

# BSBI News

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**Edited by Trevor James & Gwynn Ellis**

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*Allium ampeloprasum* var. *ampeloprasum* (Wild Leek) plant in bud on 5<sup>th</sup> June (l) & in flower on 23<sup>rd</sup> July (r) at Sand Bay SSSI (v.c.6). Photos © M.A. Webster 2013 (see p. 26)



*Allium ampeloprasum* var. *ampeloprasum* (Wild Leek) at Clonmines, Bannow Bay (v.c.H12)  
Photo P. Green © 2013 (see p. 27)



*Cymbalaria hepaticifolia* (Corsican Toadflax) in Whirlowbrook Park, near Sheffield (v.c.57) with detail inset. Photos A. Baker © 2013 (see p. 45)



*Opuntia phaeacantha* 'Albispina' on a bank at Eyhorne Street near Maidstone (v.c.15) with close-up of spines inset. July 2013. Photos © L. Rooney (see p. 49)



*Orobanche crenata* Forssk. in Field Bean (*Vicia faba*) crops near Harvel, v.c.16 (TQ66), 23rd August 2013, showing habit (upper) and variation in pigmentation (lower).  
Photos © F.J. Rumsey (see p. 46)

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**Cover picture** – : Close up of the flower head of *Allium ampeloprasum* var. *ampeloprasum* at Sand Bay (v.c.6) on 23<sup>rd</sup> July 2013. Photo © M.A. Webster (see p. 26)

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## IMPORTANT NOTICES

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### From The President

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Since September I have been able to attend meetings of all the BSBI Standing Committees (Meetings, Records, Publications, Training and Education), as well as ones coordinating BSBI's activities in Ireland, Scotland and Wales. It has been very informative and inspiring to witness the breadth of subjects that these Committees cover, and to catch up with so many of you who contribute on a voluntary basis to running the Society's affairs. One highlight was the opportunity to attend and speak at the Irish AGM, held just outside Killarney with a spectacular backdrop of Lough Leane and MacGillcuddy's Reeks. Unfortunately the weather proved out of sync with the programme, being sunny on the day we spent indoors but rather hostile on the day earmarked for field excursions. We saw some exciting plants nonetheless!

The process of restructuring and incorporation referred to in recent issues of *BSBI News* is finally reaching a conclusion with the transfer of assets, investments, etc., from the 'old' to the 'new' BSBI. One last step is to enrol everyone formally as members of the Botanical Society of Britain and Ireland. Jane Houldsworth, Clive Lovatt and Gwynn Ellis have worked hard to make this procedure as streamlined as possible. All of you should have received the relevant paperwork by post from Gwynn; if you haven't responded yet please could you do so as quickly as possible? This will help hugely with winding up the affairs of 'British Isles' and concentrating on 'Britain & Ireland' from now on.

In October, BSBI Council had its first meeting addressing its new (non-Trustee) role of underpinning and coordinating BSBI science and the implementation of our strategic priorities. The range of topics discussed included strengthening our fantastic network of taxonomic referees, supporting the

formation of BSBI local groups, and a review of our publicity and outreach activities and achievements so far. Council was followed in November by the first full meeting of the new Board of Trustees (BoT) for the Botanical Society of Britain and Ireland (members of BoT and Council are listed in the 2014 *Yearbook*). Outcomes of the Trustee meeting included a decision to change BSBI's accounting year from January-December to April-March, this has operational advantages but also some implications (see accompanying note from Clive Lovatt). It entails moving the main Annual General Meeting from late May/early June to the autumn to allow time for the preparation and submission of annual accounts. However, this most certainly doesn't mean abandoning the events in May/June that were previously timed to coincide with the AGM. We intend to continue with the model adopted in Galway in 2011 and Beaumaris in 2013, and to be continued in Perthshire in June 2014, of a 2-3 day event combining talks of local relevance with excursions to sites of national and local botanical importance and interest. So the familiar abbreviations AGM and AEM are now joined by a new one – ASM – with the 'S' standing for Spring or Summer depending on your definition of when one season morphs into the other!

I wrote in the previous *News* about our commitment to strengthening communication both within BSBI and with external organisations and individuals. Many members and non-members have expressed their appreciation and enjoyment of the BSBI News Blog written by Louise Marsh; this is regularly updated with the latest news and information on events, publications and other noteworthy developments, and can be accessed via the BSBI website or the url [bsbipublicity@](mailto:bsbipublicity@)

blogspot.co.uk/ It also links to other blogs maintained by BSBI members. Please do make a point of visiting and also contributing (via [louise.marsh@bsbi.org](mailto:louise.marsh@bsbi.org)) to the content. There is now also an official BSBI Twitter account with the username @BSBI botany and an expanding number of ‘followers’ both within and outside BSBI.

A brief preview of 2014 must include mention of the residential ASM in Perthshire in June (with terrific opportunities for field visits), and an event being held in March at the National Botanic Gardens, Dublin, to celebrate

50 years of BSBI’s involvement in Ireland. Details of both of these are in accompanying fliers and are also being posted on the website. We also have what is (in my view) one of our best and most geographically inclusive programmes of field meetings taking place throughout the 2014 season (see the *Yearbook* for details). Add to this some significant training programmes and the completion of important scientific publications, and I think we can look forward to a busy, productive and enjoyable botanical year ahead.

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## From the Administrative Officer/Company Secretary

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### Change of BSBI’s accounting year-end

At the last meeting of the Board of Trustees, the new governing body of the new BSBI, it was resolved to change the accounting year end of the Botanical Society of Britain and Ireland to 31 March, with effect from 31 March 2014. This change of year-end has been advised to Companies House, the Charity Commission and to HMRC.

One motivation for this was to match our year-end to the fiscal year, given that the larger proportion of our income now comes through grants and projects from the agencies (particularly NE, NERC, NRW and SNH) and the agreements often cover a fiscal year, and finance cannot be carried over to the next fiscal year. For members, it will also have the distinct advantage that the AGM can be held outside the main field season, and therefore allow better representation and more time to consider elections of Trustees and Council members, and any other business which may be required.

As a result of this change:

1. The first accounts of the Botanical Society of Britain and Ireland will cover the period from incorporation (3 June 2013) to 31 March 2014. In practical terms they will start on 1 November 2013 with the transfer of assets and activities from the Old BSBI; and
2. The Annual Review will be issued in July, after completion of the New BSBI’s accounts

- and their Independent Examination and approval by the Board of Trustees; and
3. The first AGM of the Botanical Society of Britain and Ireland can be held as a part of the Annual Exhibition Meeting / Conference, in November 2014; and
4. Elections for Trustees and Council Members will be held at the AEM in November 2014. Any changes necessary before that date can be dealt with by co-option.

The change will not affect:

1. The membership subscription year, which remains as the calendar year; or
2. The accounting date of the old BSBI, Botanical Society of the British Isles, which remains 31 December 2013. Its accounts will be presented on Thursday 5 June 2014 at the Annual Summer Meeting being held at Birnham, Perthshire. These accounts will show the financial activities of the Old BSBI up to 31 October 2013, and its financial state of affairs at 31 December 2013, after the transfer of assets and activities to the new BSBI; or
3. The way the larger part of the Society’s activities are reported in the Annual Review, i.e. on a calendar year/seasonal basis; or
4. The current pattern of indoor meetings: we will still have an annual late Spring/early Summer meeting which will move around BSBI’s geography.

### **The new BSBI's Memorandum of Association – and its Articles and Rules**

Thanks to the member who pointed out my error in mentioning the Society's Memorandum of Association on the recently issued form about joining the new BSBI. All this document has to show for itself is a signed list of the initial six members of the new BSBI who (in order of signing) formed the company: Ian Bonner, Ian Denholm, Antony Timmins, Lynne Farrell, David Pearman and Sarah Whild. Until 2010 the Memorandum would have included the objects of the Society, so it used to be particularly important. The Society's objects (unchanged from the Old BSBI) therefore appear in the Articles of Association.

As some of you have noticed, the Articles of Association only include what is necessary for the Society's governance and compliance with company and charity law. This also saves advising the Charity Commission and others when there are more minor changes. Other matters in the old BSBI Rules (2011) are carried forward pending a bottom up review.

### **The Society's old name – a long time coming**

As described by David Allen in his 150-year history of the Society published in 1986, *The Botanists*, the name, *Botanical Society of the British Isles*, was adopted in 1947, after a postal ballot. This was partly in response to de-recognising the Exchange Club activities which were in decline after originally having

been the *raison d'être* and sustaining force of the Society, as by then they only attracted a minority of members.

It is not obvious quite why they disliked *The Botanical Society of the British Isles*, given that it so obviously did the job replacing *The Botanical Society and Exchange Club of the British Isles*, but the responsible sub-Committee proposed *The British Society of Field Botanists*. They had at least rejected *The British Flora Society* and *The Flora of Britain Society* as having unsuitable acronyms – although exactly what they stood for in wartime slang can now only be guessed at. In the 2011 Rules it was made clear (or decided?) that '*The*' formed no part of the Society's name; or perhaps it was a mistake that had crept in because the 1947 Rules prefix the BSBI name by an un-capitalised 'the', and the title pages and notices of the time omit the definite article completely.

David Allen also pointed out that had the *Watson Botanical Exchange Club* not voted – by the slimmest of margins – to dissolve itself in 1934 the BSBI name would have been adopted on their merger with our Society. He adds in a footnote that there is evidence of the same name being suggested as far back as 1914. Little wonder then to have been told that the new BSBI name had also been suggested a decade or so ago, and that there was such keenness to retain the same acronym.

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## **Senior membership**

GWYNN ELLIS (Membership Secretary), 41 Marlborough Road, Roath, Cardiff, CF23 5BU  
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In the recent mailing sent to all members there was an unfortunate mistake in the definition of Senior Members.

The correct criteria (as defined in the 2011 Rules of the old BSBI) are as follows.

1. A member for at least 10 years and
2. 65 years old or over and
3. not in full time employment.

Any member who meets these criteria and wishes to apply for Senior membership should contact the Membership Secretary by post or email.



## Notes from the Editors

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Two of our ‘volunteers’ are standing down after many years of sterling service looking after our Referees and Vice-county Recorders. **Mary Clare Sheahan** has been organising our referee network since 1996 and **David Pearman** our Vice-county Recorders since about 2000. We thank them for all the hard work they have both put into maintaining both networks which has been of enormous benefit to the Society and its members. We welcome in their stead, Jeremy Isons and Pete Stroh and wish them success in their new roles.

We also thank **Chris Liffen** who, for personal reasons, has had to step down as Obituaries Editor (see also p. 66).

### December Mailing

All members were sent a package in December inviting them, among other things, to join the Botanical Society of Britain and Ireland. It is important that all members complete and return the application form; a few members have paid their subscription without returning the form, if you are one of these, please return it as soon as you can to avoid unnecessary expense.

At the same time we pointed out that it was not possible to transfer existing Gift Aid declarations to the new Society. New forms must be signed and returned if you wish to gift aid your subscription. Many members who joined the previous scheme have not done so this time so if you just forgot to return the new form, please do so now. Joining the scheme is of course entirely voluntary.

Finally a reminder that if you forget to put a stamp on your reply envelope, it costs the Society £1.50 to get hold of it!

### *New Journal of Botany* 3(3)

This issue was posted to members over the Christmas period and if any (like me) have not yet received their copy, please contact me (RGE) by post or email.

### BSBI staff email addresses

Please note that all BSBI staff members now have new email addresses which should be used from now on (see page 68 for details).

### Members email addresses

A vice-county recorder recently contacted me for a list of members in his v.c. together with their email addresses. He reported back that many of the emails were invalid.

Please remember that if you have supplied us with an email address it helps to let us know of any change!

### A Victorian Naturalist’s Odessey

One of my personal highlights of 2013 was receiving a copy of Gilbert Clark’s fascinating book on Professor John Henry Salter, the first Professor of Botany at the University College of Wales, Aberystwyth. The book records an unlikely friendship between a young teenager and a taciturn septuagenarian, who travelled together all over Cardiganshire and beyond in the 1930s in search of plants and animals.

Written in a very accessible style this multi-faceted account is worthy of a place on any naturalists bookshelf and is available in softcover, hardcover and also as an ebook. Check it out at Amazon or the publishers Xlibrispublishing.co.uk

### Sections in BSBI News

Because of the nature of the desktop publishing programme used to produce *BSBI News* (PagePlus X7) it is sometimes necessary to insert some papers from ‘Aliens’ into the ‘Notes’ section to fill up a space. From this issue on we are going to give up trying to distinguish between papers on native and alien taxa and lump them all together under ‘Notes’ with perhaps those with a obvious alien slant towards the end of the section. In this issue we also have the reintroduction of ‘Adventive & Alien News’ which hopefully will become a regular feature; see page 42 for details.

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## NOTES

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### History, status and habitat of the rare hybrid willow *Salix × doniana*

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#### Introduction

*Salix × doniana*, sometimes known as Donian or Don's Willow, is a hybrid between *Salix purpurea* (Purple Willow) and *S. repens* (Creeping Willow). Although both parents are widespread and often common, the hybrid, which is of distinctive appearance, seems to be one of the rarest British plants. Meikle (1984) described it as a low spreading bush 1-1.5m tall, with lustrous reddish-brown shoots. The leaves are oblanceolate, usually with an abruptly acute apex, their upper surface being bright shining green and the lower distinctly glaucous (see Colour Section, Plate 4). As in *S. purpurea*, some of the leaves occur in opposite or sub-opposite pairs. Appearing before the leaves in March/April, male catkins are short and cylindrical, with rounded, hairy scales, yellowish at the base, reddish above and black-tipped, with dark purple anthers (see Colour Section, Plate 4). Filaments arise in pairs but are often more or less fused together, this connate feature being almost uniquely characteristic of *S. purpurea* and its relatives in Subsection Vetric. Female catkins are neat and regular, with densely hairy, dark-tipped scales and very short styles and stigmas.

This plant was first described by Smith (1828), who stated that it was "Sent from Scotland, as British, by the late Mr George Don, to the late Mr George Anderson". William Gardiner recorded it at Baldovan Woods near Dundee in 1848 but, according to F.B. White, forty years later most botanists had concluded it was not a British taxon. However, White found "undoubtedly wild specimens" in 1888 on the banks of the River Tummel, near Pitlochry in Perthshire (Meikle, 1984). Subsequently, *S. × doniana* was recorded in 1947 by Miss P.A. Jones at Freshfield and near Formby, South Lancashire (v.c.59) on what is now the

Sefton Coast, north Merseyside (Savidge *et al.*, 1963).

Stace (2010) stated that the hybrid has been found in South Lancashire, Angus and Perth, while BSBI Maps ([www.bsbi.org.uk](http://www.bsbi.org.uk)) show two hectad records in Scotland, three on the Sefton Coast, a 1987-99 square in North Somerset (v.c.6) and a more recent sighting in East Norfolk (v.c.27). Despite extensive inquiries, the only information that has come to light about the Somerset record is that it was claimed at Shapwick Heath National Nature Reserve (NNR) in 1999. The *Salix* specialist, R.D. Meikle (*in litt.*, 2011), who resides in Somerset, has no knowledge of the record. The Norfolk observation by L.T. Hall was of two or three plants on the bank of a ditch near Felthorpe (TG164189) on 11<sup>th</sup> July 2011. This willow was determined by R.D. Meikle and J. Webb. Leaf and catkin material was subsequently seen by M.P. Wilcox and P.H.S., who agreed with the identification.

According to [www.herbariaunited.org](http://www.herbariaunited.org), BIRM has five specimens of *S. × doniana*, three from cultivated material. Two sheets are said to originate from Oxfordshire (v.c.23) in 1908 (coll. Augustin Ley) and 1909 (coll. G.C. Druce). However, the online photographs appear to show that the specimens are *S. purpurea* rather than the hybrid, my impression being supported by the opinion of M.P. Wilcox (*in litt.*, 2011). These records are not included in BSBI Maps ([www.bsbi.org.uk](http://www.bsbi.org.uk)).

According to Stace (1975), *S. × doniana* also occurs in Austria, Denmark, France (excluding Corsica), Germany, Switzerland, Hungary, Italy, Romania, Sweden and Czechoslovakia.

#### Status in Scotland

Being close to the boundary of v.c.89 (East Perthshire) and v.c.90 (Angus), the Baldovan Woods locality has been adversely affected by

the spread of housing in Dundee and the plant is no longer thought to occur there (B. Hogarth *in litt.*, 2009). The R. Tummel record appears to be in v.c.88 (Mid Perthshire) on the west bank of the Tummel (A. Godfrey *in litt.*, 2009). Francis Buchanan White's catalogue of Perthshire willows records one sheet with four pieces of the hybrid, stating: "One or two very small bushes on the banks of the Tummel. It should be looked for wherever the parents grow in proximity, which does not often happen in Perthshire." Unfortunately, no Perthshire material of *S. ×doniana* could be found in the Perth Museum herbarium (A. Godfrey *in litt.*, 2009). Leslie Tucker (*in litt.*, 2009, 2012) is confident that this hybrid no longer occurs at the original Perth and Angus sites but has two recent records in Scotland: a female bush 5m in diameter and 2m high at Barry Links (SO533322) (v.c.90 Angus) and a male at Great Slack, Tentsmuir NNR (NO502276) (v.c.85 Fife). He notes that other specimens are occasionally found at both sites but rarely survive long. During further inquiries, no other Scottish records of *S. ×doniana* have been located.

#### Status on the Sefton Coast

The *New flora of South Lancashire* (2011 archive version) includes 83 records of *S. ×doniana* from 12 tetrads (three hectads), all being on the Sefton Coast sand-dunes from Hall Road in the south to Southport in the north. Eighteen records are supported by voucher specimens in LIV, most being collected by the late Vera Gordon from the 1940s to the mid-1990s (D.P. Earl *in litt.*, 2010). Another useful source is a large-scale map of Ainsdale Sand Dunes NNR, on which localities of rare plants were noted in 1976 by former site manager Keith Payne. Held in the NNR archive, this map gives the positions of nine bushes of *S. ×doniana*.

One parent taxon, *S. repens*, is abundant on the Sefton dunes, being usually found as the coastal form var. *argentea* (Meikle, 1984; Stace, 2010). Although often dominant in older slacks, it also occurs extensively on lower-lying fixed-dunes (Smith, 2009). The other parent, *S. purpurea*, is relatively scarce here, occurring mainly in drier dune areas, on woodland fringes

and track-sides, where it often gives the impression of being planted. Both males and females are well represented. Three specimens of *S. purpurea* ssp. *lambertiana* have been identified here by M.P. Wilcox (personal communication).

During extensive studies of willows on the Sefton Coast sand-dunes since 1999, I found 36 individuals of *S. ×doniana* but four died after they were first noted. Discovery of bushes was assisted by their stature (usually taller than *S. repens*), bright red stems in most specimens and the fact that leaves are invariably retained longer in autumn than on other willow taxa present. In most cases, identification was confirmed by M.P. Wilcox. Details of each specimen found, including location, date, grid reference, sex (where known), linear dimensions and maximum height of bush, were entered into a database.

#### Distribution & habitat on the Sefton dunes

Bushes of *S. ×doniana* were found in nine tetrads (three hectads) from Hightown Sand-dunes in the south to Queen's Jubilee Nature Trail, Southport, in the north, a linear distance of about 14.5km (Fig. 1, p. 11). Details of the 32 surviving specimens up to 2013 (seven males, 22 females and three undetermined) are listed in Table 1 (p. 10), these being found in eight tetrads. Excluding a tiny sapling at "Devil's Hole", Ravenmeols Local Nature Reserve (LNR), bushes vary in area from 0.3 to 130.7m<sup>2</sup> (mean & SD = 29.1±32.64) and in height from 0.85 to 3.35m (mean & SD = 1.66±0.61). The average height of Sefton Coast bushes is close to the 1-1.5m given by Meikle (1984) but the maximum height is much greater than previously noted.

