getting people into the countryside while engaging in an educational and rewarding activity.

The modern forager

Traditional foraging (skills passed on) in the UK and Ireland are very restricted and tailored locally. In contrast, the modern forager is a creation of books, (*e.g*. Richard Mabey's *Food for free*), television (*e.g*. Ray Mears *Wild Food*), and various internet sites that reference mostly mainland European skills that are a mix of modern and archaic. The effects of this may be profound, as plants previously not foraged fall under a management regime, and ecosystems like ancient woodland are invaded by people. Trampling and introduction of invasive species are an example of potential changes. Differentiating between very similar unfamiliar species is also highly problematic, even for a skilled botanist, and may cause accidental local or national extinction of rare species. If forager numbers become large then wildlife disturbance becomes an issue, as in parts of Germany, where large hordes of mushroom pickers are seriously disturbing mating Red Deer for instance.

Following the rules

Codes of conduct and law are often quoted like scripture by foragers, but as very few studies have been done on the effects of foraging on plant populations and the environment, they must be treated with caution. This point is proven by the fact that plant NGOs in the U.K. even disagree over policies. For example, Kent Wildlife Trust forbids the harvesting of *Crambe maritima* (Sea-kale), whereas Plantlife UK does not. The fact that a plant which has only recently come off the Red Data List, having been almost wiped out by Victorians for the table, and still very rare in many localities, should get back into the food chain is appalling to many conservationists, especially since the plant is in cultivation. In recent years there have been several arrests for illegal picking of plants, mostly destined for top restaurants. Bizarrely, some foragers' defence was that they were helping plants to grow by picking them! Epping Forest, which is now patrolled by guards and closed to foragers, has created a flashpoint between people who both believe they hold the environmental higher ground and the public at large. A similar situation is developing in the New Forest and will spread no doubt to more ancient woodland sites. This does not help the conservation movement, as it has divided people and drawn so much unwanted press coverage.

Even the BSBI code of conduct and the statutory plant protection laws are out of date and have failed to keep up with changing human activities. For example, according to Rabinovitz (1981), annual/biennial seed collecting and root harvesting are ranked highest for potential for over-exploitation, but annual/biennial seed collecting is not specifically mentioned in the BSBI Code of Conduct as a major threat. Uprooting of unprotected plants is allowed by law on private property with the landowner's permission. This is clearly bad practice that cannot be measured.

Rabinovitz also states that a species which i) has a narrow geographic distribution, ii) is habitat-specific, and iii) has small population sizes everywhere, is more easily over-harvested than species of any other pattern. This is not generally recognised within the guidelines either. Extreme rarities are highly unlikely to be foraged unless they are similar to common species, and the codes of conduct are misguiding and failing in their main objective where foragers are concerned. It is my belief that the entire Red Data species protection regime is fundamentally wrong. It is the more common plants that are the driving force behind our ecosystems and they receive almost no protection until it is too late and their role in the bio-system has lessened considerably. The Red Data Book approach has in fact facilitated widespread habitat degradation and destruction. Before we encourage foraging as an introduction to plants, we need to sort out these issues. Schippmann, Cunningham & Leaman (2002) and Luczaj *et al*. *Wild food* (2012) could provide a starting point to developing new guidelines.

Commercial foraging and sustainability

The most dangerous aspect of commercial foraging is creating an unstoppable demand for wild foods. Some supermarket chains are now stocking these products and *haute cuisine* chefs continue to indulge their love affair with foragers and their wares, while many country house hotels and restaurants offer foraging courses to those who can afford them.

Salt marshes are one example of habitats popular with commercial foragers, which often means bringing people into highly sensitive wild areas rarely visited by people, with potential for disturbance of feeding/breeding/roosting birds *etc*. Despite all of this, EU plans are coming on line to encourage landowners to allow foraging to improve human mental health and as a new revenue stream.

Medicinal plants are the most vulnerable to over-exploitation as they often occur in low numbers and are more likely to be collected unscrupulously, as has been documented throughout Europe.

Saving the future

Can we get the next generation interested in plants and indeed loving plants just for what they are by teaching them to eat them? For me this is just a reinforcement of the anthropocentric approach we have always taken towards plants. Humans have their hands and feet all over the so-called natural world and the latest foraging craze is all about what plants can do for people and not what we can do for plants. In truth, the countryside has never had so little to offer and it is no wonder young people struggle to get meaningfully involved in it, especially those living in an industrialised landscape where nature reserves seem more like zoos and wilderness is more easily imagined in digital form than realised in the field.

We are in desperate need of a new approach to our beleaguered wild places. So, rather than teaching children how to exploit plants, I would make them custodians of whatever wilderness is left around them and let them watch from a distance as the world re-creates itself.

The case for responsible foraging: by a practising forager

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As a forager, most of the feedback I receive is positive and inquisitive, although foragers are regularly asked: "What if you poison yourself?" and "What about dog-pee?". There is, however, the age-old debate around the ethics surrounding how and why an individual harvests wild food. My argument in favour of foraging is and always has been that, if done correctly, foraging can be beneficial for both the environment and the target plants.

Ethical foraging

Even the slightest suggestion of a forager acting unethically or in any way improperly around wild food is likely to put most foragers

on the defensive. The ongoing debate between conservationists and foragers seems to go round in circles, which is astonishing considering that both groups of people have so many similar interests and passions.

I suppose I am lucky I have never met a forager – and yes, I include professional pickers – who does not share my love of, and consideration for, wild food. This does not mean that there are not unethical foragers out there. I do not wish to imply they do not exist, and it would be completely delusional to state that as a collective we are perfect.

Impact of foraging

I think we have to become realistic about foraging as a practice. Undoubtedly, there is an impact caused by the act of foraging, but determining if the impact is negative, positive or even neutral is key in moving this debate forward. To clarify, by 'impact' I would be looking at:

- How will the target wild food be affected in the short term?
- How will it be affected in the long term?
- Who or what else relies on it, *i.e.* which other entities will be impacted?
- How will the surrounding habitat be affected?

How and why I forage

Let me stand up and say "Yes, I have foraged pretty much every wild resource I have discovered". From root to fruit, I actively make use of wild food and this often involves managing my intended crop for months, even years, before I am able to take a withdrawal.

I truly believe that I collect food from the wild in much the same way that primitive man would have done, before environmental conservation was even considered. We had a connection then to our environment that was far more intelligent than our modern approach; we had an understanding that because of the need we have to survive we had a pre-determined responsibility to protect the very species we rely upon to survive.

Loss of habitat has a greater impact than foraging

We all agree there are massive problems arising from land development and the use of chemicals in our stretch to meet the growing food demands of an ever-growing population. Habitat destruction, degradation and fragmentation seem to be the price of progress. It is my firm belief that foraging can actually be part of the solution to these problems. It is definitely not part of the problem.

My argument is and always has been that foraging, if done correctly, can be beneficial for both the environment and the target plants. A certain level of botanical knowledge is essential for correct identification of a target plant and successful harvesting over time; and knowledge of the uses of edible and medicinal plants is of interest to many botanists.

The future

Botanists and foragers need to work together to find better solutions. This needs cooperation and agreement that each side of the argument for and against foraging has merits. The fact is that we are all custodians of this planet and need to unite and act together. Next time you drive to the supermarket and buy your pre-packaged dinner, consider the impact comparison between a forager's activities and the footprint caused by the commercially produced food we otherwise all have to rely on day to day.

So how can we as a group of people come together to make changes? Certainly foragers could do more to record where wild plants grow. Maybe botanists could suggest less invasive harvesting methods? Perhaps, with organisation, revenue could be accessed making some of our lesser supported areas of natural beauty self-funding through controlled foraging?

I will continue to share my uses of wild ingredients and finds. I hope that my love for the connection we have to the natural world, expressed through my responsible foraging, is understood for what it is - an infectious love for all things wild.

Orchid conservation in South Yorkshire

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Travelling along Manvers Way in the Dearne Valley on the border of Barnsley to Rotherham (v.c.63) we saw the notice in the attached picture on the roundabout to the RSPB Old Moor Nature Reserve. The *Dactylorhiza* species and hybrids have been growing in the verges along this stretch of road for a number of years, but it was not until someone found *Ophrys apifera* (Bee Orchids) at the bus stop about three years ago that Pete Wall of the Dearne Valley Nature Improvement Area approached Rotherham Metropolitan Borough Council, and, as partners in the NIA, they agreed not to cut the verges in that area until the autumn. This year, on our annual visit to see how things are going on, we found that not only are the *D. praetermissa* (Southern Marsh-orchids) and *D. fuchsii* (Common Spotted-orchids) thriving, but we counted over 100 spikes of Bee Orchids, probably more, from the Broomhill roundabout to the roundabout after Old Moor, no doubt helped by the slip-stream of traffic along this busy road. Also, we now have a thriving colony of *Lathyrus nissolia* (Grass Vetchling) in that area.

Thanks must go to Matthew Capper, Manager of the RSPB Old Moor reserve, Pete Wall of the NIA and Rotherham MBC for their combined efforts in maintaining and improving this particularly rich area of the Dearne Valley. On our way to a field meeting we saw a similar notice on the A1 roundabout at Marr, which is in the area of Doncaster MBC, who are also NIA partners. No doubt the other two councils in South Yorkshire are encouraging our natural heritage in this once heavily industrialised part of Yorkshire.

Orchid conservation sign in Dearne Valley, S. Yorks. (v.c.63). Photo M. Linney © 2015

Huperzia selago

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Huperzia selago (Fir Clubmoss) is divided into two subspecies, ssp. *selago* and ssp. *arctica* (Stace, 2010). The differences and distribution are given in Stace, and other works give the same information. Primarily, in ssp. *selago* the leaves are more or less patent and the stem is up to about 12(-15) mm wide; while in ssp. *arctica* the leaves are appressed and the stems are (consequently) up to *c.*6mm wide. It is likely that these two taxa are species (the latter being known as *H. appalachiana* in N. America).

Plants received from Skye and Shetland, courtesy of Stephen Bungard and Walter Scott respectively, are in my opinion intermediates (putative hybrids). F. Rumsey (pers. comm.) says that the late J. Beitel thought that hybrids might occur in the British Isles. These plants from Skye and Shetland might be recorded as *H. selago* ssp. *arctica*. However, they are too wide, but they do have erect leaves, becoming more appressed as they dry. They are *c.*8-12mm wide, with the yellowish green of ssp. *arctica*.

They are difficult plants in general, but it might be possible that what we have in the British Isles could be a relict hybrid and therefore our *H. selago* ssp. *arctica* needs to be reviewed. It is possible that most if not all plants recorded as ssp. *arctica* could be this 'intermediate'.

Interestingly, the spores of *H. selago* ssp. *selago* are dark brown and appear more or less fertile (being loose single spores when opened on to a glass slide). The intermediates (putative hybrids?) have spores that in general appear clumped (stuck) together, even when placed in water on a glass side. The latter also appear to be pale and many are misshapen.

Records and vouchers need to be collected. In the first instance I would be happy to look at fresh plants with mature sporangia.

Reference:

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

Diary for 2015

CHRIS METHERELL, *Woodsia House, Main Street, Felton, Northumberland, NE65 9PT*; (01670-783401; chris@metherell.org.uk)

Date	Meeting	Location
Wednesday 7 October	Records and Research Committee	London
Thursday 15 October	Publications Committee	London
Saturday 24 October	Committee for Wales	tbc
Wednesday 28 October	Training and Education Committee	Shrewsbury
Wednesday 4 November	Council	London
Saturday 7 November	Scottish AGM	Edinburgh
Wednesday 18 November	Board of Trustees	London
Saturday 28 November 2015	BSBI AEM &AGM	London

Adventives & Aliens News, 6

MATTHEW BERRY (Compiler), *Flat 2, 11 Southfields Road, Eastbourne, East Sussex, BN21 1BU*; (m.berry15100@btinternet.com)

My latest nomination for a non-native plant species on the increase would have to be *Euphorbia oblongata* (Balkan Spurge) (and see Peter Stroh's note in *BSBI News*, **129**: 88). In April 2015 I recorded it from four new sites around Eastbourne; these in addition to the two already existing ones for the Eastbourne area. The number of records for Sussex as a whole has been climbing steadily since the first in 2002. This spread presumably correlates with its increasing popularity as a garden plant and it is often to be found growing in pavement cracks close to gardens, or where garden waste has been dumped unceremoniously. I have included two v.c.13 records and one v.c.14 record below, so that others might be encouraged to send theirs, as I am certain that this will prove to be a trend replicated elsewhere in other (principally southern?) counties.

A record for *Panicum capillare* (Witch-grass) sent by John Mason (see v.c.6) suggests it might be spread in peat used for agri-/horticultural purposes, and I hope that this might suggest alternative locations in which to keep a lookout for the species, generally thought of as a classic bird-seed alien around towns and parks. I would welcome other records which seem to support this association (of course it is possible that the peat contained bird-seed, or had bird-seed scattered on it).

While on the subject of bird-seed aliens, Aaron Woods has sent details of four exciting new records (see v.c.36), three Niger seed aliens from ground close to where bird feeders are cleaned, and one pot plant alien from an indoor gardening centre. They will probably be new to most members (as they were to me), but there is no reason why they should not occur in similar situations elsewhere, possibly in the company of other long lost and/or novel exotics.

Finally, I am very pleased to be able to present Robin Wall's drawings of *Calepina irregularis* (White Ball-mustard), an alien crucifer with very few recent records (see v.c.11) (fig. 1). Drawings can match photographs for aesthetic appeal, and can hardly be bettered as a means of conveying botanical detail. It is my aim to include as many as is practicable. Robin has very generously offered to produce drawings for other records in future numbers of 'Adventives & Aliens News'. I am very grateful to him, to those who submitted details of their interesting finds (please keep it up!), and to Eric Clement for pearls of botanical wisdom.

V.c.6 (N. Somerset)

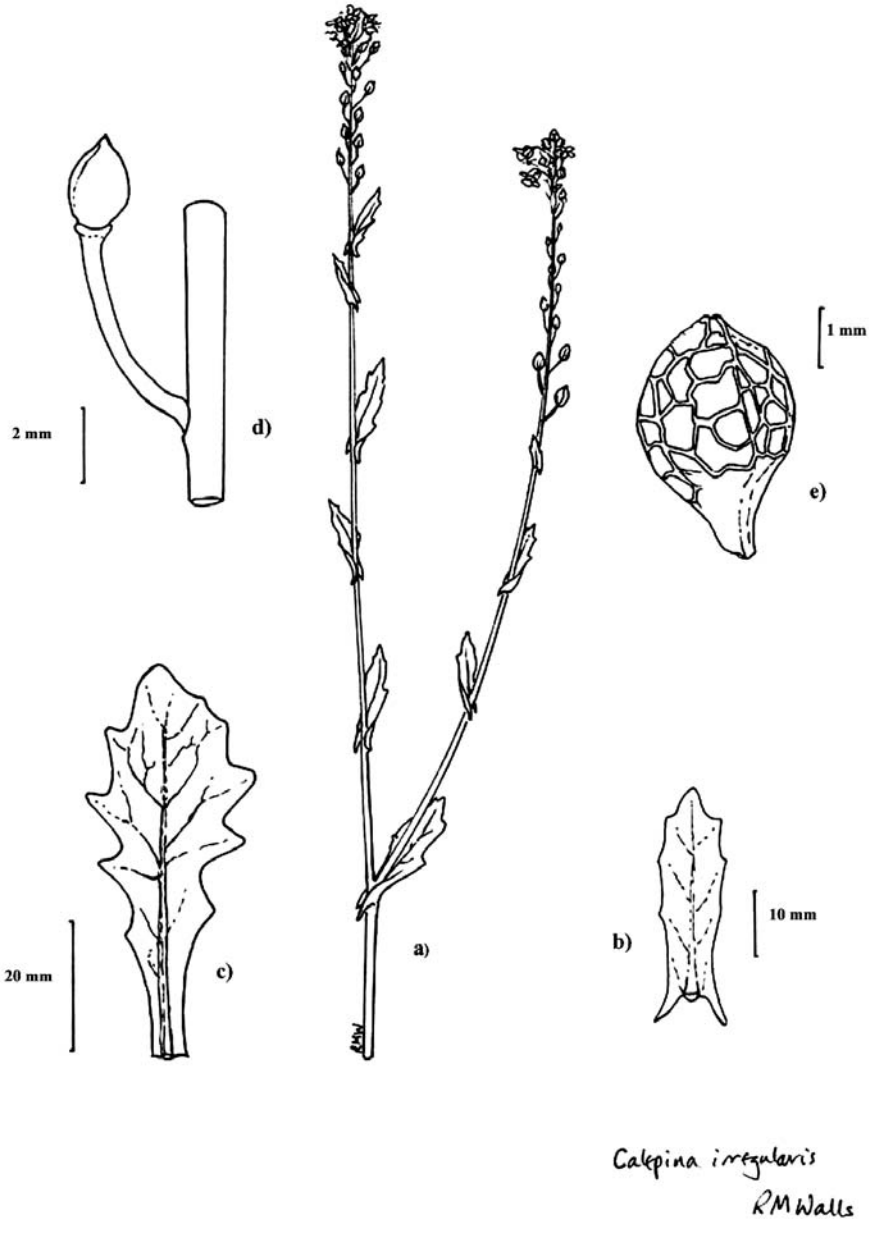
Panicum capillare (Witch-grass). Shapwick Heath (ST4241), 1/2015, J. Mason (conf. & comm. E.J. Clement): weed of bare peat, clearly established, having survived the removal of the peat mound in 2014.

V.c.11 (S. Hants)

Calepina irregularis (Asso) Thell. (White Ball-mustard). West Quay, Southampton (SU41741159), 4/5/2014, P. Stanley (det. E.J. Clement): in gravel below raised flower beds. This is most likely to be confused with *Crambe hispanica* ssp. *abyssinica* (Abyssinian Sea-kale), but *Calepina irregularis* has clasping stem leaves, with patent, acute auricles, while *Crambe hispanica* has non-clasping, distinctly petiolate stem leaves, with truncate bases to the leaf blades. It is a native of the Mediterranean region.

V.c.13 (W. Sussex)

Euphorbia oblongata (Balkan Spurge). Hove (TQ2832104881), 16/8/2010, A. Spiers: garden escape, bottom of gate, New Church Road, Hotham Park (SZ9381599432), 13/7/2011, M. Shaw: in recently landscaped area near ponds. As well as having reddish, patent-hairy stems, short rhizomes and capsules with low, hemispherical papillae, it nearly always has cyathia with two glands rather than the normal four. This might very nearly be diagnostic and seems to have been missed in much of the literature. Note that some cyathia can have three or four glands, particularly the solitary ones found in the leaf axils (known formally as alar flowers) and those of later flowering growth. For detailed drawings of this species by



Calepina irregularis (Asso) Thell. del. R.M. Walls

a) Upper stem; **b**) Cauline leaf (10mm); **c**) Basal leaf (20mm); **d**) Fruit and pedicel (2mm); **e**) Dried fruit (1mm)

Delf Smith, see *BSBI News*, **71**: 47, enlargement 'f' in the sequence, showing very clearly the two glands and the structure of the cyathium.

V.c.14 (E. Sussex)

Limonium platyphyllum (Broad-leaved Statice). Eastbourne (TV6100497894), 8/9/2014, M. Berry (det. E.J. Clement): growing out of retaining wall, base of steep embankment by promenade, Holywell. The presence of these plants was first noted by D. Nicolle. A glabrous or glabrescent form that keys out as *L. vulgare* in Stace (2010), but that is exclusively a species of muddy saltmarsh. The rather similar *Goniolimon tataricum* (German Statice), another garden plant with potential to naturalise, has significantly winged stems.

Euphorbia oblongata (Balkan Spurge). West of Swanborough Manor (TQ397074), 22/8/2008, A. & K. Knapp: one plant on north side of road.

Apium leptophyllum (Pers.) F. Muell. ex Benth. (Slender Celery). Eastbourne (TQ6234100167), 1/7/2015, M. Berry (conf. E.J. Clement): one plant in gutter of Latimer Road, probably originating from a plant container in a nearby garden. The first Sussex record. See E.J. Clement's note, *BSBI News*, **116**: 76.

Campanula pyramidalis (Chimney Bellflower). Eastbourne (TQ62580089), 26/4/2015, M. Berry (conf. E.J. Clement): on a wall top by the A259. Since I have known about the plant (April 2014), it has not flowered. Ken Bull recorded it from "a wall top near Princes Park" in 1972, which at a push would describe the present location. It would be pleasing to think that, even if not identical, this plant is somehow of the same stock. Clement *et al.* (2005): 263.

Phuopsis stylosa (Caucasian Crosswort). Lower Willingdon (TQ5850303894), 28/8/2012, H. Proctor & P. Smith (det. M. Berry): established as a 2 × 2m patch in a grassy area on the north side of the A2270. Formerly *Asperula ciliata*, it is a garden plant native to the Caucasus and Iran. This patch was probably destroyed by the installation of a gas main.

Cicerbita macrophylla (Blue Sow-thistle). Hadlow Down (TQ532241), 2005, E. Rich: verge opposite New Inn; Five Ashes (TQ557245), 7/2005, E. Rich: sheltered verge, Spring Lane; known here since 1984. Though it can be long-persistent, it is unlikely that established colonies will be replaced or supplemented by new ones, unless it comes back into favour as a garden plant. Nearly all British records are thought to refer to ssp. *uralensis*.