Five individuals on Ainsdale NNR were first located on Payne's 1976 map. The other four bushes recorded by Payne were not re-found but two new specimens were recorded in October 2013. Of the four specimens that died during the current study (Table 2, p. 11), a male bush at Ravenmeols LNR succumbed to repeated bark-stripping in winter by Rabbits. According to the *New flora of South Lancashire* database, the late Vera Gordon recorded what was evidently the same individual in 1990 (D.P. Earl *in litt.*, 2011). I first saw it in 2000

and found it dead in October 2008. The reason for the loss of three female specimens (one at Queen's Jubilee Nature Trail and two at Lifeboat Road) was not established. Two were situated on the edges of footpaths, so may have been impacted by maintenance works, but a young, vigorous specimen in undisturbed fixed-dunes at Lifeboat Road died in 2012 for no apparent reason.

Most of the extant bushes are associated with dry-slack habitat or the edges of wet-slacks (*sensu* Ranwell, 1972). Here, the vegetation is dominated by patchy *Salix repens* and is probably referable to the UK National Vegetation Classification's SD16: *Salix repens* *Holcus lanatus* dune-slack community, this being a widespread vegetation type found in older, drier slacks in large dune systems (Rodwell, 2000). An exception is the densely wooded Falklands Way, Ainsdale, site, which used to be a slack before tree-planting and scrub invasion changed its character from the early 1970s onwards (Smith, 1978). The most recently discovered specimen is a sapling in a slack formed in the floor of the large Devil's Hole blow-out at Ravenmeols LNR. Vegetation began to colonise this site in 2003, the putative specimen of *S. ×doniana* appearing with several other *Salix* taxa in 2012.

While the bushes at Devil's Hole, Birkdale Sandhills LNR and Ainsdale NNR are in natural slacks created by wind-erosion, those at Lifeboat Road, Cabin Hill NNR and Hightown occur in a landscape much altered by sand-winning after the Second World War (Smith, 2009). This removed the undulating dunes, often as far down as the winter water-table, creating disturbed, damp, low-lying areas that were later colonised by *S. repens*. This habitat is evidently also suitable for *S. ×doniana*.

Unfortunately descriptions of habitat are rarely given in the *New flora of South Lancashire* database, though a few of the earlier records were also associated with slacks. One of the original 1947 specimens was found "in a lane" near Formby (D.P. Earl *in litt.*, 2010).

Although there are currently 32 known bushes of *S. ×doniana* on the Sefton dunes, it is clear from the *New flora of South Lancashire* database that other individuals occurred in the past, being

found in a total of 12 tetrads (D.P. Earl *in litt.*, 2011), as opposed to eight tetrads currently. The life-span of individual bushes is not known, though some of those recorded on Ainsdale NNR by Keith Payne in 1976 are still extant and must therefore be over 37 years old. Similarly, the large, seemingly old, specimen in mixed woodland at Falklands Way has basal stems up to 10cm in diameter. This has been divided into two parts by the collapse of a large bush of *Hippophae rhamnoides* (Sea Buckthorn). To screen local housing, many trees and shrubs, probably including *H. rhamnoides*, were planted here in 1973 (Smith, 1978; 2009). It is likely that this specimen of *S. ×doniana* is older and dates back to a time in the 1960s when the site was an open slack dominated by *S. repens* (Smith, 1978).

Although it was not possible to age specimens, it is clear from stem girths and the date of discovery that some are much younger than others, an example being the sapling found at Devil's Hole in 2012. This means that the establishment of new hybrid individuals has occurred during the fourteen years of the study at a rate at least sufficient to replace those that have died.

### Conservation

Although plant hybrids have rarely attracted the attention of conservationists, Preston (2004) argues strongly that hybrids are part of our biodiversity and that distinct hybrid taxa that form persistent populations and have restricted distributions should be considered as "plants of conservation concern". The great rarity and relative vulnerability of *S. ×doniana* seem to justify its inclusion in such a category. All the Sefton specimens are situated in a designated Site of Special Scientific Interest (SSSI) and *Natura 2000* site, their habitat therefore being statutorily protected. These areas also benefit from largely sympathetic management regimes, eight bushes being within National Nature Reserves and six in Local Nature Reserves with appropriate management plans. Hightown sand-dunes, which support 11 bushes, are proposed to be designated as a LNR.

In Scotland, the female specimen at Barry Links was still present in January 2012. Although this area is designated SSSI and *Natura 2000*, the bush is potentially susceptible

to military activities within the Barry Buddon Training Area. Tentsmuir NNR is managed by Scottish Natural Heritage. Here, the male bush was extant in summer 2011, despite summer-grazing by cattle and use of herbicides to control scrub invading the dunes and slacks (L. Tucker *in litt.*, 2012).

Together with two other rare hybrid willows (*S. ×angusensis* and *S. ×friesiana*), *S. ×doniana* is included in the North Merseyside Biodiversity Action Plan (BAP) (Merseyside Biodiversity Group, 2001). This describes potentially adverse factors as including over-assiduous scrub-control measures and the effects of grazing. While debarking by Rabbits is known to have killed one specimen, no other bushes seem to have been affected in this way and Rabbit populations in many parts of the dunes are now at a low level (personal observations). The Ainsdale and Cabin Hill NNR bushes are within areas that are winter-grazed by livestock (mainly Herdwick sheep) but no adverse impacts have been noted. Although some scrub-control is practised in most of the areas supporting *S. ×doniana*, this is mainly directed against *H. rhamnoides*, a taxon easily differentiated from the willow. Much of the large *H. rhamnoides* bush that had collapsed onto the Falklands Way *S. ×doniana* was removed by volunteers in 2011. Elsewhere, measures to prevent aggressive shrubs, such as *H. rhamnoides*, overtopping or otherwise competing with *S. ×doniana* bushes would be beneficial. The fact that the locations of all the hybrid specimens are well recorded means that they can be marked and avoided as necessary during site management operations. For example, some of the Hightown bushes were temporarily fenced off during engineering works for a coast protection scheme in 2011.

Regular monitoring, the maintenance of a database and notification to the relevant land managers (as recommended in the BAP) should ensure that action can be taken if numbers are perceived to be declining. The BAP suggests taking this hybrid into cultivation. As yet, no formal arrangements have been made for this, although some local botanists are known to have taken and rooted cuttings from known bushes, this process being straightforward, as in most Salicaceae.

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Table 1. Location, sex and dimensions of 32 Sefton Coast *Salix ×doniana* bushes extant in 2013  
 AS = Ainsdale NNR; ALNR = Ainsdale Sandhills LNR; BS = Birkdale Sandhills LNR; CH = Cabin Hill NNR; FW = Falklands Way; H = Hightown dunes; LR = Lifeboat Road dunes; DH = Devil's Hole, Ravenmeols LNR

Locality	Grid reference (SD)	Sex	Max. height (m)	Area (m2)
AS100W	29569 11451	F	1.48	56.8
AS100C	29658 11473	?	0.96	13.2
AS17E	28854 10794	F	1.2	60.1
AS17W	28843 10800	F	0.9	130.7
AS17N	28854 10803	?	1.3	19.6
AS96E	29599 11222	F	1.8	31.2
AS96W	29589 11221	F	0.8	0.9
ALNR	29655 12107	F	1.75	49
BS10a	30377 13485	F	2	38.5
BS10b	30351 13454	F	2.3	95
BS10c	30364 13440	F	2.1	70.9
BS8	30657 13351	F	2.5	56.8
CH	28212 05158	M	1.5	7.1
FW	30304 11614	F	3.35	47.9
H1	29977 02537	M	1.9	64
H2	29875 02511	F	1.4	11
H3	29760 02587	M	1.6	7.1
H4	29743 02587	M	2	4
H5	29734 02583	F	1.2	16.8
H6	29724 02565	F	1.65	14
H7	29864 02915	F	1	0.8
H8	29864 02914	F	1	9.7
H9	29864 02913	F	1.3	15.9
H10	29716 02571	F	1.7	1.5
H11	29760 02587	F	1.3	2.4
LR1	27731 06646	M	3	63.6
LR2	27727 06666	F	2.5	9.1
LR3	27678 06657	F	1.35	3
LR5	27732 06628	F	1.4	0.3
LR6	27732 06628	M	1.2	0.4
LR7	27732 06628	M	2.1	0.8
DH	27898 05467	?	0.3	0

Table 2. Details of four lost bushes of *Salix ×doniana* on the Sefton Coast

Locality	Grid reference	Sex	Height (m)	First seen	Last seen
Queen’s Jubilee Nature Trail, Southport	SD324168	F	1.3	25/05/2000	10/2004
Lifeboat Road, Formby	SD277270 6666	F	2	01/08/1999	23/09/2008 (dead)
Lifeboat Road, Formby	SD276460 6693	F	2	02/10/2007	2012 (dead)
Ravenmeols, Formby	SD280800 5730	M	2	16/04/2000 (damaged)	01/10/2008 (dead)

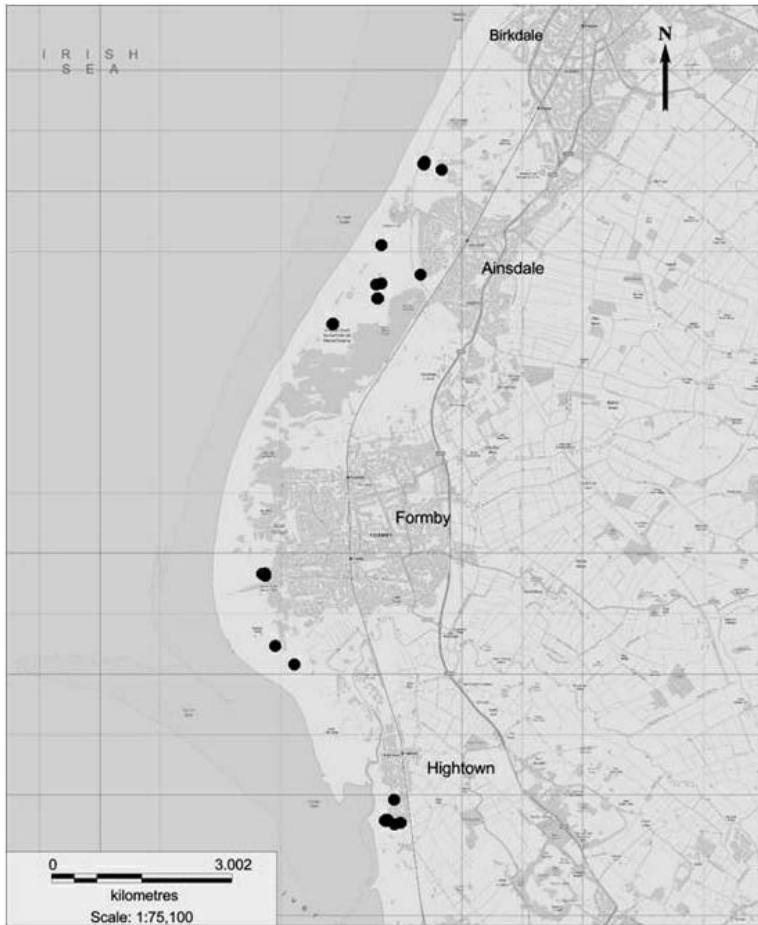


Fig. 1. Distribution of *Salix ×doniana* bushes on the Sefton Coast (some symbols overlapping). Base map: © Crown Copyright. All rights reserved. Sefton Council license no: 100018192 2013.

## ***Juncus subnodulosus* (Blunt-flowered Rush) in the Sefton Coast sand-dunes, Merseyside (v.c.59, South Lancashire)**

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### **Introduction**

Forming dense tall stands in fens, marshes, wet meadows and dune slacks, *Juncus subnodulosus* (Blunt-flowered Rush) is a strongly rhizomatous perennial, usually associated with more base-rich conditions than other jointed rushes. It has also been found in brackish water, though an Ellenberg indicator value for salinity of 0 suggests no particular resistance to saline conditions (Hill *et al.*, 2004; Richards & Clapham, 1941; Stace, 2002, 2010).

*J. subnodulosus* has a mainly southern and eastern distribution in Britain, being especially associated with lowland fen vegetation, for example in East Anglia (Wheeler, 1980), though its distribution extends to west Wales and south/central Scotland. The plant is also widespread in Ireland. Although lost from many sites due to drainage, this species is now known to be more frequent in Wales than was previously thought, thereby accounting for a change index of +0.15 (Stace, 2002).

The rush is listed as a Species of Conservation Importance in north-west England (Regional Biodiversity Steering Group, 1999). Thus, Halliday (1997) described *J. subnodulosus* as “very rare” in Cumbria (mainly v.c.69 and v.c.70), while Greenwood (2012) had records of this species in only 13 tetrads in northern Lancashire (mainly v.c.60) but suggested a moderate expansion over the last 100 years. In South Lancashire (v.c.59), the rush was first noted by Dickinson (1851) under the synonym *Juncus obtusifolius*. He described it as “frequent” in wet pastures and on roadsides. However, by the time of Green’s (1933) flora, its status had declined to “rare”. Savidge *et al.* (1963) used the same term, mentioning its occurrence in dune slacks and marshes. The first well-documented records for the dune system in the *New flora of South Lancashire* database are for 1913 by W.G. Travis at Massam’s Slack in what is now

Ainsdale Sand Dunes National Nature Reserve (SD2810) and by J.A. Wheldon, W.G. Travis & R.S. Adamson between Ainsdale and Birkdale (tetrad SD31B) (D.P. Earl *in litt.*, 2013). Interestingly, Holder (1953) mentions “two fine colonies” of *J. subnodulosus*, perhaps the above sites, and infers that this species arrived in the dunes after 1910.

The *New flora of South Lancashire* (2013 archive version) states that *J. subnodulosus* is currently localised on the coast and rare inland at Martin Mere, its habitat being described as dune slacks, wet meadows and marl-pits (D.P. Earl *in litt.*, 2013). In over 40 years of extensive studies of the Sefton Coast sand-dune system, I found *J. subnodulosus* in only six sites. Therefore, in view of this species’ relative rarity on the coast and elsewhere in the vice-county and region, it was considered appropriate to undertake a study of its duneland status and habitats. It was hoped that this would add to the rather limited literature on the rush and also provide information relevant to its conservation.

### **The 2013 survey**

The six known Sefton localities for *J. subnodulosus* were visited in July/August 2013. At each, a grid reference was obtained using a Garmin Etrex GPS device, the size of patches and stand heights were measured and notes taken on habitat conditions. The distance between sites and the mean high-water mark on the shore was estimated using Google Earth. Up to five 2 · 2m quadrats were recorded at each locality using National Vegetation Classification (NVC) methodology (Rodwell, 2000). A soil sample was taken just below the surface in the quadrats for pH determination, using a Lutron PH-212 digital meter, buffered at pH 7. Vegetation types were investigated by reference to keys in Rodwell (1991, 1995, 2000), further analysis being undertaken using a MAVIS programme



(<http://www.ceh.ac.uk/products/software/cehs-oftware-mavis.htm>) to establish the best fit to known NVC communities and sub-communities.

Colonies of the rush are widely scattered in the dune system, from Cabin Hill National Nature Reserve in the south to Birkdale Sandhills Local Nature Reserve in the north, a linear distance of about 8.5km. They occur in five tetrads within three hectads (SD20, SD21 and SD31). All sites are seasonally-flooded semi-aquatic or wet slacks as defined by Ranwell (1972). Dune slacks are seasonal coastal wetlands whose plant assemblages and soil properties are strongly linked to a fluctuating water-table (Curreli *et al.*, 2013). Although ostensibly suitable habitat occurs widely elsewhere in the dune system, no other colonies came to light, either during field work or by reference to the *New flora* database (D.P. Earl, *in litt.*, 2013). For example, the Massam's Slack colony recorded by Travis in 1913 has long been lost due to coastal erosion and sand-blow.

*J. subnodulosus* occurred as 18 spreading patches at the six sites, ranging in total area from 5m<sup>2</sup> (Devil's Hole) to 1651m<sup>2</sup> (Cabin Hill) (Table 1). Rozema (1979) demonstrated a relationship between patch size and age in several tussock- or patch-forming *Juncus* spp. Thus, the smaller Sefton Coast patches are evidently of recent origin, that at Devil's Hole (5m<sup>2</sup>) having been first noted in 2009, while the 20m<sup>2</sup> patch at Birkdale Green Beach was found in 2008. Larger colonies are much older. I first recorded *J. subnodulosus* at Cabin Hill in 1986, while the Ainsdale site is most likely that described in 1994 by V. Gordon as being situated "north of Shore Road, Ainsdale" (*New flora of South Lancashire* database). The extensive patches at slack 1 and slack 3, Birkdale, were well-established in 1978 and 1999 respectively (personal observations). Indeed, one of these localities may be that recorded in 1913 by Wheldon, Travis & Adamson as "a slack between Ainsdale and Birkdale". These two slacks have become heavily colonised by scrub in recent decades, the large patches of *J. subnodulosus* occurring

in the wettest parts of the slacks as "islands" surrounded by dense *Hippophae rhamnoides* (Sea Buckthorn) and *Betula* (birch).

Stand heights ranged from 80 to 140cm, with a mean and standard deviation of 105.5±11.5. These are in general agreement with published data, Stace (2010) giving up to 120cm, while Richards & Clapham (1941) quote 68.5 – 108cm, depending on habitat conditions, at Cothill, Berkshire.

Mean soil pH for the six sites ranged from 6.1 to 7.6 (overall mean 6.8), reflecting the generally base-rich nature of dune soils here, at least in the younger parts of the system (Millington *et al.*, 2010). This is in accordance with Rodwell's (1991) finding of a superficial soil pH almost always between 6 and 8 and usually 6.5 – 7.5 in M22: *Juncus subnodulosus*-*Cirsium palustre* fen-meadow. With an Ellenberg reaction value of 8, *J. subnodulosus* shows a distinct preference for calcareous soils (Hill *et al.*, 2004). Interestingly, there is a statistically significant inverse relationship between mean soil pH and distance from the mean high water-mark, the latter figure being a rough indication of the age of the dunes ( $r = -0.89$ ;  $R^2 = 0.79$ ;  $P < 0.02$ ) (Fig. 1). Salisbury (1952) elegantly demonstrated a similar reduction of soil pH over time for the "Southport dunes" (now part of the Sefton Coast), attributing this to a loss of calcium carbonate due to leaching. However, his study was of dry dune rather than slack habitats.

A total of 60 vascular plants was listed as associates of *J. subnodulosus* in the 22 quadrats recorded (Table 2). Most frequent were *Agrostis stolonifera* (Creeping Bent) (11 occurrences), *Equisetum arvense* (Field Horsetail) (10), *Hydrocotyle vulgaris* (Marsh Pennywort) (16), *Lathyrus pratensis* (Meadow Vetchling) (9), *Lythrum salicaria* (Purple Loosestrife) (7), *Mentha aquatica* (Water Mint) (7), *Rubus caesius* (Dewberry) (10), *Rubus fruticosus* agg. (bramble) (10), *Salix repens* (Creeping Willow) (19), *Solanum dulcamara* (Bittersweet) (7) and *Vicia cracca* (Tufted Vetch) (8). All are characteristic slack plants on the Sefton Coast (Smith, 2009a), though the presence of *R. fruticosus* and *S.*

*dulcamara* suggest the influence of dune-scrub communities. Only four associates are regionally notable: *Oenanthe lachenalii* (Parsley Water-dropwort), *Ophioglossum vulgatum* (Adder's-tongue), *Samolus valerandi* (Brookweed) and *Schoenoplectus tabernaemontani* (Grey Club-rush), all occurring at very low frequency. Notwithstanding the large number of associates, the species richness of quadrats was fairly low, with a mean of 11.3 vascular taxa (range 7 – 17).

Reference to the keys and community descriptions in Rodwell (2000) indicates that the vegetation at *J. subnodulosus* sites does not fit easily with any of the established NVC dune-slack communities, though the extent of seasonal flooding suggests some similarities to SD15: *Salix repens-Calliergon cuspidatum* dune-slack. Indeed, this is the only community in which Rodwell lists *J. subnodulosus* as a component. This vegetation type is characteristic of older dune slacks that experience prolonged flooding by circum-neutral groundwater. However, the rush also occurs in younger slack types at Devil's Hole and Birkdale Green Beach. The Devil's Hole community has a visual resemblance to either SD13: *Sagina nodosa-Bryum pseudotriquetrum* dune-slack or SD14: *Salix repens-Campylopusium stellatum* dune-slack. The former type occurs as the pioneer and early-stage vegetation in calcareous slacks that are damp in winter but dry on the surface in summer. It is a rather local community, kept immature by periodic, brief and shallow submergence but probably also dependent for its open character on grazing by livestock and Rabbits. SD14 typically occurs in calcareous slacks of moderate wetness where winter-flooding can attain depths of 10 – 50cm. This is also a scarce vegetation type and, like SD13, may support a high diversity of species (Rodwell, 2000). As described by Smith (2010; 2013), the southern Green Beach vegetation appears closer to a fen than to a slack community.

MAVIS analysis of quadrat samples (Table 3) gives poor or very poor fits to dune-slack communities at four sites; Cabin Hill, Ainsdale and Birkdale slack 3 are closest to SD15,

though with two different sub-communities represented, while the Devil's Hole resembles SD17d. The latter finding is not easily explained, as this site supports immature slack vegetation on a base-rich substrate (Table 2), while SD17 is generally associated with older less base-rich slacks that are often deeply flooded for long periods (Curreli *et al.*, 2013; Rodwell, 2000). The Green Beach and Birkdale slack 1 samples resemble fen communities (S24f and S26d respectively) but the level of fit is so low that firm conclusions are probably not justified. Statistically poor accordance with NVC dune-slack communities on the Sefton Coast has been noted in several previous studies (*e.g.* Smith, 2009b, 2013).

### Discussion

The restriction of *J. subnodulosus* to 15 dense patches in only six localities in the Sefton Coast dunes is surprising, bearing in mind that there is so much apparently suitable habitat here. The dune system has more than 114ha of slacks and freshwater wetland, equivalent to over a third of the dune-slack resource in England (Edmondson, 2010; Radley, 1994). In a detailed study of slacks and slack vegetation at Ainsdale, Blanchard (1952) showed that well-defined stands of marsh plants formed a patchwork that could not be explained by water depth, as all species tolerated the full range of water conditions. She suggested that different species invade shortly after slack formation and then spread from their point of origin, forming dominant patches with little intermingling. The occurrence and size of *J. subnodulosus* patches seems to accord with this hypothesis.

The Birkdale slacks were most probably formed by wind erosion during the 19<sup>th</sup> century (Smith, 2009a) and may therefore be as much as 150 years old. The other sites provide younger and more open habitats. At Ainsdale, slack 53 originated from sand-blow during the early 1970s (Smith, 2006), although one of the two patches of *J. subnodulosus* now occupies a scrape dug in 1997 as a Natterjack Toad (*Epidalea calamita*) breeding site (Sefton Dune Wetlands database). Birkdale Green

Beach began to form in 1986 (Smith, 2007) but the slack area occupied by *J. subnodulosus* is only about 20 years old (personal observations). Vegetation began to colonise the Devil's Hole slack as recently as 2003 but the rush was not seen until 2009. At Cabin Hill, *J. subnodulosus* occurs mainly in the deepest parts of borrow-pits excavated in 1970/71 and was not recorded until 1986. It has also invaded a slack that was cleared of *Salix cinerea* (Grey Willow) in 2005 (Smith & Kimpton, 2008).

How *J. subnodulosus* is dispersed between sites that may be a kilometre or more apart is not known. According to Richards & Clapham (1941), this species spreads rapidly by vegetative propagation when colonising shallow water over peat but more slowly in drier conditions. Reproduction by seed can evidently also take place rapidly into bare ground created by cutting, clearing or fire, as at Wicken Fen. However, the seed is not mucilaginous and is probably only dispersed by local scattering and, to some extent, by water. There may therefore be a low probability of spread into more distant sites, as seen on the Sefton Coast. However, once *J. subnodulosus* becomes established, it is evidently able to spread and persist over a considerable period of time and in differing slack types.

*J. subnodulosus* seems to be a rather atypical component of dune-slack vegetation, being especially associated with tall-herb fens, such as S24: *Phragmites australis*-*Peucedanum palustre* tall-herb fen (Rodwell, 1995) and M22: *Juncus subnodulosus*-*Cirsium palustre* fen-meadow (Rodwell, 1991). Rodwell describes *J. subnodulosus* as a plant of broad occurrence in a wide variety of fen types and some swamps, characterised by suitably moist, base-rich and not excessively oligotrophic soils, these being found mainly in the lowlands of central and southern England. He points out that the cooler, damper soils in the western lowlands are usually more acidic, fen communities being often replaced by rush-pasture. However, the calcareous dune-slacks of the Sefton Coast represent an exception to this trend. Rodwell (1991) also refers to the

lodging of *J. subnodulosus* shoots during autumn winds and rain, thereby forming a "thick, heavy mattress" which may depress the associated flora but not the next crop of rush shoots. This may account for the low species-richness of some dune-slack samples.

### Conservation

The small number of widely scattered localities for *J. subnodulosus* on the Sefton Coast confers a degree of vulnerability. However, all the sites are protected by SSSI/*Natura 2000* designations. Those at Cabin Hill lie within a National Nature Reserve, while Devil's Hole, Ainsdale and Birkdale sites benefit from Local Nature Reserve status, all the reserves having management plans. Knowing the locations of the rush patches should assist site managers when formulating their plans.

As the colonies are associated with the wetter parts of dune-slacks, habitat management favouring the plant will include maintaining dune hydrology, this being a priority target in the Sefton Coast Nature Conservation Strategy and Biodiversity Delivery Plan (Sefton Coast Partnership, 2007). Although there is no current evidence for a decline in the water-table, modelling the impact of climate change suggests that a lowering of about 0.8m could be experienced by 2100, raising serious concerns for many wet-slack species, including *J. subnodulosus* (Clarke *et al.*, 2010). Indeed, the studies of Curreli *et al.* (2013) suggest that widespread replacement of wet-slack by dry-slack communities and then dry dune grassland could occur by the 2050s.

A more immediate threat, at least to the Birkdale colonies, is scrub invasion in slacks that were largely open and scrub-free 30-40 years ago (Smith, 1978). *J. subnodulosus* is said to have little tolerance of shade. It may persist in a non-flowering condition in open willow-carr but disappears as the canopy closes (Richards & Clapham, 1941). Currently, the scrub problem in Birkdale Sandhills LNR is being tackled through Sefton Council's Landscape Partnership Scheme, partly funded by Heritage Lottery. This project aims to remove selected areas of scrub and introduce livestock grazing through

Higher Level Stewardship to establish and maintain favourable condition in the SSSI. *J. subnodulosus* tolerates grazing, together with frequent cutting and burning, giving it a competitive advantage over less tolerant species, such as *Phragmites australis* (Common Reed) (Richards & Clapham, 1941).

With a few exceptions, such as the Devil's Hole and Birkdale Green Beach, the Sefton dunes have become increasingly vegetated and stable in recent decades (Smith, 2009a). These changes are commonplace throughout much of Britain and western Europe (Houston, 2008). One result is a low rate of new dune-slack formation by wind-erosion. As existing slacks age, successional changes mean they become less diverse and more susceptible to scrub and woodland development, as is evident at Birkdale. Although scrub control, mowing, turf-stripping and grazing can be helpful in mitigating these changes (Houston, 2008), following ambitious projects in the Netherlands and Denmark, there is now increasing interest in re-mobilisation, using heavy machinery to rejuvenate overgrown dunes. Increased sand mobility can then produce blow-outs with new secondary dune-slack habitats, as at the Devil's Hole. Such management, currently underway on some Welsh dune systems (Howe *et al.*, 2012), could be highly beneficial to duneland biodiversity, including slack flora, on the Sefton Coast and might also alleviate the detrimental effects of climate change (Curreli *et al.*, 2013).

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Table 1: *Juncus subnodulosus* site data

Site	Grid ref.	No. of patches	Total area (m <sup>2</sup> )	Mean stand height (cm)	Mean soil pH	Distance from sea (m)	Origin of slack
Cabin Hill NNR	SD285051	11	1651	95	7	450	1970 to 1971
Devil's Hole	SD278054	1	5	80	7.2	250	2003
Ainsdale slack 53	SD230129	2	115	101	7.6	160	Early 1970s
Birkdale Green Beach	SD304141	1	20	90	7.4	65	1990s
Birkdale LNR slack 1	SD304129	2	196	126	6.1	646	19th century
Birkdale LNR slack 3	SD306131	1	500	108	5.9	525	19th century

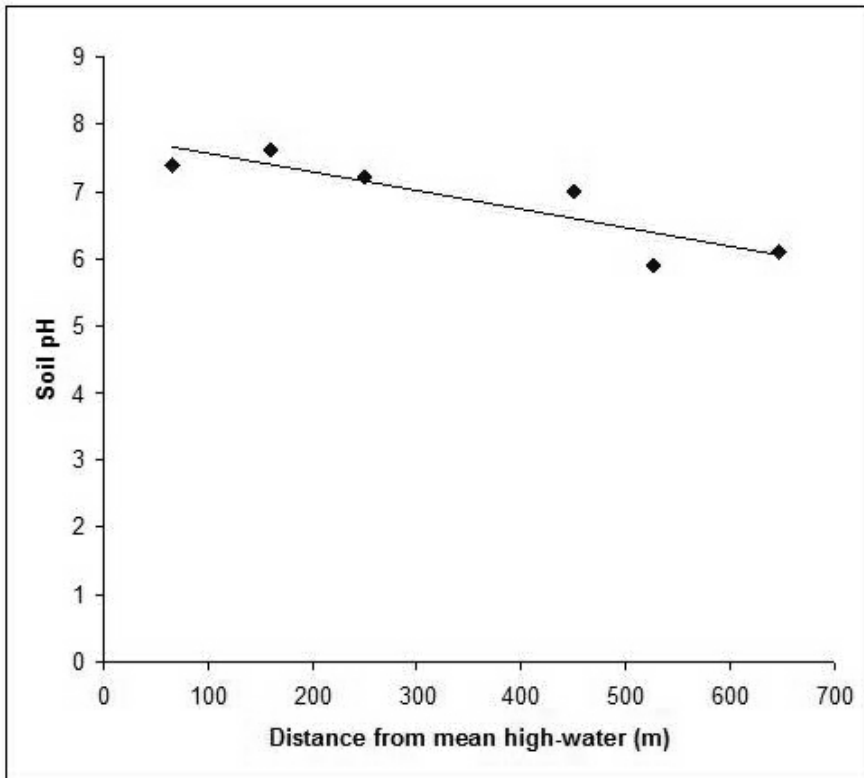


Fig. 1. Relationship between soil pH and distance from mean high-water at study sites.

Table 2: Occurrence of vascular associates of *Juncus subnodulosus* in 22 quadrats

Taxon	English name	Occ.	Taxon	English name	Occ.
<i>Agrostis stolonifera</i>	Creeping Bent	11	<i>Hydrocotyle vulgaris</i>	Marsh Pennywort	16
<i>Alnus glutinosa</i>	Alder	1	<i>Juncus articulatus</i>	Jointed Rush	3
<i>Angelica sylvestris</i>	Wild Angelica	1	<i>Juncus inflexus</i>	Hard Rush	1
<i>Arrhenatherum elatius</i>	False Oat-grass	1	<i>Lathyrus pratensis</i>	Meadow Vetchling	9
<i>Berula erecta</i>	Lesser Water-parsnip	1	<i>Lonicera periclymenum</i>	Honeysuckle	4
<i>Betula pubescens</i>	Downy Birch	4	<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	2
<i>Cardamine pratensis</i>	Cuckooflower	6	<i>Lycopus europaeus</i>	Gypsywort	1
<i>Carex arenaria</i>	Sand Sedge	2	<i>Lythrum salicaria</i>	Purple Loosestrife	7
<i>Carex flacca</i>	Glaucous Sedge	3	<i>Mentha aquatica</i>	Water Mint	7
<i>Carex hirta</i>	Hairy Sedge	2	<i>Oenanthe lachenalii</i>	Parsley Water-dropwort	1
<i>Carex nigra</i>	Common Sedge	3	<i>Ophioglossum vulgatum</i>	Adder's-tongue	2
<i>Carex otrubae</i>	False Fox-sedge	2	<i>Phalaris arundinacea</i>	Reed Canary-grass	1
<i>Chamerion angustifolium</i>	Rosebay Willowherb	1	<i>Phragmites australis</i>	Common Reed	3
<i>Cirsium arvense</i>	Creeping Thistle	1	<i>Potentilla reptans</i>	Creeping Cinquefoil	1
<i>Crataegus monogyna</i>	Hawthorn	1	<i>Ranunculus flammula</i>	Lesser Spearwort	5
<i>Eleocharis palustris</i>	Common Spike-rush	4	<i>Ranunculus repens</i>	Creeping Buttercup	3
<i>Elytrigia repens</i>	Common Couch	1	<i>Rhinanthus minor</i>	Yellow-rattle	3
<i>Epilobium palustre</i>	Marsh Willowherb	2	<i>Rubus caesius</i>	Dewberry	10
<i>Epilobium parviflorum</i>	Hoary Willowherb	1	<i>Rubus fruticosus agg.</i>	Bramble	10
<i>Epipactis palustris</i>	Marsh Helleborine	3	<i>Salix cinerea</i>	Grey Willow	5
<i>Equisetum × litorale</i>	Shore Horsetail	4	<i>Salix repens</i>	Creeping Willow	19
<i>Equisetum arvense</i>	Field Horsetail	10	<i>Samolus valerandi</i>	Brookweed	1
<i>Equisetum fluviatile</i>	Water Horsetail	1	<i>Schoenoplectus tabernaemontani</i>	Grey Club-rush	1
<i>Equisetum palustre</i>	Marsh Horsetail	5	<i>Solanum dulcamara</i>	Bittersweet	7
<i>Euphrasia nemorosa</i>	Common Eyebright	2	<i>Solidago canadensis</i>	Canadian Goldenrod	1
<i>Festuca rubra</i>	Red Fescue	2	<i>Sonchus arvensis</i>	Perennial Sowthistle	1
<i>Galium aparine</i>	Cleavers	5	<i>Trifolium repens</i>	White Clover	2
<i>Galium palustre</i>	Marsh Bedstraw	4	<i>Typha latifolia</i>	Bulrush	1
<i>Glax maritima</i>	Sea Milkwort	1	<i>Veronica scutellata</i>	Marsh Speedwell	1
<i>Holcus lanatus</i>	Yorkshire-fog	4	<i>Vicia cracca</i>	Tufted Vetch	8

Table 3: MAVIS analysis of *Juncus subnodulosus* quadrats

Site	NVC code	Community	Sub-community	% fit	Assessment of fit
Cabin Hill	SD15a	<i>Salix repens</i> – <i>Calliargon cuspidatum</i> dune-slack	<i>Festuca rubra</i> – <i>Ranunculus repens</i>	51	Poor
Devil's Hole	SD17d	<i>Potentilla anserina</i> – <i>Carex nigra</i> dune-slack	<i>Hydrocotyle vulgaris</i> – <i>Ranunculus flammula</i>	44	Very poor
Ainsdale	SD15b	<i>Salix repens</i> – <i>Calliargon cuspidatum</i> dune-slack	<i>Equisetum variegatum</i>	55	Poor
Green Beach	S24f	<i>Phragmites australis</i> – <i>Peucedanum palustre</i> tall-herb fen	Typical	35	Very poor
Birkdale slack 1	S26d	<i>Phragmites australis</i> – <i>Urtica dioica</i> fen	<i>Epilobium hirsutum</i>	25	Very poor
Birkdale slack 3	SD15a	<i>Salix repens</i> – <i>Calliargon cuspidatum</i> dune-slack	<i>Carex nigra</i>	42	Very poor

### ***Medicago sativa* ssp. *varia* (Sand Lucerne) in Co. Wexford**

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The surprises a local botanist can spring on a vice-county recorder!

Sand Lucerne is a rare species in Ireland, only known from the coast of Co. Dublin, with a casual occurrence on waste ground at Tramore, Co. Waterford.

When I was handed a bundle of recording cards from Co. Wexford by Roy Watson, in early 2013, I took a quick glance at them and I said to Roy: 'Your *Medicago sativa* ssp. *varia* is a new species for the county'. When he explained at length how the fruits only spiralled half a complete turn or a little bit more, I knew Roy had the correct species.

I eventually visited the site at Grogan Burrow in September 2013 and, sure enough, there were two large patches on the dunes. I was thinking to myself I must be losing my touch at finding plants, as I had actually

walked on that Sand Lucerne the previous September. There were still a few purple flowers and it was fruiting nicely (see Colour Section, Plate 4). Both patches were at least 10m across. On telling Roy I had found the Sand Lucerne, he surprised me and said that he had known it there for at least 25 years. His next sentence was even more of a shock as Roy said it used to grow by the old bacon factory in Wexford town. The factory has been demolished and it is now a large area of waste ground on the sea front. Passing the site in early October 2013, I decided to call in, thinking it was going to be a lost cause as I had visited it almost to the day, a year ago. How wrong I was! There, in front of me, was a large mass of purple! Then, I knew I had definitely lost my touch at finding plants! Now, I await the next surprise Roy springs on me!



## A further update on the Norfolk Comfrey (*Symphytum ×norvicense*) and another overlooked comfrey hybrid in Norfolk

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The Norfolk Comfrey (*Symphytum ×norvicense*) was first reported in these pages six years ago (Leaney, 2007; O'Reilly, 2007). At that time it was thought most likely to be a hybrid of horticultural origin, between the Russian Comfrey (*S. ×uplandicum*) and White Comfrey (*S. orientale*). However, by the time the diagnosis was published (O'Reilly & Leaney, 2009), the chromosome number ( $2n = 48$ ) was known, and this and the morphology were thought to be best explained by postulating Rough Comfrey (*S. asperum*) and White Comfrey as the parents (T.W.J. Gadella, pers. comm.). The Norfolk Comfrey appears to be endemic to the British Isles, and despite the discovery of new colonies and much increase in recent years, remains confined more or less to Norfolk (see below and Stace, 2010). This article presents an update on the status and possible origin of the Norfolk Comfrey, as well as an account of another overlooked comfrey hybrid, hitherto taken as the Norfolk Comfrey, which appears to be a hybrid between *S. caucasicum* (Caucasian Comfrey) and either *S. asperum* or *S. ×uplandicum* (see Colour Section Plate 3).

An attempt was made at the John Innes Centre in Norwich to re-synthesise the Norfolk Comfrey by experimental crossing of putative parent taxa, with reciprocal crossing, using the three taxa cited above, including both cytotypes of *S. ×uplandicum* ( $2n=36$  and  $2n=40$ ) (Perring, 1998). Morphology would seem to indicate that *S. orientale* is certainly one parent, and this flowers mostly around six weeks before the other possible parents. There is certainly some overlap in flowering periods, but probably mainly in plants growing under different conditions. Therefore, when no fertile seed was produced the first year, flowers from late flowering (shaded) plants of *S. orientale* were picked to provide pollen, but still without success. This did not, of course, cover the possibility of *S. orientale* being the ovule parent.

The parentage of the Norfolk Comfrey therefore still remains uncertain (Stace, 2010). That *S. orientale* is one parent is indicated by the predominance of fine, soft, uncinata hairs in the indumentum of stem, leaf midrib and calyx; by the broadly ovate upper stem leaves, with widely cuneate to rounded bases; the less than half-dissected calyx; and the white sometimes present in the open corolla. The tall stature (100–150cms), habit and root type are all much like *S. ×uplandicum*, *S. asperum* and *S. officinale* (Common Comfrey), and there are no other species in the British Isles, or Europe, that can explain this combination of features along with the red and blue in the corolla (Tutin *et al.*, 1972). *S. officinale* is not a likely parent in view of its carmine or cream flowers and the long and extraordinarily broad winging of the stems, especially from the bases of the very upper leaves – the leaves of *S. ×norvicense* are not even decurrent.