V.c.15 (E. Kent)

Linaria dalmatica (Balkan Toadflax). Littlestone (TR085244), 6/1998, D. Walker (det. & comm. E.J. Clement): on waste ground. A thorough search in July 2015 failed to relocate it, its habitat probably destroyed by one of the numerous recent beach front developments (pers. obs. M. Berry & R. Wells). I would like to hear of other records or updates of known sites. It can form long-lived colonies and is highly garden-worthy, although potentially invasive (as in N. America).

V.c.26 (W. Suffolk)

Amaranthus albus (White Pigweed). Brecklands (TL8149779853), 8/8/2014, B. Laney (det. & comm. E.J. Clement): along the new A11 dual carriageway. *A. albus* is more erect than the next species (although not when trodden on or driven over, always a hazard in the places where it tends to occur), has spine-tipped bracteoles and small seeds up to 1mm across.

Amaranthus blitoides (Prostrate Pigweed). Brecklands (TL8147180099), 8/8/2014, B. Laney (det. & comm. E.J. Clement): along the new A11 dual carriageway. *A. blitoides* is genuinely prostrate, lacks spine-tipped bracteoles and has larger seeds than the previous species, up to 1.8mm across. The very narrow hyaline leaf margins noted in Poland & Clement (2009) might not always be apparent in pressed material. The Mediterranean *A. graecizans* (Short-tepalled Pigweed) is also rather similar; for differences see Stace (2010).

V.c.36 (Herefordshire)

Centipeda minima (L.) A.Braun & Asch. (Spreading Sneezeweed). King's Acre (SO471415), 6/9/2014, A. Woods (conf. E.J. Clement): pot weed with bonsai tree in indoor plant centre of Wyevale Garden Centre. Aaron has seen it previously in a bonsai pot in a

garden centre in Bucks. (v.c.24) and thinks it might be overlooked. The first post-1930s records (?).

Guizotia scabra Sch. Bip. ssp. *schimperi* (Sticky Niger). Stanford Bishop (SO698515), 24/9/2014, A. Woods (conf. E.J. Clement): six plants growing at the edge of a yard at Wofferwood Common. It can be distinguished from *G. abyssinica* (Niger) by the presence of numerous glandular hairs.

Arthraxon hispidus (Thumb.) Makino (Small Carpet-grass). Stanford Bishop (SO698515), 4/9/2014, A. Woods (conf. E.J. Clement): two plants growing at the edge of a yard at Wofferwood Common. This annual grass, native to Africa and Australasia, has distinctive amplexicaul stem leaves that are ovate-lanceolate, with tuberculate-ciliate margins, the cilia often being most obvious about the rounded auricles. The inflorescence, should one be produced, is an umbel of 2–50 racemes. Ryves *et al.* (1996): fig. 13.

Pennisetum petiolare (Hochst.) Chiov. Stanford Bishop (SO698515), 4/9/2014, A. Woods (conf. E.J. Clement): one plant growing on the edge of a yard at Wofferwood Common. This annual grass, native to north-east Africa, with ligules that are a fringe of hairs, has leaf-blade bases that are broadly rounded or cordate, with a false petiole; the latter creating an opportunity for vegetative recognition, particularly important in the case of tropical species unlikely to produce inflorescences in this country. Of the three Stanford Bishop Niger seed aliens only *Guizotia scabra* ssp. *schimperi* reached the flowering stage before being killed by frosts.

References:

CLEMENT, E.J., SMITH, D.P.J. & THIRLWELL, I.R. (2005). *Illustrations of alien plants of the British Isles.* BSBI, London.

POLAND, J. & CLEMENT, E.J., (2009). *The vegetative key to the British flora.* Privately published, in association with the BSBI, Southampton.

RYVES, T.B., CLEMENT, E.J. & FOSTER, M.C. (1996). *Alien grasses of the British Isles*. Botanical Society of the British Isles, London.

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Francoa sp. found in Dartmouth, Devon (v.c.3)

PHIL PULLEN, *95 Yealmpstone Drive, Plymouth, PL7 1HE*; (phil_pullen@hotmail.com)

Francoa species (Bridal Wreath or Wedding Flower) are attractive perennials from Chile that are grown in gardens. The Royal Horticultural Society describes them as 'evergreen perennials with lance-shaped, sinuately lobed basal leaves and four-petalled flowers in racemes on erect stems.'

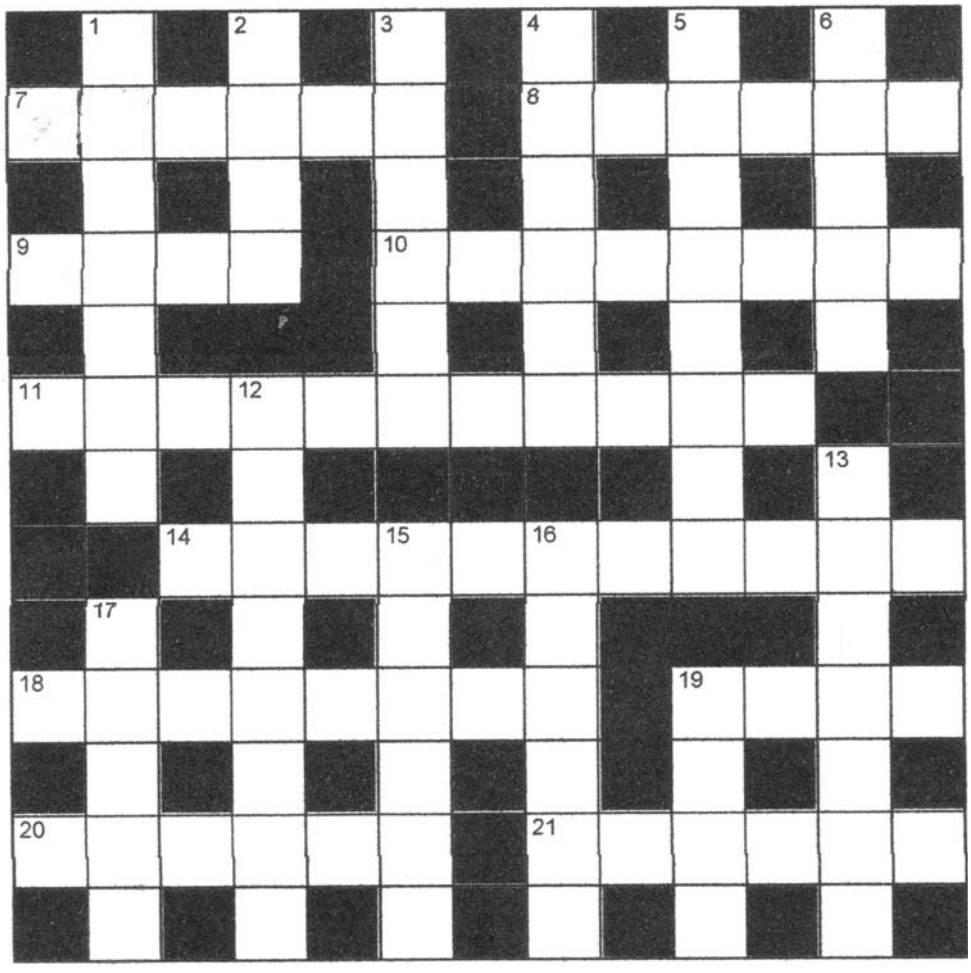
This July I spotted a plant that was unknown to me flowering amongst the *Crithmum maritimum* (Rock Samphire) that were growing on the inner harbour wall at Dartmouth in Devon (v.c.3) (grid ref. SX8785351410). It had made a decent sized clump and had several flowering spikes. Collecting one of the spikes and a couple of basal leaves, and taking photos (see Colour Section, Plate 4), the experts on the website 'iSpot' were able to identify it as a *Francoa.*

It proved to be much more difficult to find out which species the plant belonged to. I sent the plant to Fred Rumsey at the Natural History Museum in London, who explained that the *European garden flora* only recognised one species, *Francoa sonchifolia*, but that five variants of this extremely variable species had been given species names. He gave his opinion that the Dartmouth plant was closest to *F. appendiculata*, if the segregates were to be recognised as species, as it had a (weakly) branched inflorescence.

This is not the first time that *Francoa* has been recorded from Britain. The other records are from the Isles of Scilly (v.c.1b), and the BSBI Distribution Database map names them as *F. ramosa*, with the latest record coming in 2012 from Tresco. Additionally, a plant was found in Aberystwyth (v.c.46) in July 2014, and a photo sent to 'iSpot', where it was identified as *F. sonchifolia.* This plant was described as having been found "in my field's hedge; very tall with leaves that look almost like a dandelion, with slightly pinkish colouring around the edge."

BOTANICAL CROSSWORD 26

by CRUCIADA



Across

7. Straight and narrow attained in real order (6)
8. Multiple numbers frame what's full (6)
9. Sap, we hear, of Scottish *Betula* (4)
10. Fragrant shrub that's excellent when re-sown on domestic ground (8)
11. Bell tents put up from scratch, it's said, at night (11)
14. Hot trade she dealt in on Studland Dunes (6,5)
18. Medico is treating separation of sexes (8)
19. It's 100 to 1 you'll get reproductive result from pine, say (4)
20. Species hankering for petty caper with sea and sun at Portland, for example (6)
21. Old dancing girl finds way to spread out along the ground (6)

Down

1. Foxglove is not computerised (7)
2. Feature on utricle shown to headmaster (4)
3. Root, fruit, fish, flower or fly – it does become rather boring (6)
4. Painter, perhaps, in mixing slip depicts an arrangement of leaves (6)
5. Alone, pen thesis about pitcher-plant drug (8)
6. Interrupt waxy covering (5)
12. Looks where no-one is put back by early colonisers (8)
13. It's painful resting on nettle! (7)
15. Fern supports return to south-eastern pits (6)
16. Fruit (culinary vegetable) excessively laid on carpet (6)
17. In short, invasive coastal plant or animal (5)
19. Heard to trade in structural unit of plant (4)

NOTICES

Beginners' workshops

FAITH ANSTEY, *The Old Smithy, Dalguise, Dunkeld, PH9 0JX*; (faithanstey@gmail.com)

This year in Scotland we held our third series of one-day workshops aimed at beginners and improvers in field botany, run by BSBI volunteers (including several vice-county recorders) in association with Plantlife. Our objects were, firstly, to make plant identification accessible, interesting and enjoyable; secondly, to raise the profile of the BSBI and perhaps attract new members; and thirdly to try out an approach to teaching novice amateur botanists by means of plant families.

We have held seven workshops so far, in various locations around Scotland, attended by a total of about 150 people. Very few of the participants were complete beginners and fewer than we expected were just pursuing a general hobby. Many were students on university courses in plant science and related subjects, others worked in environment departments or consultancies, quite a few did volunteer work for the BSBI, Plantlife, the Scottish Wildlife Trust and similar organisations.