The possibility that the Norfolk Comfrey is a previously unrecognized pure species, rather than a hybrid nothospecies of recent origin, also needs consideration. Sell has suggested that it could be *S. savvalense* (Sell, 2009), which occurs in the wild no nearer than Turkey, and does not ever seem to have been taken into cultivation. However, examination of a specimen of *S. savvalense* in **BM** showed very marked and absolute differences in calyx dissection, calyx lobe shape, indumentum, size and height (O'Reilly & Leaney, 2009). His further suggestion (*ibid.*), that the Norfolk Comfrey could be a previously overlooked form of *S. asperum*, following a remark by Bucknall (1913), can also be discounted, for this species has a remarkably short calyx in bud and a totally different indumentum. It seems unlikely anyway that an 'asperum-like' taxon, or any other pure species as distinct as the Norfolk Comfrey, could have remained undetected from the early 20<sup>th</sup> century until so recently. At least within the area dealt with by *Flora Europaea*, which covers most of the

*Symphytum* range, there are no species that remotely fit the Norfolk Comfrey.

### Present distribution and spread of the Norfolk Comfrey

Since its first discovery, the Norfolk Comfrey has spread quite considerably, not only vegetatively much like *S. ×uplandicum*, but also, much more than that taxon, by seed, producing numerous seedling plants when conditions are right around the clonal patches and sometimes nearby new populations, or odd new plants, hundreds of yards away. Such new populations produced by seed are very constant in character, with no sign of character segregation. In 2007 we knew of two metapopulations, one just south of Norwich and the other around Sustead, some 20 miles to the north west of the city, comprising five populations in all. All these populations have survived and most have enlarged, some considerably, with surrounding seedlings or nearby new colonies as described. In addition, we have found new colonies in both areas, which seem to have been present for a good time. We now know of 11 populations in the wild, all in v.c.27, together with two in gardens, one in v.c.27, one just into v.c.28.

This increase in less than ten years, and the distribution of populations in two metapopulations, sheds interesting light on the likely origin of the Norfolk Comfrey. Such a rapid increase in such a short time suggests a very recent origin only a few decades or so ago. The oldest population to the south of Norwich, a recently discovered patch on a rough village green, has been cut for manure or compost since about 1985, and is still spreading. The oldest population to the north is in a garden, and was probably bought from a local nursery around the same time, according to the householder. A 1967 specimen from Suffolk has now been unearthed in the Norwich Castle Museum herbarium (NWH), from Copdock near Ipswich (*leg.* E.A. Ellis). Putting all this together, it seems likely that the Norfolk Comfrey was being sold as a garden plant in Norwich, and possibly in Ipswich and elsewhere, some 30–50 years ago, and subse-

quently escaped from cultivation, aided by its unusual fertility.

### Some speculations on the origins of the Norfolk Comfrey

Both *S. ×uplandicum* and *S. asperum* were in cultivation by the 1870s, being valued both for fodder and as a source of manure. *S. ×uplandicum* is still quite frequently found on allotments, presumably for the latter purpose. Lawrence Hills, director–secretary of the Henry Doubleday Research Association, in his *Comfrey, past, present and future* (Hills, 1976), pointed out that there were seven comfrees for sale in the 1836 catalogue of the Loddige Nursery, next to St Thomas’s Hospital in London, including ‘*S. asperrimum*’ (now *S. asperum*), and presumably *S. officinale*, which had been valued as a medicinal herb (‘knitbone’) since medieval times. *S. asperum* probably arrived first from Russia in the collection of comfrees sent from St Petersburg between 1790 and 1801 by Joseph Busch, the English head gardener of Catherine The Great, but *S. ×uplandicum* seems to have been the main or sole component of the collection sent from the palace garden in 1871 to Henry Doubleday. He wanted *S. asperum* for its mucilaginous quality, as a replacement for gum arabic for the new postage stamps, but received *S. ×uplandicum* instead (see below).

*S. ×uplandicum* became known as Russian Comfrey and was the main taxon cultivated during the late 19<sup>th</sup> and 20<sup>th</sup> centuries, but in fact horticulturalists made little attempt to differentiate between *S. ×uplandicum* and *S. asperum*. *S. asperum* was still listed as the “Bocking No 13 variety” of Russian Comfrey by the Henry Doubleday Research Association in the middle of the last century (Hills, 1976). By around this time *S. asperum* was beginning to get very scarce in the wild, probably because it was not so often in cultivation, but it is much more fertile than *S. ×uplandicum*. The only population I know of is probably the biggest patch of comfrey in the county, having seeded itself around half the perimeter of a redundant churchyard and far into the woodland behind. This fertility would suggest that, despite being less often in cultivation,

*S. asperum* is still a likely parent for the Norfolk Comfrey.

The definite other parent, *S. orientale*, seems first to have been brought to Britain, again to London, just before 1787 (*Curtis's Botanical Magazine*, **43** (1787)), as a garden plant. It was in the wild by 1849 (Perring *et al.* (1964), in Pearman & Preston, 2003). By around 50 years ago it was already “frequent and increasing” as a garden escape in our region (Petch & Swann, 1968), so presumably was in cultivation in the area at that time. It was not sold as much as a garden plant as *S. ×uplandicum*, but like *S. asperum* is so fertile that even a few plants growing in a nursery next to other comfrees would be likely to produce hybrids.

*Symphytum* hybrids, growing with their parent plants, are of very rare occurrence in the wild (Stace, 2010). There seem to be powerful barriers to hybridisation in the genus, so that different species might have to grow very close to each other for long periods for hybridisation to occur. According to the account given by Lawrence Hills, the F<sub>1</sub> hybrid plants of *S. ×uplandicum* that were sent to Henry Doubleday from St Petersburg in 1871 were chance seedlings taken from between the rows of *S. officinale* and *S. asperum*, which had been growing together in the palace garden for at least 80 years, since the time of Joseph Busch. *S. orientale* and *S. asperum* would have been growing together in nurseries in our region for a similar period by the middle of the last century, when the Norfolk Comfrey seems to have arisen.

All in all, a spontaneous hybrid origin in the wild seems unlikely. Although the putative parents, *S. orientale* and *S. asperum*/*S. ×uplandicum* are now not often grown in cultivation, it seems that they were frequently grown for a period after the last war, and the presence of these comfrees growing close together in nurseries that attract larger concentrations of bees than natural habitats would have provided ideal conditions for rare hybridisation events to happen. This is especially the case because the main pollinator for these comfrees seems to be the Honey Bee, which especially favours gardens and nurseries.

The Norfolk Comfrey much resembles the 2n=40 genotype of *S. ×uplandicum* (which can also have pale blue flowers), and was probably sold unwittingly as Russian Comfrey for this reason. Just as with the Russian Comfrey, hybrid seedlings in the St Petersburg palace garden, F<sub>1</sub> hybrid seedling plants of Norfolk Comfrey, with their discrete rootstocks, could have been sold preferentially where they occurred. Later, established patches of the Norfolk Comfrey would in turn have produced many more F<sub>2</sub> seedlings than patches of *S. asperum*, so again might have been easier to pot up for sale. In the one or two nurseries where this occurred, the Norfolk Comfrey could have taken over as the main comfrey sold, for a short time at least, until Russian Comfrey went out of fashion.

#### **Does the Norfolk Comfrey occur elsewhere?**

After the publication of photographs and the description in 2007, I expected to hear news of the Norfolk Comfrey from elsewhere, but only two people sent material, both of which were not the Norfolk Comfrey. Nevertheless, it is quite possible that it is being overlooked. Our *S. ×uplandicum* in Norfolk is nearly all the 2n=36 genotype, with very deep purple buds and violet purple open corolla, which looks very different in flower colour, but the more common genotype in the country as a whole (2n=40) has pale blue to pink flowers, much more like the Norfolk Comfrey (Perring, 1998). It would be worthwhile to routinely check that such plants do not have the just under half-dissected calyx, soft indumentum and broadly ovate mid-upper stem leaves with rounded to very widely cuneate bases, that immediately and very easily define the Norfolk Comfrey (see Colour Section Plate 3). The best spotting features from a distance are the pale blue flowers and more *orientale* like habit, the leaves looking paler greyish-green than those of *S. ×uplandicum*, with the mid-stem leaves tending to be arched downwards rather than upswept. I would be very glad to receive any suspected examples in the 2014 season.

**Possible *S. ×uplandicum* × *S. caucasicum***

While checking on the populations of the Norfolk Comfrey in 2011, I noticed that one population, at Bergh Apton, was not in fact typical of the taxon. It did have the fairly pale blue flowers and an under half-dissected calyx, together with the basically ‘*uplandicum*-type’ habit, forming a dense patch, arising from tightly intertwined fusiform roots, but the upper and mid-stem leaves were much more like ‘*uplandicum*’: more narrowly lanceolate and with cuneate to attenuate bases. Most strikingly, the open corolla was noticeably short, with a more intense mid-blue rather than pale blue basic colour, and with a more constant and deeply pinkish-purple longitudinal striation down each corolla lobe. I sent material to the comfrey referee, who felt that it was most likely to be a hybrid between *S. caucasicum* and *S. ×uplandicum* (O’Reilly, pers. comm.).

One does not often get a chance to see *S. caucasicum*, which is very rare in the wild and infrequent also in cultivation. However, within a few days I went to look at some in the Cambridge University Botanic Garden comfrey bed, and confirmed that the corolla colour and length (especially compared with the calyx) was very similar indeed to the Bergh Apton material (see Colour Section Plate 3). Measurements of the detached corolla of this plant were 13.0–13.5mm × 5mm, and further fresh measurements this year came out at 13.0–15.5mm × 20mm, nearer the average for *S. caucasicum* (range 12–14mm), than that for *S. ×uplandicum* (range 12–18mm). The corolla scales closely resemble those of *S. ×uplandicum*, however, being narrowly triangular with a slight convexity in the upper half, rather than near linear as in *S. caucasicum*. The calyx dissection was 1/3 to 2/5, rather than 2/5–1/2(-3/5) in the Norfolk Comfrey, much closer to that seen in *S. caucasicum* (1/4–1/2) than in *S. ×uplandicum* (2/3–3/4). The calyx lobes were very close in shape to those of *S. caucasicum*, being very obtuse to rounded, rather than acute at the tip. The indumentum of stem, leaf undersurface and calyx was mainly of soft, weak, uncinata hairs with a few simple, unhooked hairs, but with

occasional stout, hooked bristles, with bulbous bases, profuse on the calyx ribs, similar to those in *S. ×uplandicum*.

Basically this plant has indumentum and flowers much resembling *S. caucasicum* – the short bulbous bell of the corolla is especially striking, as is the complete coverage of the tubular portion by the deep purplish calyx. However, leaf shape, habit and stature resemble *S. ×uplandicum* – stems from the centre of the clonal patch are c.110cms high, whereas *S. caucasicum* seldom exceeds 60cms, in my experience usually much less.

Both Sell and Stace mention hybrids between *S. caucasicum* and *S. asperum* as having been occasionally recorded in the British Isles, but not between *S. caucasicum* and *S. ×uplandicum*. However, Stace does point out that *S. ×uplandicum* was perhaps a more likely parent than *S. asperum* because, like the Norfolk plant, the Midlothian specimen had some pinkish-purple in the corolla. Interestingly, Lawrence Hills wrote in 1976 that a hybrid between *S. caucasicum* and *S. asperum* had been obtained from Russia for the H.D.R.A. “some years before”, but had proved disappointing in their research. This too could have been an ‘*uplandicum*’ rather than an ‘*asperum*’ hybrid, and may briefly have reached commercial nurseries for sale around the middle of the last century. The Bergh Apton plant is not producing any distant seedling offspring in the Norfolk Comfrey manner, and probably did not arrive at its roadside site by seed, but rather as a garden throw out.

In the case of this *caucasicum* hybrid there is more direct evidence that it was sold as pure *caucasicum* some decades ago. The only two comfrees featuring in the *RHS Gardener’s Encyclopaedia* of 1994 (Brickell (ed.), 1994) were a variegated form of *S. ×uplandicum* and *S. caucasicum*. The illustration for the latter shows a corolla indistinguishable from that of the Bergh Apton *caucasicum* hybrid, with the short bulbous corolla bell and complete coverage of the tubular portion by the purplish calyx, and again with the same intense deep purple longitudinal striations. The text also

mentions a maximum height of 90cms, also wrong for pure *caucasicum*.

Whatever its exact parentage and origin, this *caucasicum* hybrid could again easily be overlooked for the 2n=40 genotype of *S. ×uplandicum*, which it resembles even more than does the Norfolk Comfrey. In this case jizz and leaf shape are similar and the main spotting features will be the short and intensely blue open corolla, with a broadly bulbous striated corolla bell, and shallowly dissected calyx.

#### Acknowledgements:

I would like to thank Clare O'Reilly for her crucial help with both hybrids; also Lionel Perkins of the John Innes Centre for his attempts to re-synthesise the Norfolk Comfrey.

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## Using English names for wild flowers at vice-county scale (or finer)

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When we write or talk about wild flowers we often use names that are simpler than those in the standard BSBI list of English names. Thus Ivy is readily accepted for *Hedera helix* in many situations, but Common Ivy, the BSBI standard name, is indeed appropriate if ivies are being discussed as a genus. 'Common' is the word most frequently dropped.

A similar, but less familiar, issue relates to the artificial hyphenated 'genus' names used in the BSBI list. Take 'Wood-sedge' as an example. There are three Wood-sedges in the British list but only one of them, *Carex sylvatica*, is present in Berwickshire. So, in a Berwickshire context, I do not even have to agonise between Wood-sedge and Common Wood-sedge, I can use Wood Sedge instead, which fits much more comfortably into a list of sedges.

I suggest that this sort of simplification is a very worthwhile issue to take up when compiling a check-list for a vice-county or smaller area.

One genus has caught my eye as being out-of-kilter in the BSBI list: it is *Galinsoga*. Stace (3<sup>rd</sup> ed.) sensibly translates the *Galinsoga* genus as Gallant-soldiers (not Gallant Soldiers), but curiously does not follow his logic through. I suggest that *G. quadriradiata* becomes Shaggy Gallant-soldier, not Shaggy-soldier.

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## A new site for *Allium ampeloprasum* var. *ampeloprasum* in Britain

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*Allium ampeloprasum* (Wild Leek) is a Nationally Scarce archaeophyte. There are three varieties: var. *ampeloprasum* (found mainly throughout western and southern Europe), var. *babingtonii* (endemic to S.W. Britain and Ireland) and var. *bulbiferum*, in the Channel Islands (and also in W. France). The first two varieties have a predominantly south-west distribution in Britain, but var. *ampeloprasum* has the more restricted distribution of the two.

*Allium ampeloprasum* var. *ampeloprasum* is a Somerset (v.c.6) Rare Plant Register species with, in v.c.6, a stronghold on the island of Steep Holm in the Severn Estuary. It has been known on the island since 1625, but it has been reported that numbers here have fallen considerably since it was first recorded (Green *et al.*, 2000; Wiggington, 1999). There are records of a similar number of plants on nearby Flat Holm (v.c.41). The majority of the British population occurs on these two islands.

*Allium ampeloprasum* var. *ampeloprasum* is a robust plant growing up to two metres tall and having a dense globose head of flowers without bulbils. The bulb propagates vegetatively but the plant spreads mainly by seed (*Online atlas of the British and Irish flora*). There has been only one other record of this species in v.c.6 before, on Kenn Moor in 2001 (Dr. H. Crouch, pers. comm.) and we do not currently know whether it has persisted there.

I first spotted the plant on 5<sup>th</sup> June 2013 (see inside Front Cover) but identification was not possible until the flower had opened, which it did in July 2013 (see Front Cover & inside Front Cover). The presence of four smaller plants attached to the base of the flowering plant suggests that it may have been there for five years without being noticed and without flowering. The new site is at the top end of the salt-marsh on the Sand Bay SSSI, in North Somerset, just at the upper range of the highest tide. If *Allium ampeloprasum* var. *ampeloprasum* seed remains viable when sea-borne, then there is the possibility that it may have come from seed washed in from Steep Holm or

Flat Holm. I can find no information on how *Allium ampeloprasum* var. *ampeloprasum* seed is distributed, so this must remain speculative. A bulb known as ‘Elephant Garlic’ and named as *Allium ampeloprasum* is offered for sale online as a culinary garden plant and that may provide a possible alternative origin, although I have never seen it in any gardens in the Sand Bay area.

It was hoped that the plant would set seed and possibly further disperse within the area, but sadly by August it had been vandalised – the flower had been picked and removed. *Allium ampeloprasum*, var. *babingtonii*, which has numerous bulbils between the pedicels, appears to be increasing, whereas var. *ampeloprasum*, which relies on seed for distribution, is declining (*Online atlas of the British and Irish flora*). This makes it all the more frustrating to have had the new plant vandalised on its first flowering. I cannot help but wonder whether it has ended up in someone’s dried flower arrangement – especially as the local flower and produce shows are in full swing at the end of the summer – but this is mere speculation. The plant is still there and we must wait another year to see whether it will fare any better in 2014.

### Acknowledgements:

Thanks are due to Helena Crouch and to John Martin for comments and to John Martin for directing me to the very useful online site.

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## *Allium ampeloprasum* var. *ampeloprasum* (Wild Leek) in S.E. Ireland

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The usual large leek you would expect to find in Ireland is *Allium ampeloprasum* var. *babingtonii* (Babington's Leek), which is cited in *Webb's an Irish flora* (Parnell & Curtis, 2012) as growing on the west coast from Counties Clare to Donegal. But this information is very misleading, as it can also be found along the south and east coast from Counties Cork to Wicklow and in County Down. The stronghold is south-west Clare, where it is a very common sight along road banks (see Colour Section, Plate 1). Some populations may have as many as 500 flowering heads in any one year.

*Allium ampeloprasum* var. *ampeloprasum* is currently known from Cos. Waterford and Wexford in the south-east of Ireland. The first reported Irish record was found at Fornaght, Co. Waterford, by John Wallace in 2004, along a hedge bank of a lane, where it is likely to have been introduced from a nearby cottage, although it was not found growing in the garden of that cottage. The only other Co. Waterford site was found on a road verge, in 2007, at Boheravaghera Cross Roads (Green, 2008).

Looking at *Allium* specimens held in the herbarium at Glasnevin, Dublin there is a non-flowering *Allium* collected by the late Lady Anne Brewis on 10<sup>th</sup> June 1977 from Co. Wexford. Notes on the herbarium sheet say "At Porters Gate, The Hook, in a hedge. A very large wide-leaved *Allium* – domestic?". On visiting the site in August 2006, I determined this as *Allium ampeloprasum* var. *ampeloprasum*, so in fact this was the first Irish record. It is the largest population in the county, often producing well over a 100 flowering heads in any one season.

Wild Leek is now recorded from four hectads and eight monads in Co. Wexford. Seven of the monads are on or near the south coast. The eighth is in the far north of the county at

Camolin, well away from the coast and the only site found in the flowering season. Here, it grows amongst brambles, only becoming visible once the flowering stems have grown tall enough to over-top the brambles. At all the other sites, I first noticed them in the spring, when there was a clump or mass of leaves.

Wild Leek is found on road verges and banks at Ballyteige and Carrick. In these habitats the plants are often trimmed before they have a chance to flower. At Ballyteige, no plants made it to flowering in 2013. Zoe Devlin asked at the village post office in Carrick if it would be possible not to cut the road bank in 2012, which was duly taken notice of. Unfortunately somebody came along and picked the heads. In 2013, one clump survived the hedge trimmer and pickers. Even growing in a roadside hedge at Porters Gate does not stop the Wild Leeks from being hacked to pieces when the hedge is severely cut. At Kilmore Quay, a clump can be found on a small area of dune next to the village, this being the smallest population, with only two flowering heads seen. The above sites, including the two Co. Waterford sites, could have escaped from gardens as wind-borne seed or, possibly, have been garden discards. Even though I have seen Wild Leek in one garden in Co. Wexford, it is 10km away from the nearest site. The wildest site is of three well scattered clumps just above the high tide line on the side of the seawall around Bannow Bay at Clonmines (see inside Front Cover). Here it is feasible that the seeds or bulbils may have been washed up on the grassy side of the seawall by the tide.

It would seem that *Webb's an Irish flora* (Parnell & Curtis, 2012) and *New flora of the British Isles* (Stace, 2010) both need updating. The latter cites *Allium ampeloprasum* var. *ampeloprasum* (Wild Leek) as occurring only in SW England and Wales with no mention of Ireland (?).

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## Recording invasive species - a step further

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I sympathise with Jonty Denton and his struggle with *Crassula helmsii* (New Zealand Pigmyweed) (Denton, 2013) and he may have a point, but I would like to look at the issue more closely. If someone had nipped the pestilential pigmyweed in the vegetative fragment when it was first found, what a lot of trouble it would have saved. But then, maybe there were other fragments scattered around Essex, where it was first found, away from the control of the garden pond community, or if there were not, there soon would have been. The same principle applies to *Hydrocotyle ranunculoides* (Floating Marsh-pennywort), *Fallopia japonica* (Japanese Knotweed), *Rhododendron ponticum* (Rhododendron) and a number of other alien species. Does the same apply to native plants? Many woodlands in v.c.17, where I live, have a dense understorey of *Ilex aquifolium* (Holly) that is impenetrable by both light and people. *Urtica dioica* (Nettle) lines roadsides, ditchsides and streamsides, *Crataegus monogyna* (Hawthorn) coats downsides, *Hedera helix* (Ivy) carpets the ground, lakes are ringed by dense stands of *Phragmites australis* (Common Reed) and heaths are sheets of *Pteridium aquifolium* (Bracken).

Where would we draw the line? A plant that is a pest in one part of the world is not necessarily one here. My impression is that if a species can get into our islands and become invasive it will do so, however we try to limit it with the resources available. The number of non-native species recorded in the British Isles far exceeds the natives and only a tiny propor-

tion have caused a problem, although I must admit that that problem may be quite a big one from the botanical perspective. But, a plant's nuisance value depends not on its origin but on our perception of it and its effects. The alien *Buddleja davidii* (Buddleia) makes derelict sites look OK (good), smells pleasant (good), provides a nectar source for insects (good) but shades out everything else (bad). The Reed-ringed lake may have little other marginal vegetation to interest botanists but ornithologists would see it differently. The Ivy-mantled Tower might be having its roof prised off by that most destructive of climbers but it gives the Moping Owl somewhere to complain from. So, it is all a matter of balance. For a botanist, alien plants are interesting and educational and, like it or not, are here to stay and play a part in the development of the British flora. I wish Jonty victory in the *Crassula* Wars but feel that what the Americans euphemistically call 'collateral damage' resulting from splashing herbicide around might do more harm than good. Plants, native or alien, should be left for the benefit of all those interested until they cause a problem. After all, we are all potential murderers but do not pay the price until we have realised that potential.

Now, this is an anthropocentric standpoint. Maybe we should be more phytocentric and slaughter any animals whose population is increasing rapidly and destroying large areas of habitat ....

**Reference:**

DENTON, J. (2013) 'Recording invasive species – the next step' *BSBI News*, **124**: 54.



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## ‘Biogeographical patterns in the British and Irish Flora’ in *New Journal of Botany*, August, 2013

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In the recent *New Journal of Botany*, the article by Preston, Hill, Harrower and Dines (*NJB*, **3(2)**: 96-116) seems to me an important new departure in field botany, although set out in terms for which, to follow as an amateur, I had to recap my understanding.

The authors rightly say the distribution of British and Irish plants has been a major preoccupation of botanists for over 150 years. Indeed, the interest of plant-spotting is largely: “why does that plant occur in this habitat?” (‘why’ does ‘what’ grow ‘where?’), and, next: “in this habitat, what mix of species is found?” Many species are even more interesting in combination (guilds?) than individually, because of the affinity they show to a habitat, perhaps an overlooked one. At the simplest level, a habitat is a readily-recognised landform, such as riverside, woodland, downland. At a more specialist level it can be a land-use (ancient woodland), hydrology (mire) or geology (chalk). Amateur observation becomes more informed when a county or country map is marked out in very precise compartments, *e.g.* by soil type; and by matching dot maps against that, distribution patterns for individual species are studied. In all these cases, a portion at least of our flora has been deduced to have certain requirements: *e.g.* calcicole or calcifuge, which more recently has been corrected to very dry conditions in some cases, and, further, to plants not requiring such conditions directly but rather freedom from competition from other plants unhappy in those conditions; or, instead of starting from any such maps, the plants of nature reserves can be compiled into useful lists of axiophytes. By matching flora dot-maps against Suffolk County Council’s map of 31 ‘landscape description units’, I myself, from a desk, have produced lists of ‘sub-axiophytes’ characterising beautiful areas that do not all have nature reserves and are accorded no reputation beyond their own locality. This

was objective rather than deductive, the units being defined by non-biological data, *e.g.* soils, whereas the axiophyte system is pragmatic, teleological and downright biased, but useful.

So all field botanising in fact prompts the questions: why do some 50% of species, at least, show particular apparent geographic loyalties, and what innate characters underlie these? Ellenberg values, and other local, observational and experimental knowledge help here. The next investigation must be: why do these 50% cluster together like birds of a feather (the ‘in this habitat what mix of species is found?’ of the first paragraph above)? But now teleology has crept into all of the above approaches, even the most scientific, because a geographical ‘where’ has to be nominated, before the ‘what’ of the plant species can be matched to it. Altitude, chalk, landscape ancientness, anthropogeny, climate change, all these environmental factors take their turn to be the most exciting ‘where’ candidate.

However, I gather that the local amateur on a stroll, Ronald Goode on his exhaustive Dorset exploration, and perhaps the skill-demanding NVC approach, are not teleological - noting clusters of ‘what’ plants flock together, and then afterwards considering multiple possible ‘where’ elements. This seems surely the most useful and scientifically dispassionate approach, and ultimately most useful, and so Preston, Hill, Harrower and Dines’ article was most welcome, and left me enthusiastic for further developments. As an amateur, though, and one who can not get access to the journals referred to, I could have done with a few more pointers to steer me through the topic, as I was left unsure of what I had been reading (a comment I would make about some other *NJB* articles involving statistical and genetic analysis). What makes a ‘key species’ – ‘most densely grouped’ perhaps? How does a

species like *Urtica dioica* (Common Nettle) form the top of a cluster, if *Prunus spinosa* (Blackthorn) or *Rosa canina* (Dog-rose) are not even in the first 25? Indeed, no woody species are close to *Urtica*, so the identity of Britain plus Ireland is apparently dictated by our most windswept islands? I suppose this should be easily understood; and wonder whether this treatment can now be readily applied to other dot-atlases, and whether we can next hope for a bevy of county or regional analyses; but also whether those clusters will be very different from the 20 in the article.

Such intriguing questions as those raised about the Montgomeryshire and Staffordshire floras have brought the topic round full circle to the ‘why’ of the ‘where’ and the ‘what’, as the article leads us back to those data about biome, range, lifeform, habitat preference, threat - or possibly further back from science again towards good old judgement. However, the authors identify solid factors for each cluster. Perhaps we should not wonder what intrinsic or morphological quality of *Urtica dioica* makes it behave like *Ranunculus repens* (Creeping Buttercup), or *Romula columnae* (Sand Crocus) like *Anacamptis laxiflora* (Loose-flowered Orchid) (although here at least I could begin to see a thread). At the habitat level, do we envisage finding names for the heartlands of the clusters, like Watson’s ‘septal midagrar’ for the *Tamus* or *Stachys* clusters? Seeing the overlapping *Crithmum* and *Limonium* clusters so firmly distinguished made me wonder, if species of continuous stretches of coastline form ‘clusters’, then why not continuous stretches of rivers? Then I found the *Lemna* cluster. So, we have a computer that finds water using maths alone.

I compared the 500 species listed for the 20 clusters with the list of 178 constant vascular plants of the NVC classification and found just 67 occurring in both. Eighteen of these are from the *Urtica* cluster; *Glax* and *Calluna* have eight and nine respectively; seven

clusters have three, four or five species; and ten clusters have none or one. This tells us something, but it is hard to decide what. The two systems would ideally overlap more than that, though.

I would like to visit a nature reserve dedicated to the plants exemplifying the *Clematis vitalba* (Wild Clematis) cluster; but I can think of no such place, which the article implicitly recognises – so presumably, at the level of any county, does this cluster simply not exist? I wondered whether it was in error that *Spergula arvensis* (Corn Spurrey) was in the *Romulea* cluster (unless referring to *S. arvensis* ‘var. *nana*’ – see Stace), and where the computer would have placed it had not William the Conqueror given us the Channel Islands? Why not experiment therefore by adding in Heligoland’s data?

Admittedly, when I go abroad I see no rival to our wondrous beds of British *Urtica*, *Rubus fruticosus* (bramble), *Pteridium aquilinum* (Bracken) or *Prunus spinosa*, and shorts can be worn everywhere. Noticing the latter three not listed for the clusters’ heartlands, however, I wondered how low their ‘similarity’ scores are and whether they risk slipping between groups? It is interesting also to wonder whether the axiophytes are well represented in those ‘most similar’ lists? Also, why do the *Clematis* and *Tamus* groups shun the north and west – chalk again? I was pleased to see the homely cast-list of the *Epilobium hirsutum* (Great Willowherb) and *Stachys sylvatica* (Hedge Woundwort) clusters collectively get some limelight; and fascinated by Ireland lacking in so very many familiar members of the *Chaerophyllum* group – could we have the list of all 93?

I would like to know whether I am missing the point, or whether the proof of the pudding will finally be in such ‘whys’. I await impatiently the next helping, confident it will not be from a can of worms but something appetising.

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## How repeatable is the hectad data in the *New atlas*?

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### Introduction

The *New atlas of the British & Irish flora* (Preston *et al*, 2002) or 'Atlas 2000' was a huge improvement on the 'First Atlas' (Perring & Walters, 1962) in that the underlying field coverage was much more complete. However the expectation that it would show clear trends of change in the flora was not fully met. There were indeed some species that were seen to have spread dramatically and some to have declined, but for a majority of species the improved coverage covered up any decline while the degree of improved coverage varied dramatically from species to species. Resort had to be made to statistics on groups of species that made allowances for the average improved coverage. The results were interesting, but they only pointed to groups of species that were doing well or badly relative to other groups: it was not possible to measure absolute change.

With tetrad floras now being completed for many vice-counties, it is already clear that 'Atlas 2020' will be able to draw on coverage that will be even better than 'Atlas 2000', but the same positives and negatives will apply. Meanwhile, the detailed distributions of species now displayed in the tetrad maps on the BSBI website are beginning to open up the way for fascinating studies of individual species, especially native species which are only modestly widespread, many of which are now recognised as axiophytes that are indicative of species-rich natural habitats.

So what will the hectad data of 'Atlas 2020' show? I have just completed a post-2000 repeat sample survey of Berwickshire and have been studying the results. I now offer some observations on the outcome, focusing especially on the degree to which individual 'atlas dots' (hectad records for a species) have or have not been re-found.

### The history of recording in Berwickshire

As background, I summarise the recording history of Berwickshire, v.c.81. The 'First Atlas' was mainly based on nineteenth century coverage that is quite good for the scarcer species and on a rapid blitz of the hectads in 1960. There was limited further recording in the 1960s. Between 1970 and 1986 there were many site surveys and also specialist surveys for *Rubus* and *Taraxacum*. Between 1987 and 1999 I carried out a sample survey at monad scale, hectad by hectad, focusing on botanically-rich sites but with supplementary sample survey of other habitats, such as arable and ruderal, to ensure that as full a species list as possible was obtained for each hectad or part hectad. Between 2000 and 2004 I carried out much dedicated recording of species that are rare or scarce in Berwickshire and then, between 2007 and 2013, I completed a repeat sample survey at monad scale, hectad by hectad, with the same objectives as for the 1987-1999 survey. The 2000-2013 repeat survey was more intensive than the 1987-1999 survey (2000-2013: 55,299 distinct taxa monads; 1987-1999: 32,769 distinct taxa monads). So, unusually, I myself, with only a modest amount of help, have carried out two comparable surveys of the vice-county.

Note that I deliberately chose not to attempt a full tetrad survey, believing that site surveys at monad scale supplemented by very many records at 100m scale (often themselves supported by 10m detail) offer a better record of the flora and form the basis for a 'Botanical Site Register'.

How representative a vice-county is Berwickshire? As to habitats, it is representative, except for the near absence of urban habitat. As to recording history it is less well recorded than the many English and Welsh vice-counties that now boast a tetrad flora, but better recorded than most Scottish vice-counties. So, I would submit that Berwickshire is a reasonably representative vice-county.

### **‘Oldest on top’ results**

Users of the maps on the BSBI website will be familiar with ‘oldest on top’ and ‘most recent on top’ maps. The first give priority to the oldest records and give an indication of how the known distribution of a species has increased over time, whether due to spread or to better recording coverage. The second give priority to the most recent records and give an indication of how the known distribution of a species appears to have declined over time, whether due to populations being lost or to gaps in coverage. I have used these principles to summarise the records for each hectad in Berwickshire to give all-taxa statistics. I have separated part hectads from ‘full’, or almost full, hectads. Except where indicated, all the percentages quoted are percentages of taxa ever recorded in a hectad.

The ‘oldest on top’ statistics show that, of the taxa ever recorded in a ‘full’ hectad, 51% were first recorded 1700-1969, 15% 1970-1986, 21% 1987-1999 and 13% 2000-2013. There was a huge difference between the coverage for the ‘First Atlas’ and ‘Atlas 2000’. There will be a much smaller difference between ‘Atlas 2000’ and ‘Atlas 2020’.

For part hectads, 28% of the taxa were first recorded 1700-1969, 21% 1970-1986, 36% 1987-1999 and 15% 2000-2013. Coverage for the ‘First Atlas’ was poor but by 1999 coverage was comparable to that of ‘full’ hectads.

So, what are the extra taxa first found in the 2000-2013 date-class? Looking first at taxonomic rank, proportionately more hybrids and subspecies have been recorded, but the impact on the total is modest. Over all date-classes, hybrids are 4% of the total taxa, microspecies 3%, segregates 5% and species 88%, so the figure for taxa first recorded 2000-2013 is only marginally affected by the increased emphasis on hybrids and subspecies: 73% of the taxa first recorded 2000-2013 are species. Looking next at status, we find that, over all date-classes, archaeophytes are 9% of the total taxa, casuals 7%, neophytes 16% and natives 68%. Proportionately more casuals, mainly planted trees and shrubs, have been first

recorded in 2000-2013 than archaeophytes and natives, and rather more neophytes. This bias is very material. 55% of the taxa first recorded 2000-2013 are casuals or neophytes and 45% archaeophytes or natives.

### **‘Most recent on top’ results**

The ‘most recent on top’ statistics show that, of the taxa ever recorded in a ‘full’ hectad, 78% were found or re-found 2000-2013 (14% of which were ‘new’), leaving as not re-found 8% from 1987-1999, 3% from 1970-1986 and 11% from 1700-1969. For part hectads the figures are similar, being 79%, 11%, 2% and 8% respectively. Over all hectads and all date-classes before 2000, the apparent losses, the taxa not re-found 2000-2013, are 22% of the taxa ever recorded. This is a high rate of apparent loss and bears further examination.

Further insight can be gained by looking at taxonomic rank and status. Looking first at taxonomic rank, the apparent losses are made up of hybrids 5%, microspecies 9%, segregates 7% and species 79%. As for the ‘oldest on top’ statistics, the species predominate. Looking next at status, the apparent losses are made up of archaeophytes 9%, casuals 11%, neophytes 17% and natives 63%. These proportions are not very different from those of all the taxa ever recorded, except that there are rather more casuals, so apparent losses are drawn fairly equally from all taxa regardless of status. Thus the overall apparent losses of 22% of the taxa ever recorded are not much affected by bias in taxonomic rank or status and are predominantly of native species.

The main issue is clearly whether the losses are ‘real’ or whether the taxa have simply been overlooked in 2000-2013. I have taken two hectads, both repeat-surveyed in 2013, and have attempted to score the apparent losses subjectively as ‘lost’, ‘don’t know’ or ‘present’. Microspecies were excluded as they have been so unevenly recorded. I have then divided the ‘don’t know’ equally between ‘lost’ and ‘present’ to force a result. This exercise suggests that of the 1987-1999 apparent losses, 20% to 30% are ‘real’ losses and 80% to 70% overlooked, of the 1970-1986 apparent losses half are ‘real’ losses and half

overlooked, and of the 1700-1969 apparent losses 80% are ‘real’ losses and 20% overlooked. Crucially, only about 25% of the 1987-1999 losses are thought to be ‘real’. This dramatically reduces the scope for ‘Atlas 2020’ to show anything quantitative about recent changes in the flora.

Applying this result suggests that, of the 22% apparent losses in Berwickshire hectads, the ‘real’ losses are 12%, made up as 2% 1987-1999, 1% 1970-1986 and 9% 1700-1969, while the remaining 10% have been overlooked in the repeat survey. The high losses for the 1700-1969 date-class owe much to the availability of good nineteenth century data. Areas without a good historical record will inevitably show lower losses.

### The interpretation of Atlas maps

I offer what I believe is a salutary, if minor, criticism of the *New atlas* regarding the interpretation of maps. All the maps printed used the ‘most recent on top’ format. This meant that apparent losses were displayed but not the extra hectad ‘dots’ that resulted from the improved coverage since the ‘First Atlas’. A substantial minority of the species captions fail to take this into account. *Silene vulgaris* (Bladder Champion) is an example. The caption to the map on page 176 states that ‘the map suggests an appreciable decline in the frequency of *S. vulgaris* since the 1962 Atlas’. Comparison with the map on page 62 of the ‘First Atlas’ or the maps on the BSBI website shows that many ‘new’ records were made between the two atlases in much the same areas as the apparent losses. *S. vulgaris* may indeed have declined, but I very much doubt if the *New atlas* data prove it.

In contrast the maps in *Change in the British flora 1987-2004* (Braithwaite *et al.*, 2006) display the data in such a way that both apparent gains and apparent losses are visible. The map of *Silene latifolia* (White Champion) on page 57 is a case in point. Away from a core area where the species is frequent, the ‘dots’ are a mixture of apparent gains and apparent losses indicative of a large area where the species is scarce and the chance of recording it in a tetrad where it is present are modest.

### Discussion

Analysis of the Berwickshire repeat survey serves as a reminder of the great steps forward taken by the *New atlas*. In Berwickshire the coverage increased from 51% to 87% of the taxa now recorded. The advance made by the recent repeat survey is modest in comparison, from 87% to 100%. For individual taxa the situation is far more varied. The repeat survey has dramatically increased coverage of hybrids, planted trees and shrubs and a not inconsiderable minority of native species that are now better understood and recorded, not least as a result of the use of John Poland’s *Vegetative key to the British flora* (Poland & Clement, 2009) to extend the recording season. A modest number of species have increased amazingly. These include not only the roadside halophytes but the clubmosses that have colonised forestry roads in abundance.

When one turns to apparent losses, the situation is much less satisfactory. In Berwickshire, 22% of the taxa ever recorded have not been re-found in the repeat survey. Using a subjective analysis of two hectads, I estimate that 12% of this 22% relates to ‘real’ losses and 10% relates to taxa that have been overlooked. The comparison between the 2000-2013 date-class and the 1987-1999 date-class indicates ‘real’ losses in Berwickshire at hectad scale of around 2% in 16 years. This is of a different order of magnitude from my estimate of losses of individual populations of species that are rare or scarce in Berwickshire at 24% over the same period, effectively working at 100m scale (Braithwaite, 2010). I am firmly of the opinion that repeat fine-scale recording is essential if we are ever going to learn much about the ongoing sad decline in our native flora.