By the speed with which the workshops became fully booked, the enthusiasm with which they were received, and the praise for the friendly and approachable professionalism of the tutors, there can be no doubt that recognition of the BSBI and enhancement of its standing has been achieved.

The workshop programme, which developed from discussions among members of the Outreach initiative of the Committee for Scotland, was as follows. The anchor person started with a basic rundown on what flowering plants are, their structure and the 'naming of parts'. Then we went on to the business of identification. But we rejected the idea of playing snap (plant in one hand, field guide in the other, keep thumbing through until you find a match), the show-and-tell method (your mentor shows you the plant, then tells you what it is) and the absolutely-impossible-and-terrifying-to-beginners method (start with couplet 1 of any general key – Francis Rose, Stace *etc*., – and attempt to go from there). Instead we approached the subject more logically: if you can learn to recognise 'family resemblance' enough to place a specimen in one of the common families – or establish that it is not from a common family – you can then proceed to a family key in your field guide where you will have a much better chance of ending up with the correct identification.

So the next item on the programme was a 'flowchart', which asked a number of questions in order, beginning with 'Is it a monocot?' (simple definition of monocot included), 'Is it a composite?' (ditto) and so on. Certain groups would be either chosen or eliminated at each juncture, until a likely candidate for the family was found. Note that this flowchart was *not* exhaustive: it did not claim to find every family unequivocally, only that the suggestions offered would be worth pursuing. The flowchart formed the first part of a field-friendly (A6 ringbound waterproof) 'Pocket Guide'. The second part of the Guide consisted of descriptions of 24 common families, copiously illustrated with photos and explanatory diagrams plus a glossary. Next year we hope to put an expanded edition of the Guide on general sale.

At this point the participants were divided into groups roughly reflecting their current levels of expertise, and spent time with their group tutors using the flowchart to find just the families of a number of fresh specimens of common species. Tentative answers would then be checked with family descriptions and examples and, with appropriate help from the tutor, each plant could be assigned to a family.

We have found that trying to use dichotomous keys is often a great destroyer of confidence for novices, so it was important to slay that dragon. With the whole class reassembled, we worked through a series of keys from

ultra-simple up to a realistic level of family key to genera and species. Back in their small groups, they were then ready to try the family keys in Francis Rose and/or Collins Flower Guide to arrive at species identifications for their plants.

Later on in the afternoon the groups went out to an adjacent site with their Pocket Guides and fieldguides and tried out these methods on plants in the field. The families approach was found to be easy to use, much enjoyed and productive of mainly correct identifications. This year we also held (optional) half-day follow-ups nearby the next day to continue with the fieldwork. These were well-attended and gratefully received.

We carried out evaluations for each workshop. Overall in the seven workshops, 95% of participants felt that the level of the course was pitched just right for them, even though more than a quarter said they had very little previous experience, and just under a quarter claimed to have quite a lot. We attribute this to the fact that so much work was done in 'streamed' groups, where the tutor could tailor his or her approach to the appropriate level. Around 90% found the handouts (Pocket Guide plus other takeaway worksheets – no Powerpoint here!) very useful and the other 10% 'quite useful'.

The group leaders came across, according to the evaluations, overwhelmingly as knowledgeable, approachable, helpful, enthusiastic, clear, patient and so on. The only negative comments were from a couple of people who felt they had been given too much help – they did not want to be told the answers!

We made a small charge just to cover our expenses and Plantlife was very helpful in giving us wide publicity to potential participants. The original idea of these workshops was that the format and materials could be made available to any BSBI member who would like to run one in their own area. So, if you are interested in knowing more or want to have a look at the Pocket Guide to Families – a few copies are still available, just p. & p. £2.50 – please contact the author, details above.

The launch of the Burren Botany Bubble

MARY BERMINGHAM, *The Burren Nature Sanctuary, Cloonasee, Kinvara, Co Galway, Eire*; (Info@bns.ie)

As part of Ireland's National Heritage Week in August 2015, the Burren Bubble at the Burren Nature Sanctuary in Kinvara has been officially launched.

This state of the art dome exhibit, which opened to the public in July, has been carefully designed under the principles of *The International Agenda for Botanic Gardens* (BGCI) and *Leave No Trace* as an educational resource and plant bank for conservation of the Burren flora. In development for the last five years, the Burren Bubble contains the National Collection of Burren Flora – the most exciting and diverse place in Ireland for natural history. Specimens have been carefully selected from around the richly biodiverse, 50 acre organic farm to build the collection. Some plants have been propagated on site and donations have come in of specimens from areas under threat locally. Specimens to build the collection will be collected under license from the National Parks and Wildlife service.

Burren Nature Sanctuary also showcases five of the Burren natural habitats: limestone pavement, orchid-rich grassland, ash woodland, hazel scrub and a fresh-water tidal turlough. This unique two acre disappearing lake (or turlough) empties completely twice every 24 hours, as the underground Blackwater River drains out into Kinvara Bay. The carefully designed paths around the habitats show the visitor, who may be casually interested in the Burren botany, many of the Burren plants *in situ*, as an alternative to walking across fragile pavement on the Burren in search of, for example, the famous *Gentiana verna* (Spring Gentian).

The collection has been managed by local plantsman Mr Edward Dea, who is delighted with the way the plants have flourished in the

experimental environment. With a system of fans and vents, the climate has been adjusted and he has been very excited to find that although the grasses need quite an amount of control the orchids are growing in line with those in their natural habitats. Beds are divided into limestone pavement, orchid-rich grassland, heath and coastal collections.

The aim of the new exhibit, and the interpretation around the walks, is to educate the visitor and leave them armed with the information to visit this special landscape in a sustainable manner and identify the wonderful mix of flora. The Burren Bubble will also be a valuable resource for study and for conservation in the future and we would like to appeal to the wider botanical community for any support.

Burren Nature Sanctuary is open daily all year apart from January. For more information, see the website: www.bns.ie

REQUESTS & OFFERS

Recording Pink, Blue and Hybrid Water-speedwells

MICHAEL WILCOX, *43 Roundwood Glen, Greengates, Bradford, BD10 0HW*; (michaelpw22@hotmail.com)

Pink Water-speedwell (*Veronica catenata*), Blue Water-speedwell (*V. anagallis-aquatica*) and Hybrid Water-speedwell (*V. ×lackschewitzii*) may cause difficulty in recording. They are much easier than the keys and text suggest and some information seems to be misleading. I would be pleased to help and am keen to receive any fruiting material of these taxa. This may help with recording for Atlas 2020. Mid-to-late summer is a good time to record these.

Assistance with digitising field data

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

With so many records being collected for the Atlas, it is inevitable that assistance is sometimes required when it comes to digitising field data. Until April 2015 and thanks to the generosity of the Biological Records Centre, a member of staff was able to help us, but having now retired, we are seeking volunteers for this vital task. Data entry requires a great deal of patience, time, and ideally previous experience with botanical datasets. If you feel that you have the necessary skills and can offer your help, then please get in touch with me for a chat about what is involved.

The flora of Hawick Burgh

MICHAEL BRAITHWAITE, *Clarilaw Farmhouse, Hawick, Roxburghshire, TD9 8PT*; (mebraithwaite@btinternet.com)

The booklet *The flora of Hawick Burgh*, outlined in my article in *BSBI News*, **128**: 16-19, has now been published. It is 64 pages A5 format, liberally illustrated in full colour with photographs and distribution maps. A limited number of copies are available from me free of charge from the above address.

Request for UK material of *Allium* species and *Ficaria verna*

MARTIN DUCHOSLAV, *Department of Botany, Faculty of Sciences, Palacky University, Slechtitelu 11, CZ 783 71 Olomouc, Czech Republic*; (martin.duchoslav@upol.cz)

I am a researcher working at Palacky University, Olomouc, Czech Republic. My current research covers various topics of polyploidy (*e.g*. population ecology, distribution, chromosome numbers) in various species of the genus *Allium* and in the polyploid complex *Ficaria verna* (Lesser Celandine).

I have specifically been studying the polyploid complex *Allium oleraceum* (Field Garlic) since 2000 and *Allium scorodoprasum* (Sand Leek) since 2014. My first step has been to collect plant samples from the species' ranges across Europe in order to obtain solid data on population compositions (*e.g*. detection of ploidy levels, genome size, samples for genetic study) and also to uncover large-scale cytogeographic patterns. We have published several papers on this topic based on collections from Central Europe (for published papers see: https://scholar.google.cz/citations ?user=i93C9x8AAAAJ&hl=en).

Because we have identified very complex cytogeographical patterns, we have decided to enlarge our research across Europe. Over the last few years, our team has sampled populations of *A. oleraceum*, *A. vineale* (Wild Garlic) and *A. scorodoprasum* across Europe to get a solid collection of populations for cytogeographic and molecular analysis. However, we have very limited material of *A. oleraceum*, *A. vineale*, *A. scorodoprasum* and *Ficaria verna* from the British Isles. We would therefore be pleased to get population samples of these species from the British Isles, as follows.

i) *Allium oleraceum*, *A. scorodoprasum* and *A. vineale*

We would prefer fresh aerial bulbils (or bulbs) of *A. oleraceum*, *A. vineale* and *A. scorodoprasum* from several individuals within a population (from at least five individual plants, the more the better); and from a range of populations. Sampling should cover the total area of the population, but avoid collecting bulbils of other individuals <10cm from a sampled plant, in order to minimize the probability of sampling multiple ramets of individual genets. Simply put the inflorescence with its bulbils into a small paper bag, separately (!) for each sampled individual. Small bags of samples from individual plants in one population should be put into a large paper bag to ensure that individuals from respective populations are in one bag. Early autumn is the optimal period for such sampling because *Allium* species are in the ripening phenological phase, bulbils within the inflorescence are ripe and plants are still visible in the field. Please record the O.S. grid or lat. long. coordinates and a short description of the sampled population (location, habitat, population size, and if possible also a photo). Please send samples by post to the address above, and send the locality information via e-mail.

ii) *Ficaria verna*

This is rather a complicated taxon, consisting of four subspecies (Sell, 1994; Stace, 2010). We have started a biosystematic study of this taxon throughout its European range but we lack samples from Great Britain. We plan to visit Britain next spring (2016) and to sample populations of all subspecies occurring in the British Isles. We would be very grateful if somebody could help us find and collect sufficient numbers of populations. Of course, we would be much obliged for samples of fresh tubers of plants or fresh plants with underground organs from various populations sent to us by post for subsequent cultivation, independently of our visit.

References:

SELL, P.D. (1994). '*Ranunculus ficaria* L. *sensu lato*.' *Watsonia*, **20(1)**: 41-50.