The estimate that only 25% of the apparent losses in the 1987-1999 date-class in Berwickshire are ‘real’ is disturbing. I suggest that it highlights a major limitation on the repeatability of the hectad data in the *New atlas*.

### Underlying data

An Excel spreadsheet with tables of the summary data used in this article, together with supporting charts, is available from the author by email.

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## Would anyone believe us if we said we had seen *Suaeda vera* (Shrubby Sea-blite) on the M6 in Warwickshire?

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Junction 2 of the M6 must be about as far away from the seaside as any motorway junction in the land. We have no great wish to be ridiculed, and yet we feel compelled to report the fact that we think we have spotted a single bush of the Nationally Scarce *Suaeda vera* (Shrubby Sea-blite) growing on the central reservation of the M6, about 0.7 miles east of the said junction, within monad SK3982. It is situated on the north side of the (metal) crash barrier, so is most easily viewed from the east-bound carriageway.

It was first seen on 19<sup>th</sup> August, when we were heading in an easterly direction at a speed of about 70mph and, to be honest, we had flashed past it before it dawned on us what it might be. But the next day we returned, this time heading west, and, having noted the spot on the way up, were able to reduce our speed sufficiently for one of us (the passenger) to get a decent view of it by peering beneath the crash barrier. We could not think of anything it might be apart from *Suaeda vera*. It had the correct growth-form, the shoots looked 'succulent', and the colour – a dark grey-green – was exactly right.

One of us (S JL) had the good fortune to attend his godson's wedding in Rutland on 5<sup>th</sup> October, necessitating another trip along the M6. On the return journey, on the 6<sup>th</sup>, the carriageway was clear enough for us to be able to crawl past the mystery plant at just 30mph,

and for a moment we could have been driving along a shingle/saltmarsh transition in Norfolk or Suffolk – only the one bush of putative *Suaeda*, but plenty of *Puccinellia distans* (Reflexed Saltmarsh-grass) and, closer to junction 2, a narrow 'ribbon' of *Spergularia marina* (Lesser Sea-spurrey) too.

Of course, we accept that this record will be judged by others as highly dubious, so for now at any rate it will doubtless be missing from distribution maps and square-bracketed (or omitted altogether) from any accounts of the Warwickshire flora; and we certainly do not suggest that anyone should attempt to confirm it – that would be just too plain dangerous – unless a car-load of botanists had the immense good fortune to find themselves stuck in a traffic jam at that very spot. However, such a record maybe is not *quite* as unlikely as it seems. We note with interest Mary Smith's recent record (verified 'on the ground') of a single bush of this species from a roadside bank beside the A13 in Essex (*BSBI News*, **124**: 19-20); and, while admittedly a long way from the sea, there is a continuous motorway/dual carriageway connection between the M6 and the east coast via the A14 – a major trunk road that starts its inland journey, complete with its cargo of roadside halophytes, at Felixstowe, right in the heart of '*Suaeda* country'.

## *Juncus* subgenus *Juncus*, Section *Iridifolii* in Britain

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The rush *Juncus ensifolius* Wikström (Sword-leaved Rush) in *Juncus* subgenus *Juncus*, Section *Iridifolii*, has been recorded in Britain, (Clement & Foster, 1994). *Juncus ensifolius* in this Section belongs to a group currently consisting of ten species with flattened ‘Iris-like’ leaves, as the name of the Section suggests (Kirschner *et al.*, 2002). The useful idea of Sections is also currently adopted in Stace (2010). Presently, to 2013, there appear to be four records for *J. ensifolius*, as follows, in chronological order:

1. “*Juncus ensifolius* Wikström – Sword leaved Rush. A casual on a canal bank at Chester (Cheshire), vector unknown. No modern records. Japan, Western N. America; (N. Europe, New Zealand). **LIV**, **RNG**. The eastern N. American *J. canadensis* J. Gay (ex Laharpe) may have been overlooked. No modern records.” (Clement & Foster, 1994). Record details on the original in **RNG**: *J. ensifolius*, Wikst., see *Proc. BSBI*, **3**: 49 (1958). Bank of canal, near Christleton, Cheshire, (Chester), v.c.58, GR: 33/43 – 65, 1946, A.M. Stirling. Ex herb. J.E. Lousley, presented by Dorothy Lousley in 1976. [Note: *J. canadensis* (Canadian (or Canada) Rush) mentioned in Clement & Foster (1994) is in Section *Ozophyllum*, and its leaves are  $\pm$  terete, and therefore quite a different rush from *J. ensifolius* (but a similar inflorescence) and, as it says in Clement & Foster (1994), “it may be overlooked”, although this seems unlikely at present].
2. *Juncus ensifolius* Wikst. Accidental (or planted?), balancing pond, Fair Oak, near Eastleigh, S. Hants., v.c.11, 12<sup>th</sup> Aug. 2004. Collector: John Poland *et al.* Det. E.J. Clement. No. BM000913702. Said to have gone from this site, (pers. comm. J. Poland, 2013).
3. *Juncus* sp. [‘sp.’ crossed out and replaced with ‘*planifolius*’]. Coll. M.A. Spencer, 31/06/2006, Greenwich Peninsula Ecology Park, Greenwich, London, TQ400793, v.c.16, cultivated. Re-det. *J. ensifolius* Wikst. F.J. Rumsey, 26/08/2010. No. BM000909570.
4. *Juncus ensifolius* Wikström - Sword-leaved Rush. Distribution: near Speke Hall boundary fence, [not inside the grounds of Speke Hall] Liverpool Airport Coastal Reserve, SJ416826, B. Hedley, 2007. Habitat: in a damp ditch, growing in association with *Juncus tenuis* and *Juncus gerardii*. Comments: neophyte, native to North America, Japan and the Kurile Islands, Russia. (Details from Dave Earl, vice county recorder for v.c.59, and see photos by Marion Chappell:  
(<http://www.southlancsflora.co.uk/Grasses/J/Juncus%20ensifolius%20pics.htm>).

The specimen for the first record above of *J. ensifolius* is cited in Clement & Foster (1994) for Liverpool (**LIV**) and Reading (**RNG**). The assistant curator (Wendy Atkinson) at **LIV** tells me they cannot locate this taxon. Alastair Cullam at **RNG** (via Sue Mott, also **RNG**) and Mark Spencer at the **BM** in the first instance had provided photos of the originals. The Chester specimen, along with the two specimens from the **BM**, has been viewed in **MANCH** and all three are correct as this species.

The *J. ensifolius* plant growing in a ditch just outside the boundary of Speke Hall was last seen in 2012. The *Juncus* species, *J. tenuis* Willd. (Slender Rush) and *J. gerardii* Loisel. (Saltmarsh Rush) that are cited above as growing with this rush were not seen. I visited this site with B.A. Tregale in June 2013 and saw this rush in the ditch. It was a little bit early because, although the inflorescence was just beginning to appear, it was nowhere near being in flower. However, an examination of the young flowers of this rush showed that it is not *J. ensifolius* but a similar species in Section *Iridifolii*. In the key for Section *Iridifolii*, this group is split into two by the number of

stamens: one set of four species with three stamens and the other set of six species having six stamens. The Speke plant belongs to the latter group, whereas *J. ensifolius* belongs to the former (see Kirschner *et al.*, 2002). Without fruits, and on the basis of the leaf size, I considered it to be *J. xiphioides* E. Mey (Iris-leaved Rush). An examination of the plant in fruit was needed to be sure. When the rush reached maturity it was correct as *J. xiphioides* and not *J. ensifolius*. A specimen of the rush from Speke was also sent to a rush expert in N. America, Washington, (WTU), Dr. P. Zika, who agreed with the determination. *J. xiphioides* can now be added to the ever-growing list of non-native taxa in Britain.

#### Acknowledgements:

Peter Zika (WTU), Wendy Atkinson (LIV), Dave Earl, Alastair Cullam and Sue Mott (RNG), Mark Spencer (BM), Lindsey Loughtman and Rachel Webster (MANCH) and John Poland.

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### *Veronica polita/agrestis* – an extra identification character

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*Veronica polita* (Grey Field-speedwell) and *V. agrestis* (Green Field-speedwell) are annual species which occur in generally disturbed, semi-artificial habitats, such as arable fields and gardens, as well as more urban settings on bare open ground, or even at the bases of walls. Both have axillary flowers borne on relatively long pedicels, small leaves with crenate margins, and capsules with non-divergent apical lobes. Although *V. polita* usually has flowers of a darker blue and leaves of a dark grey-green colour (bright green in *V. agrestis*), these are not fully diagnostic, and the fact that they can co-occur in the same sorts of habitat means the two species easily can be confused. The key in Stace (2010) separates them using differences in capsule indumentum, *V. polita* having capsules with a mixture of straight, glandular hairs and shorter, hooked, eglandular hairs; *V. agrestis* with exclusively patent, glandular hairs. There are also differences in sepal shape (Leaney, 2010). However, both sorts of character can be difficult to assess, even at ×20 magnification, and the oblong, obtuse sepals of *V. agrestis* can seem remarkably similar to the ovate, acute sepals of *V. polita*, unless both species are available for a direct comparison.

There is, however, another character which I believe is far easier to judge in the field, and

this is the capsule style length. Simply put, the style is obviously exerted beyond the apical notch of the capsule in *V. polita*, whereas it is included in the notch in *V. agrestis*. The difference is obvious enough in most cases to be appreciated using only the naked eye.

This is not an overlooked character so much as a largely forgotten one. It will be familiar to users of *The pocket guide to wild flowers* (McClintock & Fitter, 1956), where it is highlighted (on p.145, illustration on p.144). Botanists of a later vintage might not have heard of this excellent work, much less own a copy. The difference is also well-illustrated by the microphotographs on p. 607 in Stace (2010), but not referred to in the text.

This character works very reliably in the field in my experience, an observation corroborated by Eric Clement and Alan Leslie.

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## *Sorbus domestica* (True Service-tree) in Cornwall (v.c.2)

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In September 2013, during a search for *Scilla autumnalis* (Autumn Squill) along rocky sections of low cliff on the north side of the upper Camel Estuary, we chanced upon a small spreading bush with pinnate leaves almost hidden by similar leaves of a large overhanging *Fraxinus excelsior* (Ash). We first thought that it was *Sorbus aucuparia* (Rowan) and, having duly recorded it, walked on. However Rowan is very rare or absent in the neutral or base-rich soils of the Camel Estuary area, being a species of more acid soils. Something didn't look quite right for this species as the leaves were slightly different and the growth form, a suckering bush just above the high tide mark, was not like Rowan, so we retraced our steps and checked the bush more closely. On inspection a few individual apple-shaped fruits, much larger than the berries of Rowan, were seen, and one was collected, with much difficulty, with some leaves (see Colour Section, Plate 4). Neither of us had seen *Sorbus domestica* (True Service-tree) before but both tentatively wondered if it could be this species, an enigmatic species with a rich and interesting history in the British Isles. We later confirmed the identity of the bush as *Sorbus domestica*, and a specimen has since been deposited at the Natural History Museum, and leaves sent to Mike Fay at Kew.

There is one very old record for *Sorbus domestica* in Cornwall – in Davey (1909) where he says, under a bracketed [*Pyrus domestica*], “in Phytol. 1861, 176, it is stated that a specimen, labelled ‘hilly places in Cornwall, Walter Moyle esq. and Mr Stevens’ is preserved in Herb A. Buddle in **BM** [British Museum]”. Mark Spencer (Senior Curator, British and Irish Herbarium) of the Natural History Museum has checked Buddle's herbarium and cannot find a specimen from Cornwall but suggested that the record may be in Buddle's manuscript of his ‘Methodus nova Stirpium Britannicum’, held in the British Library. However the entry there (Sloan mss 2201) has ‘in ye mountainous part of Cornwall’

which merely seems to echo the report in Ray (1696).

Until the early 1990s *Sorbus domestica* was thought only to be a rare and apparently not persistent introduction, the most famous example being the large tree, the ‘Whitty Pear’, of Wyre Forest, Worcestershire, which has been known there since at least 1678. This was destroyed by fire in 1862, but its descendents are still present, most of these re-introduced from trees nearby originating from material collected from the tree before it was destroyed. There are scattered records for it in other parts of the British Isles as planted or introduced plants. Then in 1993 news came from south Wales that Marc Hampton had seen it in two sites on limestone cliffs near Barry, Glamorgan, in 1983, growing as if native, but he had not had them confirmed as *Sorbus domestica* until 1993. Today Marc reports that there are at least 90 (of various sizes) along 400 metres of cliff at one site and a few scattered at the other, a few kilometres away. After Marc's discovery it was then looked for and found at more natural situations, on cliffs above estuaries on the Wye and Severn. In these natural situations the *Sorbus domestica* trees (or small suckering bushes) appear to have been present for some considerable time, their large or spreading rootstocks evidently continually surviving by suckering when the aerial parts of the plant had broken off or fallen due to cliff slippages. In these situations it is argued by some that these are native occurrences, however there is a considerable debate about the true origins of this species in the British Isles and there is a current effort to establish the origins of the British plants from material collected for molecular research at Kew. Marc has visited the Cornish site with us and has identified it as forma *pyrifera*. It consists of two small trunks, with two very small suckers, all seemingly originating from one rootstock, growing with *Rubia peregrina* (Wild Madder), *Hedera hibernica* (Atlantic

Ivy), *Prunus spinosa* (Blackthorn) and very little else. He also mentioned that he had explored other Cornish estuaries, though without success.

The discovery of *Sorbus domestica* in Cornwall is an exceptionally exciting one as it is growing in a natural habitat much the same as those in Glamorgan and on cliffs on the Wye and Severn, and though the current ‘expert’ botanical opinion on its status in the British Isles is as an introduced species (see for instance Rich *et al* 2010) those that have observed it in the ‘natural sites’ would argue against this.

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## Critical and data-deficient taxa – tackling the DD problem

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The Red-listing process and ongoing work by the Species Status Assessment group has highlighted a number of critical taxa which we believe to be threatened but for which there are currently reasons that full assessments can not be made. These taxa languish on the Waiting List, or are on the full list as Data Deficient (DD). Perhaps the easiest to address are those taxa just lacking mapping data, as recorders have been unaware of, or reluctant to record them. It is my intention to raise awareness of some of these in the hope that we might encourage better recording of them so that threat statuses can finally be made.

#### *Melampyrum pratense* L. (Common Cow-wheat) ssp. *commutatum* (Tausch ex A. Kern.) C.E. Britton

Although listed in Stace (1991), *Melampyrum pratense* ssp. *commutatum* is often not treated in local floras and would seem to have been largely ignored by recorders. This rather weakly morphologically differentiated taxon was accepted by Smith (1963) because it showed parallel ecological differentiation, being restricted to calcareous woodland sites, as opposed to the acidic habitats occupied by

ssp. *pratense*. No work would seem to have been done on identifying the host plants to see how/if they differ, although ssp. *pratense* is often, but not exclusively, parasitic on members of the Ericaceae that are absent from the sites of ssp. *commutatum*.

The species as a whole would appear to be declining in lowland England. Changes in woodland management (coppicing, rides, *etc.*) are likely to have had a detrimental effect on both subspecies of this plant. It is unclear, given the poor recording of the subspecies, as to whether one has declined more markedly than the other.

#### The current situation

*Vascular plant red data list* (Cheffings & Farrell, 2005): Waiting List – DD (insufficient mapping data).

Listed in the BSBI census catalogue (Stace *et al.*, 2003) in v.cc.: 7, 8, 9, 11, 12, 15, 16, 17, 34, 37;

but mapped in Perring & Sell (1968) in the following v.cc.: 6, 8, 11, 14, 15, 16, 17, 22, 34, 35, 36, 37.

As at 1<sup>st</sup> December 2013, there are only 76 records on the BSBI Distribution Database –

just seven post-2000; ten records are from seven vice-counties, from which the plant is not previously reported or indeed expected to occur on ecological grounds [v.cc. 4, 5, 42, 69, 80, 89, H28].

The herbarium at **BM** contains vouchers for the following v.cc.: 6, 11, 12, 13, 14, 15, 16, 17, 22, 23, 28, 33, 34, 35, 36; with material that is probably this subspecies also from v.cc. 10 and 37. Our earliest specimen is from 1844 (v.c.6) and the most recent 1952 (v.c.15). Herbarium material has been previously identified under various names as well as *commutatum*, including *latifolium*, *laurifolium*, *concolor* and *ovatum*.

From study of the herbarium material it would seem that the map given by Perring & Sell (1968) gives a reasonably accurate picture of past distribution. It was most frequent in E. Kent, extending westwards on the chalk escarpment across into Surrey. In the west it had another centre based on the Wye Valley (v.cc.34-36), extending southwards to the Gordano valley, N. Somerset. Elsewhere it occurred in scattered sites on chalk and limestone in central southern England, but was apparently absent from the chalky-boulder clays of East Anglia (where replaced by *M. cristatum* (Crested Cow-wheat)) apart from an outlying occurrence at Wayland Wood, Watton (v.c.28), where it was (last?) recorded in 1919. Plants from the New Forest on woodlands with calcareous influence from the Headon beds are probably best treated as this

subspecies, although morphologically they are rather intermediate.

### Identification

Putative candidates can be best recognised by the combination of habitat (calcareous) with the following morphologies:

Ssp. *commutatum* is a taller (to 60cm) plant, with broader (usually >10mm), more ovate leaves (3-8 × as long as wide).

Ssp. *pratense* is usually <35cm tall, with narrower (usually <8mm), more lanceolate leaves (7-15 × as long as wide).

All other characters show a greater degree of overlap, although mature calyx length (measure the lowest available) is perhaps also useful in combination with the other characters:

Ssp. *commutatum* – 5.5mm or less (*i.e.* big plant, stubby calyx);

Ssp. *pratense* – 7mm or less – (slender plant, longer calyx).

I would welcome any records and be happy to look at specimens.

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## Indian Balsam: Harmless beauty or ticking timebomb?

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Reading Michael Proctor's excellent *Vegetation of Britain & Ireland* (Proctor, 2013), I was concerned that he still views "*Impatiens glandulifera* ... as doing little real harm conservation-wise". I cannot help wondering when a species which seems very capable of spreading into ancient woodland miles from any water courses, can remain so un concerning! At West End Common, Esher (TQ1263) it has spread (over 200m), from typical habitat beside the River Mole, up over the dry scarp of

the Ledges, where it is now locally completely dominant. Just today (September) I came across a huge stand in Stonybrook Wood, North Hampshire (SU6830) in ancient, beech-dominated woodland on chalk. The site is over 8km from any permanent flowing water in a completely dry parish!

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## Apomictic thistles?

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Mike Wilcox's article in the previous issue of *BSBI News* reminded me of my own observations, which may be relevant to his observations on *C. ×celakovskianum* (Wilcox, 2013). I studied *C. ×hybridum*, the hybrid between *C. palustre* (Marsh Thistle) and *C. oleraceum* (Cabbage Thistle), sharing a common parent with *C. ×celakovskianum* (*C. arvense* × *C. palustre*) (Groom, 2011). *C. oleraceum* is not native to Britain, but in Belgium it is quite common and the spontaneous hybrid sometimes occurs. *C. oleraceum* is a very different plant from *C. palustre*. It is larger, hardly spiny and has much larger involucre, with white flowers and large white bracts. The parents of *C. ×hybridum* are so distinct that the hybrid is easily recognised, even though it is intermediate between the parents.

The flowers of *C. ×hybridum* usually have white petals, and this was the case in the plants I studied in the National Botanic Garden of Belgium. All the *C. palustre* in the locality have purple flowers, the white form being rare in Belgium. I collected seed and grew plants from *C. ×hybridum* growing spontaneously in the garden. The allele for purple flowers is co-dominant in *C. palustre*, so I anticipated that I would see segregation of the allele in the F2 generation (Mogford, 1974). However, this was not the case. *C. ×hybridum* produces few seed and those seeds produced plants identical to the *C. ×hybridum* parent. It turns out that both *C. palustre* and *C. oleraceum* are at least

partially aposporous (Czapik & Kościńska Pająk, 2000). Apparently, once formed, the hybrid could persist by apomixis, rather than being truly fertile. Therefore, it is possible that the *C. ×celakovskianum* plants observed by Mike Wilcox are, in fact, self-sustaining apomictic clones, rather than introgressing hybrids. We are used to this situation with *Hieracium*, *Taxaxacum* and *Rubus*, although in these cases the parents have become obscure and detached from the more successful hybrid clones.

Whether *C. ×celakovskianum* is indeed apomictic is only speculative, but it is something that could be tested with molecular genetics. Perhaps we will one day add *Cirsium* hybrids to the list of apomictic microtaxa in the British flora.

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## Dorset’s last Wild Asparagus (*Asparagus prostratus*): back from the brink of extinction?

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Wild Asparagus (*Asparagus prostratus*) is currently listed as an endangered species in Great Britain. In England it is restricted to about 20 sites in Cornwall and a single population in Dorset, near the east end of Chesil Beach, which, in 1997, was found to comprise just a solitary female plant.

Being a dioecious species, Dorset’s lone female was doomed to extinction unless its flowers could be brought into contact with male flowers from elsewhere. So, the steering group for this UK Biodiversity Action Plan species, co-ordinated at the time by Lucy Cordrey at the National Trust, decided to undertake a spot of match-making. One of us (BE) made a flying visit to Cornwall in May 2006 to collect male flowering shoots, which were brought 175 miles back to Dorset, where anthers and stigmas were gently ‘kissed’ together to transfer pollen to the female flowers.

Successful pollination soon produced ripening fruits. The fruits were harvested and seeds were sown in cultivation, resulting in 83 seedlings. In 2008, 60 of these youngsters were transplanted into marked plots in the wild: 30 alongside the solitary female and 30 at Portland Bill, close to an old locality for Wild Asparagus that was probably lost as a result of quarrying activities in the late 19<sup>th</sup> century.

The project team then embarked on a long waiting game. From the start, the aim of the project was to establish viable, self-sustaining, mixed-sex populations at both localities. But when the sites were visited again in 2010 none

of the plants (apart from the ‘lone parent’) were flowering – and until they start to flower, of course, it is impossible to know which sex they are.

On 10<sup>th</sup> June 2013, the project team, with newspaper cameraman and local-radio reporter in tow, once again returned to the sites to see how many plants had survived and whether any had begun to flower (see Colour Section, Plate 1). What a day it turned out to be! At Chesil, 27 of the original 30 plants were located, including several with stems more than 30 centimetres long. As usual, the mother plant was flowering well – but, to everyone’s amazement, nine of its offspring were flowering too, comprising three females and six males. At the second site, on Portland Bill, 24 youngsters were re-found, two of which had begun to flower – one male and one female (see Colour Section, Plate 1).

We were delighted to be able to confirm that populations at both sites supported male and female plants, and trust that, with a few bees to assist with pollination, all the building blocks are now in place for Dorset to once again hold a viable population of this threatened species. We will continue to keep both colonies under annual surveillance to check for fruiting young females, and to determine whether fruit production subsequently leads to the appearance of new plants. Only then will we be able to say with confidence that the project has truly succeeded in its original aims. But things are clearly moving in the right direction.

## Adventives & Aliens News 1

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It has come to my attention that there is a distinct lack of any ready means by which botanists interested in alien plants can get an impression of what is being recorded nationally, and therefore what they might look out for themselves. There is little in the way of one place to look for this information, which tends to be scattered among the databases of assorted field clubs and flora groups. It would be useful to have at least one source of such information as a ‘touchstone’, with records from around the country, including details not normally given on websites or in lists, such as at the back of the *New Journal of Botany*, with useful identification tips and the odd drawing or references for where these might be found.

What I am proposing is a revival of ‘Adventives & Aliens News’. I have adopted this title for what I hope becomes a regular feature, to emphasise that I am trying to pick up where Adrian Grenfell, Eric Clement, Brian Wurzell and Gwynn Ellis left off. If the new ‘News’ is a fraction as interesting as when they were in charge, I will have achieved my objective.

I offer my apologies for the unavoidable S.E. English (and East Sussex) bias in what follows, and, from the outset, extend my profuse thanks to those who responded so generously to my request for records.

As it is *BSBI News* policy to give English names wherever they are available, these have been given, following Stace (2010) where possible. Occasionally names may have been derived from other sources, where these seem to be reliable.

### V.c.10 Isle of Wight

*Aspidistra elatior* (Cast-iron Plant). Little Pax Wood, near Ventnor (SZ554773), 2011, P. Stanley: presumably dumped, but established as an increasing patch in humus under *Prunus laurocerasus* (Cherry Laurel). It is not yet clear whether the plant has flowered (flowers develop at or near ground level, so are inconspicuous).

### V.c.11 South Hants

*Rostraria cristata* (Mediterranean Hair-grass). Bolton Road Industrial Estate, East Leigh (SU463189), 23/7/2013, P. Stanley: thousands of mainly very small plants in gravel by a portacabin. It also continues to thrive in several spots in one small area of Gosport (e.g.: SZ622998, pers. obs. E.J. Clement & M. Berry), close to where it was first noticed by Debbie Allan in 1998. There has also been a recent sighting in Essex (pers. comm. P. Stanley). This Mediterranean annual looks set to continue spreading and could become almost as familiar to botanists as *Polypogon viridis* (Water Bent), at least along the south coast. It is quite variable, but good drawings exist, e.g. Clement *et al.* (2005): p. 39, and *BSBI News*, 84: 45. The panicle is usually cylindrical (more lobed in some individuals/populations), tapering somewhat distally and bright green, not unlike *P. viridis*. The spikelets resemble those of *Koeleria* (Hair-grass) (*K. phleoides* is a synonym), and can be glabrous or pubescent.

### V.c.13 West Sussex

*Coriandrum sativum* (Coriander). Thorney Island (SU76340142), 18/8/2012, M. Shaw & A. de Potier: plentiful on dumped soil. An attractive heterophyllous annual umbellifer with radiating outer petals, popularly grown as a spice, that could also turn up as an impurity of bird seed. Records for it in Sussex as a whole are very few.

*Verbascum speciosum* (Hungarian Mullein). Fontwell (SU93950724), 5/9/2013 M. Shaw: established in a scrubby triangle between the A27 and Blackmill Lane. First recorded, two flowering plants and two rosettes, 1997, N. Sturt. A statuesque plant, up to 2m, of compact, candelabra habit, with yellow flowers, c.2.5cm across. The narrowly oblong, oblanceolate leaves are densely covered in dendritic hairs, and, unusually for

a large, hairy-leaved mullein, have nearly entire margins (Poland, 2009). It readily self-sows in gardens, where it can be a nuisance, so more records must be expected. It was seen in grassy waste by Glynde Reach (v.c.14) (TQ45908864) in 2013, Sussex Botanical Recording Society field meeting (conf. V. Johnstone); and at Formby Point (v.c.59), 2011 (Smith, 2012).

*Darmera peltata* (Indian-rhubarb). Handcross, High Beeches (TQ27803031), 2012, A.G Hoare: established along stream. This North American native is grown for its curious peltate leaves, as much as for its small pink flowers, densely packed into more-or-less flat-topped panicles. Typically, it naturalises along streams and rivers as a result of dumping or migration downstream from 'bog gardens' *etc.* Perhaps it is a more popular garden plant in the wetter west, as there are few Sussex records (Clement *et al.*, 2005: 142).

#### V.c.14 East Sussex

*Sedum stoloniferum* (Lesser Caucasian stonecrop). Upper Wish Hill, Willingdon (TQ589019), 2013 M. Berry (conf. R. Stephenson). First noticed in April, most plants were in flower by June. Probably dumped originally, but seemingly in the process of spreading, with four or five randomly-scattered patches on the road verge of a cul-de-sac. This species can be very similar to *Sedum spurium* (Caucasian-stonecrop), the most reliable difference being the inflorescence, which is lax in *S. stoloniferum*, more compact in *S. spurium* (pers. comm. R. Stephenson). It is much more likely to naturalise in areas with very high annual rainfall.

*Mauranthemum* [= *Leucanthemum*] *paludosum* (Annual Marguerite). Gildredge Road, Eastbourne (TV6098698834), 7/7/2013, M. Berry (conf. E.J. Clement): two plants at base of very low wall. A polymorphic annual composite, with fleshy, toothed, clasping cauline leaves; white ligules and yellow disc-florets. It is grown in gardens and hanging baskets. These plants lay

almost directly below a first-floor window-box, the probable source.

*Lepidium virginicum* (Least Pepperwort). Marshall Lane, Newhaven (TQ44424 01520), 16/8/2013, M. Berry: three plants on waste ground opposite site of demolished building. Bridge Street, Newhaven (TQ 4466501441), 7/10/2013, M. Berry: one plant in a pavement crack. This has siliculae that are noticeably circular in outline (to 3×3mm) and seeds (1.5-1.9mm) with a narrow, uninterrupted wing, about half their circumference. It was also recorded at Rye in 2013 (pers. comm. Jacqueline Rose).

*Artemisia biennis* (Slender Mugwort). Still present at Arlington Reservoir near Berwick, where first noted by Dennis Vinall in 1989. In early October 2013, thousands of plants formed a miniature forest in a draw-down zone of the reservoir's southern shore (TQ531070), sadly a part not accessible to the general public. It is still doing well at Chew Valley Lake (v.c.6), where it has been known since at least 1961, with thousands observed in 2011 (pers. comm.: Helena Crouch).

*Dittrichia viscosa* (Woody Fleabane). This seems to have gone from its creek-side location in Newhaven (TQ452006), where first seen by Paul Harmes and Tony Spiers in 2002. This is sad, because it was eliminated from its *locus classicus* at Felixstowe (v.c.25) c.15 years ago (pers. comm. A. Copping). This shrubby composite is common in waste places in the Mediterranean area, so the paucity of British records is perplexing.

#### V.c.15 East Kent

*Dittrichia graveolens* (Stinking Fleabane). Slip road off A299 (TR0608961455), 5/8/2012, L. Rooney: two plants at base of kerb.

*Potentilla norvegica* (Ternate-leaved Cinquefoil). Epsom Road, Ashted (TQ19370 59216), 5/7/2012, S. Buckingham & L. Rooney. A first v.c. record; possibly present here as a grain alien brought in with horse feed. Once more frequently recorded,

Eric Clement tells me he has had no candidates sent to him for years.

#### V.c.16 West Kent

*Dittrichia graveolens*. Central reservation of M20, Ryarsh, near Maidstone, Oct. 2013, P. Stanley. Paul has also observed it in similar circumstances in v.c.c.17, 22 and 23. These are to be added to the growing populations around Cadnam (v.c.11) on the eastern fringe of the New Forest. It is clearly another species spreading along the country's arterial roads.

*Silene armeria* (Sweet William Catchfly). Near Borough Green (TQ605578), 23/6/2012, G. Kitchener: on tipped soil in a sand pit. A garden annual, possibly less fashionable than it was formerly, but, oddly, sometimes being sold as '*S. mexicana*'.

#### V.c.17 Surrey

*Salvia guaranitica* (Blue Anise Sage). Marryat Road, SW19 (TQ2387871328), 22/10/2013, M. Crawley: self sown.

#### V.c.21 Middlesex

*Persicaria microcephala* (Fleece Flower). Fortunegate Road, NW10 (TQ2143584000), 17/10/2013, M. Crawley: self-sown on a terrace. This is a garden plant sold more for its green and purple leaves marked with silver chevrons than its relatively insignificant white flowers.

#### V.c.22 Berkshire

*Cynoglossis barrelieri* (False Alkanet). Silwood Park (SU9441368741), 6/10/2013, M. Crawley.

*Nasella* [= *Stipa*] *tenuissima* (Argentine Needle-grass). Grundy Crescent, Kennington (SP522027), 8/9/2013, M. Crawley: self-sown near council houses. This American ornamental grass is widely planted and almost as widely seeding itself about.

#### V.c.95 Morayshire

*Conyza bonariensis* (Argentine Fleabane). 15 Canning Street, Forres (NJ037586), 18/8/2013, I. Green: one plant in garden. First v.c. record.

*Ammi majus* (Bullwort). Sunnybrae, South Darkland (NJ261617), 11/9/2013, D. Law

(det. I. Green): weed in flowerbed, most likely from bird seed. First v.c. record.

#### V.c.107 East Sutherland

*Olearia macrodonta* (New Zealand Holly). Brora (NC91004100), 11/7/2010, M. Crawley: self-sown in suburb. One of the New Zealand 'Daisy-bushes', widely planted but not readily self-sowing.

*Oxalis magellanica* (Snowdrop Wood-sorrel). Highcroft, Hilton of Embo (NH80489 91544), 4/7/2013, M. Crawley: established at base of garden wall. A low-growing, rhizomatous, white-flowered sorrel, native to South America and New Zealand, not keyed in Stace (2010). This might prove to be one of those species that produces a burst of records while it is a modest garden plant, and then is seen no more. All the same, I would be interested to hear of other records. I only know of one other: v.c.63 (West Yorkshire), Low Ash Drive, Wrose (SE157372), 2004, B.A. Tregale: a pavement weed.

I hope it has become clear that the purpose of 'Adventives & Aliens News' will not only be to highlight new records but also to provide updates on the status of 'historical' alien sites. It is important to keep tabs in this way, since a casual can only be promoted to 'established' status if the continuity of its presence in a particular site can be verified. I will also be pleased if, as a by-product, it encourages some contributors to write up their finds in more detail than is possible here. Finally, 'Adventives & Aliens News' can only succeed (and become regionally inclusive) if botanists send me their records, so please do! They should have been determined by a confirmed expert and/or been accepted by the relevant vice-county recorder. I am willing to look at specimens that members are not sure about. If I cannot identify them, they will be passed on to those with greater knowledge. Specimens and 'paper' records should be sent to my home address or emailed. I will try to strike a balance between including as many as I can, at least in the fullness of time, and picking those I think will be of most interest to others.



**Acknowledgements:**

I would like to thank Eric Clement for his encouragement and always constructive criticism, and all those who donated records and snippets of information.

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## ***Cymbalaria hepaticifolia* (Corsican Toadflax) and *Cotula squalida* (Leptinella) newly recorded naturalised in v.c.57 Derbyshire**

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Despite being a keen field botanist, I had made a resolution at the start of the year to curb my botanical activities. Caring after my baby daughter full-time and having a degree to finish would certainly keep me busy enough. However, it would appear that even within a short distance from one's doorstep, unexpected botanical gems are waiting to be discovered! On a warm Sunday afternoon we decided to go for a family picnic in Whirlowbrook Park, near Sheffield. This park passed into public hands in 1946 and represents one of the finest ornamental gardens open to the public in the area. It is located four miles from the city of Sheffield, just outside the Peak District on the Derbyshire border. Whilst enjoying a small perambulation to get my daughter to sleep, an unusually large and pale-flowering *Cymbalaria* caught my attention! It was abundantly covering a wall, like *C. muralis* (Ivy-leaved Toadflax) or *C. pallida* (Italian Toadflax) would do, but with a strikingly different jizz to it. Later that evening, having taken a better look at the sample I had collected, I realised that I had happened upon *Cymbalaria hepaticifolia*. As this species had not been previously recorded in the area, I decided to make a return visit to document the observation with photographs and specimens. It was whilst taking a close-up photograph of the *Cymbalaria* (an awkward adventure with a

baby sleeping on you in a sling), I suddenly realised that I was sitting on a rather charming little lawn plant unknown to me. This turned out to be *Cotula squalida* another unusual alien plant for the area!

Both species are new to v.c.57 Derbyshire (Alan Willmot pers. comm., 2013) and to the area covered by the *South Yorkshire plant atlas* (Geoffrey Wilmore pers. comm., 2013), with the exception of one record of *Cotula squalida* as a casual in v.c.63 South-West Yorkshire in the 1950s (without other indications of locality).

The status and identification of *Cymbalaria hepaticifolia* is already treated in great depth and accuracy by Eric Clements in *BSBI News*, **89** (2002) (I am very grateful to Eric for confirming the identification of my samples) and Stace (2010). Unlike the drawing presented in Eric's article, the lobes of the leaves are very poorly distinct in the population at Whirlowbrook Park (see inside Back Cover). However, according to an expert of the Corsica flora, Professor Daniel Jeanmonod (Geneva Botanic Garden, pers. comm., 2013) the depth of lobes, their numbers (three or five) and flower colour can be very variable in wild populations and photographs of the Whirlowbrook plants appear to show characters within the usual range of variation.

I also would like to present to the readers of *BSBI News* photographs of *Cotula squalida* – a minute gem! The population I encountered was a female clone (see Colour Section, Plate 2). It should be noted that *The new flora of the British Isles* (Stace, 2010) does not yet deal with all perennial *Cotula* species found in the British Isles (Robinson, *BSBI News*, 113 (2010)), therefore, key identification should be complemented by thorough research on the identity of the plant.

These naturalised plants beg the question: “Is there any reason why two unusual plants should be in the park?” (as asked by Alan Willmot, local v.c. recorder). They have most probably been planted (either intentionally or unintentionally) some time back, but there is

no obvious reason why both are naturalised here. Of course, there is no reason why, by pure chance, two species would naturalise in the vicinity of each other. However Whirlowbrook Park may be different from an average site in that it has many horticultural introductions and it is located outside of a city centre, away from pollution and high numbers of visitors. This may enhance the chances for such species to naturalise. Incidentally, I am noticing that by virtue of visiting places where I would not normally botanise, I tend to discover unexpected species and species assemblages. With this in mind, I am sure there must be many other under-recorded garden escapes across the country that are waiting for a baby in need of a nap!

## ***Orobancha crenata* Forssk. (Carnation-scented or Bean Broomrape) – a growing problem?**

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This largely Mediterranean parasite of legume and other crops has hitherto been an extremely rare plant within the British Isles, usually occurring in very small numbers on garden plants and in waste places and only rarely on crops. Only in one small area of South Essex has there been any persistence, with very sporadic occurrences in an area of several kilometres over a 50+ year period (Adams, 2003).

It was therefore with some interest that I was contacted in August this year by Becky Ward from the Processors and Growers Research Organisation (PGRO) to help identify a broomrape which was damaging *Vicia faba* (Field Bean) crops of some of their growers. She had had reports of a total crop failure at Holton, near Halesworth in Suffolk. Sadly, the crop and parasite were ploughed in before it could be definitely identified, but there were also reports from Kent. Material sent from there was quickly confirmed as being this species and a field visit to assess the situation was arranged. Representatives from the PGRO, FERA, joined myself, Chris Parker – ex Weed Research Organisation and Tony

Hooper from Rothamsted near the outbreak’s epicentre at Harvel (TQ66) on 23<sup>rd</sup> August. Four fields, over a c.5km range, were found to contain varying levels of parasite infestation, the worst, near Snodland (TQ66) supported at conservative estimate over 10 million broomrape plants, with a peak density of c.130 plants per m<sup>2</sup>. The result was an almost total reduction in crop yield. The farmer commented on the powerful fragrance clearly detectable from hundreds of metres and this is a very good aid to the determination of this plant, along with the prominent and divergent corolla lips. Interestingly parasites in all fields showed considerable variation and purple pigment-less forms with yellow stigmas in each (see Back Cover). Such forms are generally uncommon within the parasite’s normal range and to have them in all the Kent sites further suggests a common origin. The grower reported that a farm near Trottscliffe (TQ65) had also been affected this year, but this remains unconfirmed.

Anecdotal evidence suggested that the plant had been present in an adjoining field under different ownership in 2012 and the abundance of the plant in this area certainly suggests it has

been present previously if unnoticed by local farmers. The evenness with which it was present however suggested that it may have been inadvertently sown with a crop, if not necessarily the standing one. Further work is proceeding to establish more clearly when and how the plant has spread within the area.