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

BOOK NOTES

JOHN EDMONDSON, Book Reviews Editor, *243 Pensby Road, Heswall, Wirral, CH61 5UA*; (bsbireviews@mac.com)

The following titles are to be reviewed in current or future issues of *New Journal of Botany*. Also included are notes on books that are not being given a full review (marked *). Unsigned reviews are by the editor.

*GREENWOOD, E. F. *Hunting plants: the story of those who discovered the flowering plants and ferns of North Lancashire*. Scotforth Books, Lancaster. 2015. £12.00 p/b. ISBN 978 1 90817 22 7.

The absence of a chapter on plant collectors and recorders from Eric Greenwood's recently published *Flora* of v.c.60 has now been rectified. This viii + 82-page biographical history, illustrated with 29 plates (mostly in colour) and a graph, contains a great deal of original research and is therefore of wide interest to botanical historians. The book comprises two sections. The first is a narrative part, headed "How the plants were found"; and the second is an index in the style of, but more detailed than Ray Desmond's *Dictionary*. The work concludes with a bibliography. The fascinating family trees of the Backhouse, Crosfield and Fothergill families on pp. 4 and 5 are titled "Family relationships of Quaker botanists", some of whom featured prominently in the early history of the botanical exploration of north Lancashire and, indeed, elsewhere (*e.g.*, James Backhouse of Darlington (1794-1869) in Tasmania).

LINNAEUS, C. (with a new introduction by C.Jarvis). *Species plantarum*. Ray Society, London. 2015. 2 vols. £125 h/b. ISBN 978 0 903874 49 6.

LOCKTON, A. & WHILD, S. *The flora and vegetation of Shropshire*. Shropshire Botanical Society, Shrewsbury. 2015. £35 p/b. ISBN 978 9530937 2 4.

*MABBERLEY, D.J. *Mabberley's plant-book*. 3rd ed., reprinted with corrections. Cambridge University Press, Cambridge. 2014. £40 flexible covers. ISBN 978 0 521 82071 4.

Subtitled "a portable dictionary of plants, their classifications and uses", this regularly updated compendium traces its origins to J.C. Willis's *Dictionary of the flowering plants and ferns*. With family circumscriptions brought into alignment with APGIII, and having now included some 'economically important' bryophyte genera, it continues to serve as a reliable and usable reference work for taxonomic botanists, ecologists, editors and curators.

*MANCUSO, S. & VIOLA, A. (tr. by Joan Benham). *Brilliant green: the surprising history and science of plant intelligence*. Island Press, Washington, U.SA. 2015. £12.99 p/b. ISBN 978 1 61091 603 5. This very odd little book mainly deals with the science of plant neurobiology, and describes how plants use various sensory mechanisms to help them survive and prosper. It also touches on phytoremediation, whereby plants intercept and neutralise environmental toxins.

MEINERS, S.J., PICKETT, S.T. & CADENASSO, M.L. *An integrative approach to successional dynamics*. Cambridge University Press, Cambridge. 2015. £65.00 h/b. ISBN 978 0 521 11642 8. "The fourteen chapters [cover] community assembly, heterogeneity, functional ecology and biological invasion" (blurb).

MILNER, E. *Trees of Britain and Ireland*. Natural History Museum, London. 2011. £19.95 h/b. ISBN 978 0 565 09295 5.

RAY, J. *Methodus plantarum nova*, tr. by S.A.Nimis, K.T.Unroe & M.A.Vincent, with commentaries by M.Black, M.W.Chase & M.A.Vincent. Ray Society, London. 2015. £60 h/b. ISBN 978 0 903874 46 5.

*REVELS, J.R., BOON, C & BELLAMY, G. *Wild orchids of Bedfordshire*. Bedfordshire Natural History Society. 2015. £20 h/b. ISBN 978 0 9506521 9 1.
Rarely can three experts in the fields of photography, plant recording and environmental conservation have come together with such good effect. Although this book is ostensibly focused on one small county, it deserves to be cherished by orchid enthusiasts across these islands. With 1×1km distribution maps, based largely on a two-year intensive survey, and introductory chapters on orchid conservation in general and work on Autumn Lady's-tresses in particular, it also tells where each of the 27 species, varieties and hybrids can be seen on sites in Bedfordshire accessible to the public.

STACE, C.A., PRESTON, C.D. & PEARMAN, D.A.. *Hybrid flora of the British Isles*. Botanical Society of Britain & Ireland, Bristol. 2015. £45 h/b. ISBN 978 0 901158 48 2.

*VAUGHN, W. *Hawthorn: the tree that has nourished, healed and inspired through the ages.* Yale University Press, New Haven. 2015. £17.99 h/b. ISBN 978 0 300 20349 3.
A somewhat Thoreauesque treatment of a non-native (to North America) species by an American author, this book focuses on the one-seeded hawthorn *Crataegus monogyna*, but also broadens its scope to include New World native hawthorns, the so-called 'American thorns', and even muses on *Cooksonia*, their ancient ancestor. Its main theme is the European hawthorn in myth and legend.

WILMOTT, A. & MOYES, N. *The flora of Derbyshire*. Pisces Publications, Newbury. 2015. £38.50 h/b. ISBN 978 1 874357 65 0.

A correction to *The flora of Oxfordshire* (1998)

JOHN KILLICK, *17b Park Crescent, Abingdon, Oxon., OX14 1DF*; (hkillick@yahoo.co.uk)

Among the articles I write for *The Oxford Times*, number 882 was 'Sharp-flowered Rush *Juncus acutiflorus*'.

It began: "I was relieved to find few errors in *The flora of Oxfordshire*, but unfortunately the distribution map for this rush is one of them." In fact, the map for this species, which occurs in only 94 of the *Flora*'s 596 tetrads, was that for *J. articulatus* (Jointed Rush), which is found in 295.

I am submitting the correct map (see fig. 1), printed at about the right size, in the hope that readers can paste a copy over the wrong one on page 261.

Reference

KILLICK, J, PERRY, R & WOODELL, S. (1998). *The flora of Oxfordshire*. Pisces publications, Newbury

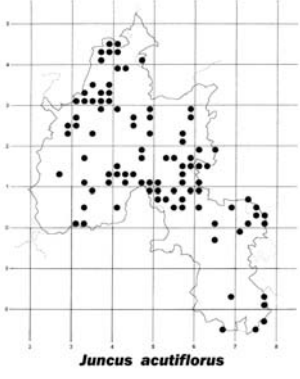


Fig 1. Replacement map of *Juncus acutiflorus* in *The flora of Oxfordshire* (1998), p. 261

RECORDERS AND RECORDING

Panel of Referees and Specialists

JEREMY ISON, *40 Willeys Avenue, Exeter, Devon, EX2 8ES*; (Tel.: 01392 272600; Mob.: 07970 309205; Jeremy_ison@blueyonder.co.uk)

Please note the following changes to the list of Referees and Specialists.

Paul Green (referee for *Allium*) now has a post code. His full address is: Yoletown, Ballycullane, New Ross, Co. Wexford, Y34 XW62, Republic of Ireland.

Bob Leaney took over *Symphytum* from Clare O'Reilly in 2014, but this was not updated in the 2015 Yearbook. The entry should have read:

Symphytum: Dr R.M. Leaney, either fresh material in a sealed plastic bag or pressed with one corolla slit open and a note of bud, corolla tube & bell colour. Colour photographs showing buds and an open corolla would be very helpful.

Quentin Groom, Botanic Garden Meise, Bouchout Domain, Nieuwelaan 38, 1860 Meise, Belgium; (quentin.groom@br.fgov.be) is replacing Mark Watson as referee for *Oxalis*.

The correct email address for **Timothy Walker** (referee for *Euphorbia*) is: timothy.walker@some.ox.ac.uk

I am currently spending such a lot of time away from home that contact by landline is unlikely to be successful. Email is preferred, but for my mobile number, see above.

Panel of Vice-county Recorders

PETER STROH, *c/o Cambridge University Botanic Gardens, 1 Brookside, Cambridge CB2 1JE*; (peter.stroh@bsbi.org)

Following the retirement of Tony O'Mahony, mentioned in the April edition of *BSBI News*, we now have a new Vice-county Recorder for West Cork (v.c.H03), Clare Heardman. Clare is a Conservation Ranger based in County Cork, and is a fine addition to the VCR network. She can be contacted at: clare.heardman@ahg.gov.ie, or by writing to: NPWS Conservation Ranger (Beara), Main Gate Lodge, Glengarriff Woods Nature Reserve, Glengarriff, Co. Cork.

County Monaghan (v.c.H32) also has an excellent new recruit, Alexis FitzGerald, to assist Pat Lenihan. Alexis's email address is: alexisfitzgerald434@gmail.com, and his postal address is: Apartment M, Coliemore Apartments, Coliemore Road, Dalkey, Co. Dublin.

Staying in Ireland, Gerry Sharkey (v.c.c.H26 & H27) has asked for his email address to be included here: gsharkey@patodonnell.com; and following the wonderful success of the recent field meeting in Mayo, I am sure that Gerry will be receiving plenty of emails from enthused local botanists!

In other news, Mark Duffell has recently resigned as assistant VCR for Montgomeryshire (v.c.47) and Gill Foulkes is now supporting Kathryn Thorne. Jeff Waddell, joint recorder in Selkirk & Roxburgh with Rod Corner, has a new address: Bonavista, Heathery ett Drive, Galashiels, Selkirkshire, TD1 2JL. Martin Rand, VCR for South Hampshire, is also on the move. From the end of September, his new address will be 3 Kings Close, Chandlers Ford, Eastleigh, Hampshire, SO53 2FF.

Finally, and on a sadder note, Jim McIntosh has informed me of the passing of three VCRs from Scotland. Jim writes:

"BSBI Recorder, Pat Evans died on 26th April. She had been Recorder for West Sutherland (v.c.108), one of the biggest and most remote counties, since 1993, latterly jointly with her husband, Ian Evans. Ian will continue as Recorder.

Peter Macpherson died suddenly but peacefully at home on 6th May. He was editor of the *BSBI Scottish Newsletter* since its inception in 1979, and was also an active member of the BSBI Committee for Scotland, most recently as Chairman from 1995 until 1999. Peter was appointed Recorder for Lanarkshire (v.c.77) in 1978, taking over from Robert McKechnie, and was in the process of writing a flora. The draft was almost complete and we hope it will be published. The BSBI Recorder post is now vacant.

It is also sad to report that Edna Stewart died on the 1st August. Edna was the BSBI Vice-county Recorder for Stirling (v.c.86), from 1994 until 2013, when she retired. She was also an active member of the BSBI Committee for Scotland from 1997 until 2003. Edna was an early adopter of technology, and digitised over 50,000 records well before many others had got to grips with computers, which has been a great starting point for succeeding BSBI Recorders, Ruth McGuire & Philip Sansum."

Recording *Juncus gerardii* and *J. compressus*

MIKE WILCOX, *43 Roundwood Glen, Greengates, Bradford, BD10 0HW*; (michaelpw22@hotmail.com)

Saltmarsh Rush (*Juncus gerardii*) and Round-fruited Rush (*J. compressus*) both occur inland on roadsides and other habitats (although more so *J. compressus*), such as flood meadows, near springs, and reservoir or lake edges. *J. gerardii*, albeit primarily coastal, is a relict inland taxon in Britain and of course is also spreading through the activities of man. *J. compressus* is an 'inland' species. It does not occur directly on the coast or in saltmarshes. Plants found on the coast that look superficially like *J. compressus*, with 'rounded capsules', are *J. gerardii* that just happen to be full of seed. Often *J. gerardii* will not fruit or will only partially do so. The anthers and seed sizes are diagnostic in these two taxa (Stace, 2010), and those with rounded fruits, *e.g*. sometimes on the Lancashire coastline (v.c.59/60) (see Greenwood, 2012: 490), or Hartlepool (v.c.66) and elsewhere, are *J. gerardii.*

As they can occasionally both occur along the same stretch of road, (although I do not know of any that are particularly close together) hybrids might increasingly be a possibility. In the new *Hybrid flora* (Stace *et al*., 2015) it reports that R.P. Libbey searched for hybrids in areas supporting both species. R.P. Libbey's work with careful measurements (passed on to me by C.A. Stace) showed that he was also of the opinion that *J. compressus* did not occur directly on the coast. From this work, it included reports of both species at inland sites, *e.g*. near Cambridge, and putative hybrids were sent to Snogerup in Sweden (an expert on *Juncus*), but he said they were not hybrids. All material I have looked at in herbaria said to be this hybrid was *J. gerardii* that was poorly fruiting or yet to set seed, as reported in the new *Hybrid flora*. If recording *J. compressus* in a coastal situation or either species on an inland roadside *etc*., please collect a voucher for confirmation (preferably in fruit, as the anthers are retained behind the tepals).

References:

GREENWOOD, E.F. (2012). *Flora of North Lancashire*. Palatine Books, Carnegie Publishing Ltd., Lancaster.

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

STACE, C.A., PRESTON, C.D. & PEARMAN, D.A. (2015). *Hybrid flora of the British Isles*. Botanical Society of Britain & Ireland, Bristol.

OBITUARY NOTES

Since the publication of *BSBI News* **129**, we regret to report that the news of the deaths of the following members, including several of long standing, has reached us. We send regrets and sympathies to all the families.

Mr K Barnett of Malvern, Worcestershire, a member since 1994

Mr D J Belcher of Fishguard, Pembrokeshire, a member since 1985

Mr T Davidge of Goldaming, Surrey, a member since 1984

Mrs P A Evans of Lairg, Sutherland, a member since 1952 and Recorder for West Sutherland (v.c.108) since 1993.

Mr K M Goodway of Stone, Staffordshire, a member since 1951 and referee for *Galium* from 1973-1995.

Mr J Greaves of Ossett, West Yorkshire, a member since 1992.

Dr F M Hall of Canterbury, Kent, a member since 1961.

Mr C A Jacobs of Great Yarmouth, Norfolk, a member since 2009.

Dr P Macpherson FRCP FRCR of Glasgow, a President of the Society from 1991 to 1993, a member since 1957, Recorder for Lanarkshire (v.c.77) since 1978, and editor of the *BSBI Scottish Newsletter* for many years.

Mrs E W Stewart of Milngavie, Glasgow, a member since 1989 and Recorder for Stirling (v.c.86) from 1994 to 2013.

Miss J P Vinson of Kingsbridge, Devon, a member since 1979.

Dr J T Williams DSc of Cheadle, Cheshire, a member since 1953.

The BSBI is still looking for an Obituaries Editor and if any member would be prepared to take this on please contact John Poland, 13 Grasmere Close, Southampton, Hants., SO18 3NP; (jpp197@alumni.soton.ac.uk)

NOTES FROM THE OFFICERS

From the Hon. General Secretary – *CHRIS METHERELL*

Woodsia House, Main Street, Felton, Northumberland, NE65 9PT;
(01670-783401; chris@metherell.org.uk)

One of the current roles of the Hon. Gen. Secretary is to look after the BSBI's archive collection. Until a couple of years ago the papers were stored in the old British herbarium at the Natural History Museum. However, when that moved to its new and rather more luxurious premises in the basement of the Darwin Centre, the archive had to find a new home. *Pro tem*, the archive is stored in Harrogate, near to Kevin Walker's office. However I am pleased to say that, once re-sorting and a little pruning has taken place (mostly to remove duplicate material), the papers will return to be housed once again in the NHM, within their main archive, where they will be easily available for use.

Once the archive has reached its new home and is more readily viewable I intend to describe the contents in more detail in *BSBI News.* However one new acquisition is perhaps worthy of note now. Some months ago the BSBI was offered a card index of the old Botanical Exchange Club records. The BEC was operative more or less until 1947, and up to the Second World War published a report, detailing, amongst other things, new vice-county records. It has to be said that the system was rather haphazard up to 1932, when

P.H. Hall undertook the monumental task of going back through the records and preparing a definitive card index of the results. Although I have yet to see the cards themselves, it seems likely that it is this index which is now to return to the archive. If it is it will doubtless prove to be a valuable resource for historic records.

On a completely different note, I am sad to report that Council is to lose the services of its extremely able minuting secretary, Dr Helena Crouch. She will be much missed by all those involved in the running of the Society for the speed and accuracy with which she produced Council minutes and Council and the Board of Trustees extend their warmest thanks to her. And so, a volunteer is sought to fill this role; only two meetings a year....

From the Scottish Officer – *JIM MCINTOSH*

c/o Royal Botanic Garden, Inverleith Row, Edinburgh, EH3 5LR;
(Tel.: 0131 2482894; jim.mcintosh@bsbi.org)

MapMate and Windows 10

Not surprisingly we have had several concerned emails from MapMate users after MapMate's most recent Newsletter (Newsletter 110). It states that they 'drop any recommendation that MapMate will run on Windows 8 or subsequent Windows versions.' This response was prompted after recurring problems with Windows 8.

The Newsletter also raised the specific question about whether MapMate will work satisfactorily with Windows 10 and more general questions about the long term future of MapMate. Quick as a flash, our Database Officer, Tom Humphrey, downloaded the beta version of Windows 10, and established that MapMate did work absolutely fine with that operating system. It continues to work well with the final version of Windows 10 that was launched at the end of July. I also know many recorders are using MapMate quite happily on computers with the latest versions of Windows 8.

None the less, the news from MapMate has been helpful in prompting us to begin to plan for a post-MapMate future, and we will be discussing options in a meeting this autumn. As mentioned above, MapMate continues to work normally for the vast majority of users, and we hope that it will continue do to so until the end of the Atlas 2020 project.

So where does that leave us? In the long-term, Windows 10 is a worthwhile upgrade, but until MapMate has been tested for a while on the new operating system, I would not rush to update Windows 7 & 8 computers that are happily running MapMate. The important thing to do, as always, is to make sure that your data is backed-up *after* every data entry session and that you synch records with the hub frequently.

Atlas 2020 Guidance

Much new Atlas 2020 guidance has been published this summer and is now available on the Atlas 2020 page of the BSBI website, as mentioned in Peter Stroh's Atlas 2020 Coordinators' Corner (p. 65).

Many of you will remember the series of green Atlas 2000 guidance booklets which were distributed with *BSBI News* during the Atlas 2000 project. These guidance booklets have been comprehensively updated and revised and are now online. The *Atlas 2020 instruction booklet* and *A beginner's guide to recording* are both primarily aimed at BSBI members; while *Collecting and pressing specimens* and *Notes on identification works and difficult and under-recorded taxa* are essential references for everyone involved in Atlas 2020. A copy of the latter is enclosed with this *BSBI News*.

There are two other pieces of required reading. The first is the *Atlas 2020 guidance for vice-county recorders* – a collation of all the information and advice specifically for recorders that has already appeared in various editions of *BSBI News*, so little is new, but it is

really useful to have it all set out in one place in logical order and with an index. The second is the one-side-of-A4 guidance on *Where and what do we record?* Take a look now! ALL this new guidance is on the Atlas 2020 page on the BSBI website.

Customised recording cards on the BSBI website

One or two folk have said that they have had difficulty finding the vice-county customised cards on the BSBI website. If you bring up the BSBI home page, left click with the cursor directly over the word 'Resources', then scroll down to find the card for the vice-county. Cover sheets are available at the top of the lists of vice-counties. I print them back-to-back on light card (120 or 160gsm), which is more durable in damp and windy weather than ordinary paper. Recorders in the wetter west might even like to print a batch on waterproof paper (available online). Going back to the BSBI website, if you left click *on* any of the other headers, a home page with that heading will also open.

From the Welsh Officer – *POLLY SPENCER-VELLACOTT*

POLLY SPENCER-VELLACOTT: *c/o Natural Resources Wales, Chester Road, Buckley, CH7 3AJ*
(Tel.: 03000 653893; polly.spencer-vellacott@bsbi.org)

For the last year Paul Green has been the Welsh Officer, and I am sure there are many Welsh members who would like to joining me in thanking Paul for the great work he has done (since 2012) in Wales. As you may well be aware the Welsh Officer post was funded full-time by a grant that finished in June this year. As this date approached we were afraid that there would not be a successor grant. However, in April we were very glad to hear that a new grant had been awarded, albeit only sufficient to cover a post for three days per week. Unfortunately, therefore, Paul has now left Wales (although we know he will continue to be active, especially in Ireland). However, I have now returned to (as of the end of August) and will be carrying on with the Welsh project, supporting the work of the Welsh Vice-county Recorders. My time will be spread more thinly than before but we are very grateful to Natural Resources Wales for the continued funding. I am very much looking forward to catching up with some of our Welsh members and Vice-county Recorders and spending some time in the field again.

From the Irish Officer – *MARIA LONG*

C/o National Botanic Gardens, Glasnevin, Dublin 9, Ireland;
(Tel.: 00 353 87 2578763; maria.long@bsbi.org)

Ireland's first botanical recording week – a big success!

Held over a period of eight days between 27th July – 3rd August, and aimed at helping with recording for Atlas 2020, the Mayo Botanical Recording Week 2015 was an unprecedented success.

Mayo is one of Ireland's most scenic counties, with impressive mountainous terrain, expanses of blanket bog, stunning coastline, as well as inland lakes and other important lowland habitats; and we visited them all! Over the eight-day event, 42 improver or expert botanists took part, heading off in small groups in the mornings to record. We went in all directions, taking in every habitat you can think of. One lucky group even got to go out by boat to an ancient, wooded and little-visited lake island. The week also included two 'rough crew' days, tackling the mighty Mweelrea mountain and parts of the truly wild Ballycroy National Park. A talk (and walk on the following day) was held mid-week for beginners and members of the public.

What did we achieve you might ask? Here are some results:

- 42 botanists took part (some for the entire eight days, and this is not counting beginners)
- 33 hectads (10×10 km sq.) all across Mayo were visited
- 132 monads (1×1 km sq.) were visited
- 10,824 plant records were collected

This is a really great result, particularly considering that the ratio of expert to improver was about 1:4/5, meaning that there was a huge emphasis on teaching and learning; *i.e.* the event was not simply aimed at hard-nosed, full-on, speedy recording!

Residential recording events such as this are, without doubt, one of the best ways to improve your botany. You see the experts in action in the field, you learn their i.d. tips, and you have the chance to share and learn further in the evenings; and… they are always fun too! Overall this was an adventurous, educational and inspirational week. Everyone learned a lot and made new friends and, very importantly, we made very many plant records for use in Atlas 2020. This will greatly help the Vice-county Recorder for these two huge vice-counties, Gerry Sharkey.

Special thanks go to Gerry, to all who were leaders, especially Paul Green and Rory Hodd, and to all at the excellent Lough Lannagh Holiday Village, Castlebar. I can not recommend it highly enough as a 'base camp' for botanical adventures.

When I and Gerry thought first about organising this week we were not sure who, if anyone, would come. Now that we know that there are lots of willing and able participants, … … roll on 2016, when we will hopefully run more botanical recording events and build on this success story.

Photographs taken by Rory Hodd are on the Back Cover and in Colour Section, Plate 4). The names of the 'rough crew' in the gully are: Catriona Mher, Kate Marie O'Connor, Róisín NigFhloinn, John Deasy, James Owens, Sean & Cathy Seale and Mark O'Callaghan. and those on Mweelrea Mountain are: Graham Day, David Bourke, Mark O'Callaghan, Eamon Gaughan, Oonagh Duggan, Pat Lenihan, Sunniva Hanley and Derek McLoughlin.

Dates for your diary: a message from the Publicity & Outreach Officer – *LOUISE MARSH*

The Herbarium, Biology Dept., Adrian Building, University of Leicester, University Road, Leicester, LE1 7RH; (louise.marsh@bsbi.org)

The AGM and AEM

This year's Annual Exhibition Meeting and Annual General Meeting will take place on Saturday 28th November at the Natural History Museum, London. A flyer included with this issue of *BSBI News* gives more details and includes a booking form. It is of course possible to just turn up on the day but it helps us if we know in advance how many people are coming.

This year's theme is BSBI North, East, West and South. Speakers will focus on the botanical delights to be found right across BSBI's geography, including the most far-flung outposts! If you have never attended an AEM before, you can get an idea of what goes on by visiting: http://www.bsbi.org.uk/exhibition_meeting.html

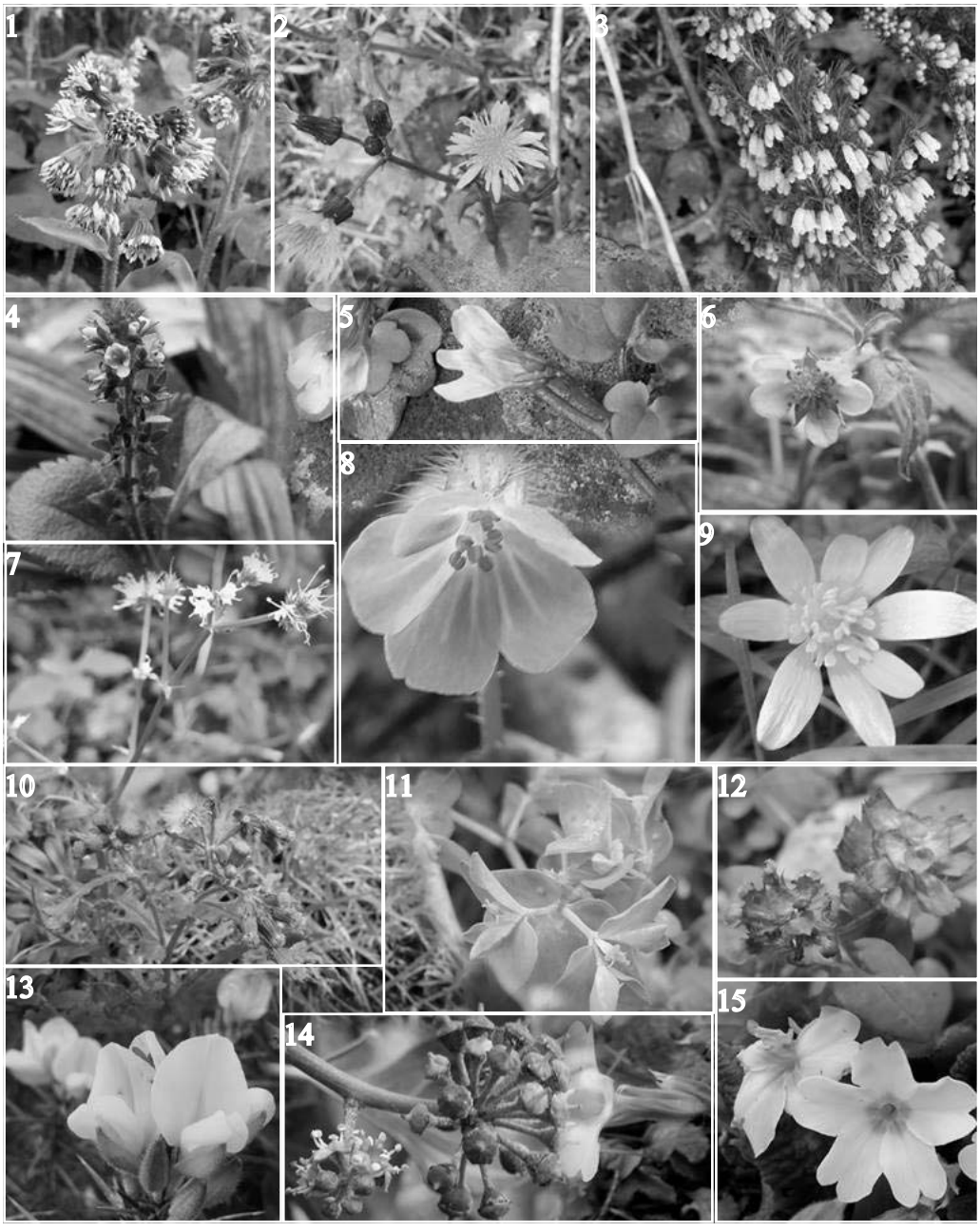
Any members wishing to exhibit at the AEM should contact us at: meetings@bsbi.org to discuss any requirements and reserve a space. We welcome any poster or exhibit concerning British and Irish botany and would be happy to offer extra support and guidance to any member who has never exhibited before.

We also hope to offer guided tours of the herbarium. Spaces on these tours fill up very quickly so, if you are interested in joining a tour, please book as soon as possible.

New Year Plant Hunt 2016

A reminder that we plan to run our very popular Plant Hunt again for four days over the New Year holiday, and we hope that you will

Key to cover photo of *BSBI News* 129



1. *Petasites fragrans*
2. *Sonchus oleraceus*
3. *Erica lusitanica*
4. *Veronica serpyllifolia*
5. *Cymbalaria muralis*
6. *Geum urbanum*
7. *Sanicula europaea*
8. *Geranium robertianum*
9. *Ficaria verna*
10. *Senecio vulgaris*
11. *Euphorbia peplus*
12. *Prunella vulgaris*
13. *Ulex europaeus*
14. *Hedera helix*
15. *Primula vulgaris*

All photos taken at Glengarriff Woods NR, W. Cork (v.c.H3) January 2015
The composite image was put together by Clare Heardman

want to join us in recording what is in flower in mid-winter. Details of how to get involved will be published on the following pages, which are also a great way to keep up with all the latest botanical news until the next issue of *BSBI News* is published:

on the News & Views blog:
http://www.bsbi.org.uk/news_views.html

on our Facebook page:
https://www.facebook.com/BSBI2011

on the BSBI Twitter account:
https://twitter.com/BSBIbotany.

You can also contact the Plant Hunt Team by email at: nyplanthunt@bsbi.org

From the Database Officer – *TOM HUMPHREY*

c/o Centre for Ecology and Hydrology, Maclean Building, Crowmarsh Gifford, Wallingford, Oxon, OX10 8BB; (Tel.: 01491 692728; tom.humphrey@bsbi.org)

For a long while I had intended to include brief updates about my work and about data-related topics in each issue of *BSBI News*. My role centres on development and management of the BSBI's database system (DDb) and, over the past year, has included work on developing replacement software for the BSBI's distribution maps.

The BSBI Maps website
http://bsbi.org/maps/

The distribution maps on the BSBI website, launched in 2005 by Alex Lockton, Alan Hale and Quentin Groom, rapidly became a popular and widely used facility. Over the past year a replacement mapping system, updated daily with new records from the BSBI's database, has been phased in at: bsbi.org/maps/. Since May, visitors to the old map scheme pages have been automatically redirected to the new website.

The original maps website had become difficult to support in parallel with the BSBI distribution database and the maps were no longer up-to-date. Maintaining a completely separate database of summary records for the maps had become a distraction from focusing on improving the quality of detailed records in the main database and was causing confusion as the two systems drifted apart.

By default the new map pages display an interactive 'Google-map' style layout that is designed to integrate data recorded at finer resolutions. It had become increasingly anachronistic to present hectad resolution maps while encouraging recorders to submit far more detailed records.

The current website provides equivalents for all the capabilities of the old maps system, but also adds several new formatting options. Printable and downloadable versions of the maps are still available by clicking on the 'printable map' button near the top-right corner of the page.

The new software should still be seen as a work in progress. Feedback and suggestions are extremely welcome and will substantially influence the focus of work on the new system. For more information about using the news maps please visit: http://bsbi.org/mapshelp/

'Looked for and not found' – recording absence

An under-used feature of MapMate and the BSBI's database is the ability to formally record that a taxon is absent from a site, 'looked for and not found'.

Negative records can be valuable as a way to systematically document the loss of sites or sometimes as evidence to refute earlier

records that may be in doubt. Many recorders include comments about loss of a site in the notes fields of earlier records but, in a less structured form, the notes are hard to analyse and can easily be overlooked.

In MapMate, absence can be marked by entering '-7' in a record's quantity field. When creating such records please also include a comment that makes it as clear as possible that the record is a marker for absence and also, whenever possible, state when the taxon was last seen, or what has changed leading to its extirpation. Once added to the BSBI database, negative records are marked using a status of 'looked for and not found'. Within the DDb, negative records are not mapped and, by default, are hidden from search results, but can be viewed by modifying the search filter to include all records regardless of status.

From the Hon. Field Secretary – *JONATHAN SHANKLIN*

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The 2015 field meetings are drawing to a close and planning is already underway for the 2016 season. Dates for some future meetings are on the BSBI meetings web page, so that you can put them in your diary now and avoid clashes. Booking details will follow when they are known and will also appear in the *Yearbook*. The 2016 BSBI Spring Meeting is going to be held at the Field Studies Council Blencathra centre in Cumbria in May. The timing is a bit early for the upland areas, so we will be concentrating on the spring flowers, which do not require physical fitness to reach! We will be visiting a mix of nature reserves and areas in need of general recording, so there should be something for everyone. Do come, as the meeting will be designed to be suitable for all levels of experience.

Reports from the 2015 meetings will be published in the *Yearbook* for 2016 to give members a flavour of the excitement of participating in these events. The reports should go to the *Yearbook* editors by the end of November at the latest, but if you have written them promptly send a copy and pictures to Louise Marsh and they may appear in her blog as well. I have just come back from the BSBI meeting in North Northumberland, where we saw many rare flowers on the coastal dunes around Holy Island, and on one day had the experience of recording dune slacks in the pouring rain. Fortunately (perhaps!) I had printed a few record cards on waterproof paper, so my group endured recording three slacks. In addition to participants learning new ways of identifying species, these meetings also give recorders a chance to compare notes, which can be a big help in reducing discontinuities at county boundaries.

I hope to have an outline list of the 2016 meetings on display at the Annual Exhibition Meeting in November and welcome offers of meetings further in the future. As always these will be a mix of general, recording, specialist and training meetings, although there is likely to be an emphasis on recording for Atlas 2020. If you are considering hosting a meeting do let me or your country secretary know. Ideally we would like a broad coverage across England, Ireland, Scotland and Wales.

Coordinator's Corner

PETER STROH, *c/o Cambridge University Botanic Garden, 1 Brookside, Cambridge, CB2 1JE*; (peter.stroh@bsbi.org)

After a late spring, summer really did kick in, and I hope you have had a full and very fun few months recording for the Atlas. I find that 'square bashing' fine-tunes identification skills like nothing else and there is always something of interest, even in the most unpromising landscapes. Indeed, in my opinion, finding a locally uncommon species in such circumstances beats twitching a national rarity any day! I will be sharing a few of the more spectacular discoveries from this summer's recording in a bit, but first a quick mention that you can read and download all of the Atlas guidance documents (contain your excitement!) on the Atlas 2020 web page. In addition, and thanks to the generosity of the Biological Records Centre, a printed version of one of these booklets – *Notes on identification works and some difficult and underrecorded taxa* – will have landed on your doorstep with this edition of *BSBI News*. I trust that there is something of use to be found in this booklet for all BSBI members. I must also mention the recently published *Hybrid flora*, a wonderfully comprehensive work and one which will help us to record and therefore better understand the distribution and ecology of such an important part of our flora.

I cannot hope to list all the notable finds this year, and indeed this is probably not the place to do so, but I did want to give a flavour of what can be discovered, even in such scrupulously well recorded Isles. For example, two species – *Mibora minima* (Early Sand-grass) (see p.26) and *Epipactis phyllanthes* (Green-flowered Helleborine) – have been discovered, new to Scotland, in the Western Isles and Moray respectively, dramatically extending their known British northerly ranges. From one extreme to the other, *Reseda luteola* (Weld) has been found for the first time on Scilly, and there are first records for *Melica uniflora* (Wood Melick) and *Sanicula europaea* (Sanicle) on Jersey, amply demonstrating that one person's common plant is another's rare and exciting addition to their local flora. Amongst the plethora of other new county records whilst recording for the Atlas, special mention goes to *Juncus planifolius* (Broad-leaved Rush) found in Mayo during the wildly successful BSBI field meeting, *Fumaria purpurea* (Purple Ramping--fumitory) in Denbighshire, *Euphrasia scottica* (Scottish Eyebright) in Waterford, and a large population of *Neotinea cordata* (Lesser Twayblade) in Herefordshire, always worth looking out for as you stumble through the

heather! It is also interesting to hear of *Himantoglossum hircinum* (Lizard Orchid) turning up in East Norfolk for the first time in 60 years and at a new site in Oxfordshire on an otherwise rather unpromising roadside verge. Roadside halophytes continue to march inland, with *Hordeum marinum* (Sea Barley) now firmly established in a slip-road near my house in Northamptonshire (see p. 29), and a first record for *Sagina maritima* (Sea Pearlwort) in Leicestershire – a long way from home! It is also worth looking out for *Anisantha diandra* (Great Brome) and *Bromus secalinus* (Rye Brome) in your area, as these species would also appear to be on the move.

I have a particular fondness for arable weeds, perhaps borne out of necessity, as I live in an area dominated by arable farming, and so it has been very pleasing to hear of so many new records for *Torilis arvensis* (Spreading Hedge-parsley), notably in the Cambridgeshire fens. I was lucky enough to find this species with Trevor James in Hertfordshire on a recording day out that included perhaps the best arable weed flora we have ever seen, including four *Fumaria* (Fumitory) species and a thriving population of *Galeopsis angustifolia* (Red Hemp-nettle). Ann Sankey also tells of finding *Lithospermum arvense* (Field Grom-well) in Surrey, a species that, as with so many arable species, relies on regular disturbance and uncropped headlands – a niche that is, in many areas, something of a rarity in these times of sown 'wildflower' field margins. Gateways, however, may still turn up good finds, *e.g. Polygonum arenastrum* (Equal-leaved Knotgrass) and *P. rurivagum* (Cornfield Knotgrass) – it is unlikely that these areas will have been deliberately sown!.

But the 2015 prize for the most surprising discovery must surely go to Mick Crawley for *Leontopodium alpinum* (Edelweiss), growing on a pavement in Lewisham, south-east London! Some kind of pun about the Sound of Music seems appropriate here, but I am afraid Nun come to mind.

Thank you all for your time and expertise this summer, and happy recording for the autumn and winter months ahead.

Overlooked species nos. 2 and 3: *Equisetum* hybrids; *Conyza* spp.

In the first case, I have taken a rather loose interpretation of both 'overlooked' and 'species', but late summer and early autumn really is a good time to look for and get to grips with those *Equisetum* (horsetail) hybrids you suspect may be lurking in your area, and we now have the *Hybrid flora* (pp. 7-13) alongside Stace (ed. 3) to help us. Even if the plants you find turn out not to be hybrids, taking a critical look will help to reinforce diagnostic features of the species in question, so you cannot lose!

Secondly, *Conyza* (fleabane) species are at their best at this time of the year and are not too difficult if you use the keys; and remember to look for hybrids here too (both within the genus and with *Erigeron*).

Solutions to Botanical Crossword 26

Across

7. LINEAR 8. PLENUM 9. BIRK
10. GARDENIA 11. CAMPANULATE
14. DORSET HEATH 18. DIOECISM
19. CONE 20. SPURGE 21. TILLER

Down

1. DIGITAL 2. BEAK 3. DRAGON
4. SPIRAL 5. NEPENTHE 6. CUTIN
12. PIONEERS 13. STINGER 15. STIPES
16. TOMATO 17. HIPPO 19. CELL

Crib to Botanical Crossword 26

Across

7. anagram IN REAL 8. multiPLE NUMbers
9. sounds like BERK 10. GARDEN/ rev A1
11. CAMP/anew/LATE 14. anag HOT TRADE SHE (answer can be the plant or the place) 18. anag MEDICO IS
19. C/ONE 20. SP/URGE
21. double definition

Down

1. DIGITAL~~IS~~ 2. dd 3. DRAG/ON
4. anag SLIP round RA
5. aloNE PEN THEsis 6. Charade
12. P< rev NO/1>EERS
13. anag RESTING (& lit)
15. rev SE/PITS 16. TO<MAT>O
17. dd 19. sell

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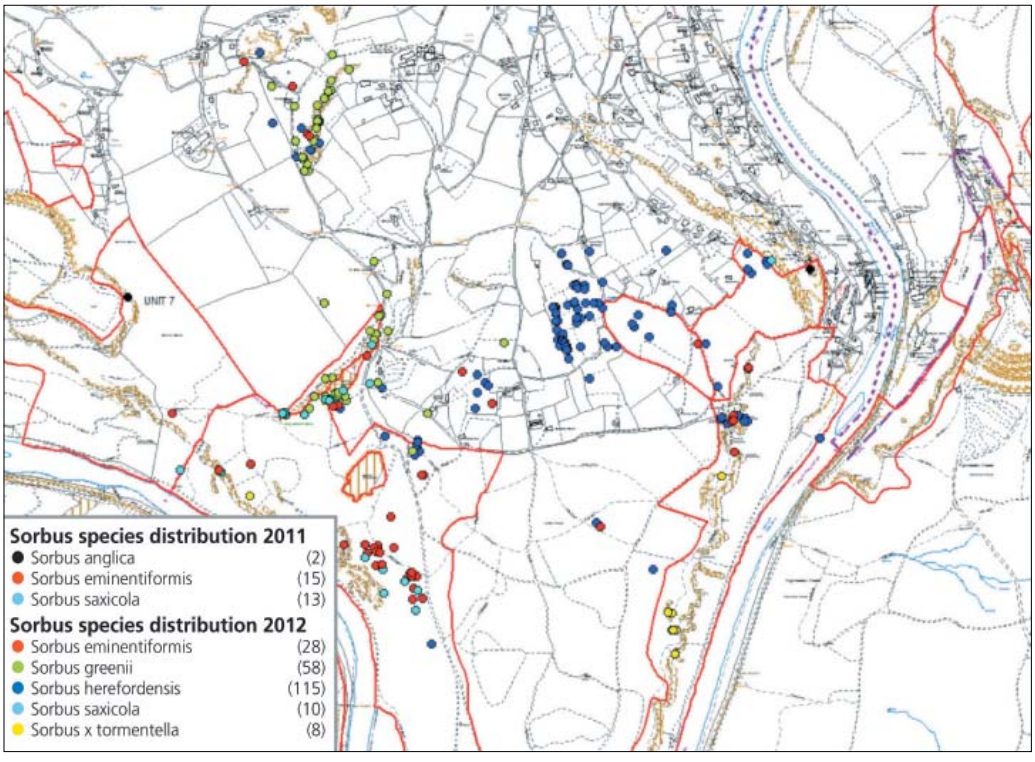
Sorbus greenii habit, Doward, Herefordshire (v.c.36). Photo D. Green © June 2013 (see p. 12)



Map of *Sorbus* species on the Doward, Herefordshire (v.c.36) (see p. 12)

Rough crew in gully in Ballycroy National Park, W. Mayo (v.c.H27) (see text p. 61 for names)

Rough crew on Mweelrea mountain, W. Mayo (v.c.H27) (see text p. 61 for names)

Both photos taken by R. Hodd (joint-VCR for H01 & H02) © 2015