I think the only previous comparable UK incident I am aware of might be instructive in this respect – it is described very clearly in Ken Adams' (2003) paper in *Essex Naturalist*. There we have sporadic records of odd plants in Cranham/Upminster gardens over a few square kilometres – the first in *c.*1950. At the centre of this was found (1975) a small population in rough vetchy grassland in a local nature reserve. This reached a peak of *c.*200 plants in 1982, a few only in 1983, then nothing until two spikes in 1994. In 1997 the three adjacent fields were sown with peas. *Orobanche* plants started to appear in July and by mid-August there were 400,000+. In one field adjacent to the main infestation they were clearly fanning out from a gateway, consistent with being carried by the wind. There was no legume crop in 1998, when only three plants were seen, one on a road verge 200m away. The next record was again in a pea crop in 2001, in another field about 300 m away, when less than 20 plants were seen. The crop was ploughed in to prevent further spread. A few plants were seen on vetches near the 1975 site in 2004 and a few more at a new site about 3km away in 2006, but I have no subsequent records. While it is possible that the pea seed sown in 1997 was contaminated by a different *O. crenata* source, it seems extremely unlikely, so a relatively small parasite population (10s-100s) in an adjacent natural habitat flowering more than ten years before looks to be responsible. I still do not entirely believe this is the full story, as, in Kent, the density and evenness of spread across a large field does not look to me like the pattern I would expect from wind or even mechanical dispersal

when ploughing, *etc.* and we still have to answer the question as to how it got to Cranham in the first place. Did that stray plant in a garden in 1950 spread seed into adjacent natural and arable habitats, or, which I think more plausible, did we have an earlier smaller outbreak from contaminated crops post-war that went unrecorded?

The last Kent field I visited after the group dispersed was immediately adjacent to the first shown us. The plant was present in low density – maybe on average <1m<sup>2</sup>, but was throughout the crop and had been apparently un-noticed by the farmer. The yield was not being badly affected and yet, given that low but even spread, if each *Orobanche* present seeded well, it would create a halo of seeds, which, with ploughing, would join up all the dots and potentially allow the sort of effect seen at Snodland, or Cranham in 1997, when this field next went down to legumes. My feeling is that the Essex and possibly this example could show that only a relatively small occurrence that would go unnoticed by the farmer might allow the seed bank development that then creates a future major outbreak.

While climatic and other considerations mean that this plant is unlikely ever to achieve the devastating status it has in warmer, more arid areas, it is now clear that we need to be more vigilant, as there is the potential for this plant to have a major effect on the performance and yield of a range of increasingly grown crops that perform a vital role in many farmers' crop rotations. That the plant can 'tick-over', parasitising a range of common native hosts in natural and semi-natural habitats adjacent to arable makes eradication all the more difficult.

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## Help the helpers

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Indoor BSBI meetings often feature a ‘Help!’ id. table, which is forever popular with beginners and experts alike. We can all learn from these exhibits. *But* participants often forget (or overlook) to adjoin supplementary information to assist in correct identification. Notes on anything not apparent from the specimen should be appended – typically a description of the location, habitat, colour notes, size and rootstock are helpful.

Maybe less obviously useful is the *name of the collector*. Being anonymous rarely serves any purpose. With or without an id., it is good to know who found it! The bonus here is that helpers can prolong their memory search (often going back 50 years!) and maybe glide into an id. many hours later.

I can illustrate this from an example seen at the Annual Exhibition Meeting in London (29<sup>th</sup> November 2013), where a fresh, fruiting

specimen was labelled as “*Rosa* sp. Seed collected Orcas Island, Puget Sound, Seattle, Wa. Flowers pink, less than 2cms diameter.” Two days later, I realised that this must be one of those tantalisingly rare species in W.J. Bean’s *Trees and shrubs hardy in the British Isles*, vol. 4 (8<sup>th</sup> ed., 1980) that I have long coveted, but have never seen; namely *Rosa gymnocarpa* Nutt. ex Torrey & A. Gray (Wood Rose), introduced about 1893, a “pretty and graceful rose”, which has the diagnostic of shedding early, as a unit, all the entire-edged sepals from the usually solitary fruits; styles free, not protruding.

It would be a perfect epilogue to this article if seeds could be offered in 2014 via one of our seed lists (e.g. *BSBI News*, 122: 47-48).

Much of what I write, naturally, also applies to specimens sent to any one of our Panel of Referees and Specialists (*BSBI Yearbook 2014*: 18-30).

## *Cotula australis* in Surrey (v.c.17)

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In July 2013 a group from the London Natural History Society was square-bashing near Elephant & Castle, administratively Greater London but Watsonian Surrey (v.c.17), as part of the London Flora Project. The area is intensely urban and we came across the Heygate Estate, a group of council-owned blocks of flats built in the 1970s but due for demolition and vacated by most residents over the last five years. As the human population decreased the population of ‘wild’ plants increased, among which, in pavement cracks, gutters and similar sites in Deacon Way (TQ32147884), was a large number of an unfamiliar, scruffily-sprawling diffuse annual, growing to about 15cm (see Colour Section, Plate 2). Experience with *Soliva* spp. placed it as one of the *Asteraceae*. The leaves were deeply bi-pinnatifid and the capitula, the larger ones of which reached almost 5mm in diameter, were greenish white, borne on 5cm

slender, virtually leafless peduncles. The phyllaries were narrowly ovate with a scarious margin (see Colour Section, Plate 2) and the capitulum was a tri-seriate ring of corolla-less ovaries surrounding a central group of tubular florets (see Colour Section, Plate 2). To make a short story even shorter, this was *Cotula australis* (Annual Buttonweed), a native of Australia and New Zealand. Nick Bertrand, who is familiar with the area, later told me that he had found it there in April 2011 and that Mark Spencer had named it. *Cotula* is one of very few genera in the Asteraceae to have stalked florets, which can be seen in the photograph (see Colour Section, Plate 2). Stace (2010) and Sell & Murrell (2006) state that the tubular florets are bisexual, but they wither after anthesis and do not produce achenes, so perhaps they would be more usefully described as functionally male.

The BSBI Distribution Database shows 11 hectad records for the species, but some of these were casual. It was present in Galashiels (v.c.80) until 1994; from 1946 to at least 2007 in Newton Abbott (v.c.3), in a road that Google Streetmap shows as being very urban; and is still surviving in the Scillies (v.c.1). It is not very conspicuous except in quantity and may well be present elsewhere. No *Cotula* sp. is native to the British Isles. Stace keys out four introduced species and mentions a fifth. *C. coronopifolia* (Buttonweed) is the commonest and probably the most beautiful when the beholder is human. However, some records of one of them, *C. squalida* (Leptinella), are errors for a sixth species, *C. alpina* (Robinson, 2010). In addition, a plant with smaller leaves and inflorescence and shorter peduncles that may or may not be *C. perpusilla* was found on the Isle of Wight this year by Paul Stanley as a garden escape in the village of Wroxall, growing on a west-facing road embankment in short turf of mown *Calluna vulgaris* (Heather) and *Deschampsia flexuosa* (Wavy Hair-grass) (E.J. Clement, pers. comm.). Useful drawings of three species (including *C. australis*) can be found in Clement, Smith & Thirlwell (2005).

The source of this population is a mystery. The plant is said to be a wool alien (Preston, Pearman & Dines, 2002) but although I do not suppose wool shoddy has been used recently in Elephant & Castle the multicultural nature of the local people could result in the introduction of anything that can survive the dampness of a London winter and the pavement droughts of

summer. The future for the Heygate Estate population is uncertain following demolition and re-development but it is hard to believe that a population that must have produced millions of achenes will not find suitable crevices in which to grow in the brave new Heygate Estate, which might be more euphoni-ously named Cotula Corner. We did find outliers in nearby amenity grassland and Nick has found it as a street weed in the area. It may be only a weedy exotic but I am pleased it was not herbicided on sight, as finding it taught us just that little bit more about plants.

I would like to thank Nicholas Hind, Head of Compositae research at RGB Kew, for providing helpful information about the genus and Eric Clement for his useful comments on this note.

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### ***Opuntia phaeacantha* ‘Albispina’ – Desert Prickly Pear in Kent**

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On a very hot summer’s day on the 24<sup>th</sup> July 2013 we were out targeting species which lacked up-to-date records and were either rare introductions with a single known Kent locality or were native species on the Kent Rare Plant Register.

By mid-afternoon we had made our way to Eythorne Street near Maidstone, close to the A20 and Junction 8 of the M20 Motorway (TQ 8254). The locality was a steep, sandy and south-facing embankment which was dominated by mature *Ulex europaeus*

(Common Gorse). Whilst nearly everything else was parched from the hot weather in the preceding month, we were very pleasantly surprised to find two plants of an *Opuntia* species (Prickly Pear) happily growing in a bare area of the bank (see inside Back Cover).

There were no houses within 400 metres of the site and, being sheltered from north-east winds and obviously free draining, it was a site in which a cactus could quite easily find itself at home. A walk further along the embankment for about 300 metres up to where it joins the A20 produced no more *Opuntia* plants.

A literature search was made and a request for assistance in the identification of the *Opuntia* was put to The British Cactus & Succulent Society and Tony Roberts named the *Opuntia* plants as *Opuntia phaeacantha* var. *albispina*. He mentioned that it was “One of several species of *Opuntia* I grow outside in my alpine beds. It has survived about seven years so far, despite our recent winters here in Kent. It is very frost hardy. It flowers and sets seed, and I do get seedlings coming up adventitiously occasionally. So it could be a self-seed from bird droppings and not necessarily human-planted”.

From that point Geoffrey Kitchener, BSBI County Recorder for v.cc. 15 and 16, provided some further information on nomenclature and naturalisation. He was unable to locate any valid publication of *albispina* as a variety, and so suggested that it might best be cited as a cultivar, cv. ‘Albispina’. He also referred to the accounts of *O. phaeacantha* and *O. engelmannii* in the *Flora of North America*, which show that nomenclature is far from straightforward in this area, with much of the material formerly assigned to varieties of *O. phaeacantha* having been segregated as *O. engelmannii*, but with both species having hybridised in the wild. *O. phaeacantha* is native in southern USA and Mexico, and the *Flora of North America* gives its vernacular name as Brown-spined Pricklypear, somewhat incongruously given that the spines can be

white, as with the present find. Hence the heading to this note has adopted an alternative vernacular name, Desert Prickly Pear.

Unsurprisingly, other *Opuntia* species are known to be naturalised in southern Europe and the Mediterranean region (according to *Flora Europaea*), but Essl & Kobler (2009) state that there are no naturalised cactus records for Belgium, Denmark, Finland, Hungary, Ireland, Luxemburg, Netherlands, Norway, Poland, Slovakia, Slovenia, Sweden and the UK. They state that 26 species of cacti have been found in Europe, of which the most important genus is *Opuntia*. Their paper illustrates *Opuntia phaeacantha* with ripe fruits on a silicate rock in the Wachau area near the village of Dürnstein in eastern Austria, as able to withstand successfully the rather strong Central European winter and produce abundant viable seeds.

How these two plants got to Eyhorne Street we presume will remain a mystery, but on a boiling hot day on a dry sandy embankment in SE England these plants must have felt at home and have given rise to much amusement amongst Kent botanists to date.

#### Acknowledgements:

Thanks to Tony Roberts and Eddy Harris from The British Cactus & Succulent Society for assisting in the identification of these plants and Geoffrey Kitchener for background literature and helping with the record.

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## How did *Polygogon viridis* (Water Bent) find itself on the streets of the British Isles?

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### Introduction

We recently reported *Polygogon viridis* (Water Bent) new to Sheffield and the metropolitan county of South Yorkshire in the local natural history press (Pescott & Baker, in press). Because the Sheffield area is relatively well recorded (Wilmore *et al.*, 2011), we were surprised to discover as many as nine colonies of *P. viridis* in seven different monads within the city of Sheffield. The largest population numbered around several thousand plants and it can be speculated that it has been naturalised at that site for several years. On the sole basis of our 2013 observations, however, it is not possible to say whether *P. viridis* has rapidly colonised the city in recent years, or whether it was previously overlooked. The situation in Sheffield appears to be in line with national trends (Pearman & Bennallick, 2009), but little is known about the environmental conditions favouring this species establishment, about those inducing local extinctions, about its vector(s) of colonisation, or about the speed at which it is spreading. These factors are of great interest for understanding how new plants, or groups of plants, enter our flora. The present note discusses the potential reasons why this alien grass appears to be spreading nationally and ends with a call to members to take part in a brief questionnaire survey concerning *P. viridis*. This questionnaire is the first step in an attempt to better understand why and how this alien grass is becoming established across the British Isles. We hope that the second step will be the implementation of a series of small field surveys. We are counting on your participation and on your knowledge of this plant in order to gather nationwide information regarding *P. viridis*.

### Potential reasons for increase

There appear to be three main reasons why *P. viridis* is being increasingly reported from towns and cities; it is possible that these act in combination:

- Introductions have increased in frequency and distribution;

- environmental conditions have changed and new areas have become favourable for the establishment of *P. viridis*;
- *P. viridis* has been under-recorded historically.

### Increased introductions?

Two main sources of seed and plant introduction can be considered. Firstly, the *New atlas* (Preston *et al.*, 2002) suggests that *P. viridis* may be spreading from plant nurseries to pavement cracks via gardens. Pearman & Bennallick (2009) noted that it occurred in every plant nursery they visited, and that it was becoming increasingly common in their area (Cornwall). This would not be a unique case of colonisation from imported plant containers (Clement 2010; Hoste *et al.*, 2009). Secondly, bird seed mixes are often grown abroad and may contain various contaminants (Hanson & Mason 1985). Hanson & Mason do not mention *P. viridis* in their exhaustive list of aliens recovered from pet food, but seed contaminants are likely to have changed since 1985. Thus, introduction as bird seed contaminants cannot be excluded. In addition to these two main sources of plant material, transport on vehicle tyres should also be considered owing to the increased exchange of traffic with the continent. Van der Lippe & Kowarik (2007) demonstrated for the Berlin area that vehicles are an effective agent of long-distance seed dispersal, although they did not record *P. viridis* in their samples.

### More favourable conditions?

Three important environmental factors can be considered. Firstly, the fertilising effect of nitrogen deposition induced fundamental changes in the vegetation of numerous habitats in the UK (Phoenix *et al.*, 2012). The spatial distribution of nitrogen deposition has been extensively modelled for the UK and as a result a comparison with accurate distribution maps of *P. viridis* might enable a test of whether nitrogen deposition has an effect on establishment. Secondly, increased CO<sub>2</sub> concentration in the atmosphere has a fundamental effect on plant physiology,

water loss in particular. Higher CO<sub>2</sub> concentration allows more rapid CO<sub>2</sub> intake by plants, resulting in a shorter period of stomatal opening, and, in turn, reduced water loss. Following this logic, increased CO<sub>2</sub> may render plants more drought resistant, potentially allowing them to colonise new habitats. Thirdly, climate warming is also likely to have influenced the spread of *P. viridis* during the last decades. The BSBI's 'Local Change' project noted a tendency for species with a Southern-temperate or Mediterranean biogeography to have increased significantly in built-up areas and gardens between the two survey periods (Braithwaite *et al.*, 2006).

### Under-recording?

Our Sheffield experience could suggest that *P. viridis* has been under-recorded to date. One of the authors of this note (AB) had a similar experience when he moved to Reading (Berkshire, v.c.22). Despite *P. viridis* not being mentioned in the detailed *Flora of Berkshire* (Crawley 2005), he encountered many large populations on pavements between 2007 and 2009. *P. viridis* is also thought to be under-recorded in Switzerland, where the standard floras do not mention it, but where well-established populations have been observed recently (Hoffer-Massard 2012). Two factors may have caused under-recording in the British Isles: Firstly, in a scenario where *P. viridis* was rare in Britain several decades ago, and has gradually increased since, it can be hypothesised that many botanists would not consider it as a likely encounter. Secondly, it is possible that one of the habitats favoured by *P. viridis*, pavement cracks and front gardens, is under-recorded in comparison to other urban habitats, such as brown-field sites, and very under-recorded in comparison with non-urban habitats. As a consequence, there may be a longer time-lag between initial colonisation and recording.

### The Water Bent questionnaire

In order to find out which of these hypothetical reasons best explains the spread of *P. viridis*, we are undertaking the collection of new data. First, we would like to hear about your experiences, and get your views on the matter, and we have designed a brief questionnaire to that end. We would be very grateful if all readers would complete a copy. Confirmation of the absence of *P. viridis*, or of it potentially being

overlooked, is as important as confirmation of presence, therefore we would ask you to complete a questionnaire even if you have never encountered this plant in the field. You can either complete it at <http://tinyurl.com/waterbent>, or request an electronic or paper copy from either author. As a second stage we are planning small field surveys as early as next summer (2014), and again we would be extremely grateful if any members would be willing to monitor their local patch of *P. viridis* for changes. Please get in touch!

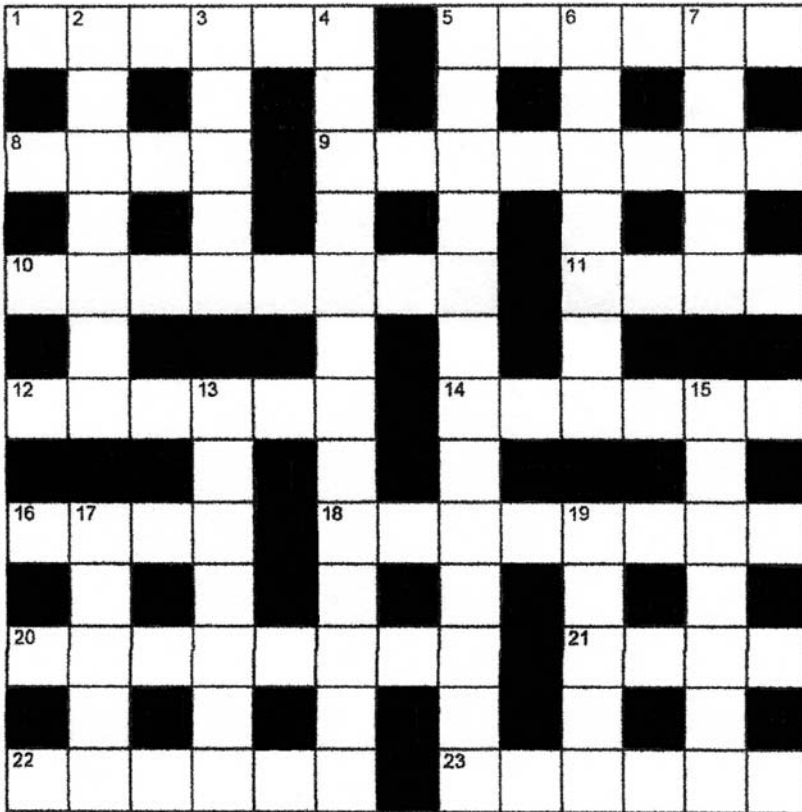
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## Botanical Crossword 21

By CRUCIADA



### ACROSS

1. Good French murmur of relief heard from tiny 7 (6)
5. Suits best if styled (6)
8. Stoma revealed when top cut off germ cell (4)
9. Pelt Lady FitzGerald (this time) when married with sulcate (8)
10. Flowers even when original stigma and style removed from centre (8)
11. It's productive if the place you're staying is this rich (4)
12. Tangled mass floating on river is quite ripe (6)
14. The whole thing is toothless (6)
16. Revolution begins to go into reverse when plants are closed down (4)
18. Daily snap *Sinapis* (8)
20. Are two heads better than one to discover this *Trifolium*? (8)
21. Said to be proud of vascular strand (4)

22. Bridge, perhaps, carries note about special cell (6)
23. Provoke *purpureum* that's red and dead, for example (6)

### DOWN

2. Mono clearer reception, and sensitive (7)
3. Stalks plugs (5)
4. Flowerhead sets scene for cline (13)
5. Eagle-eyed foreigner found *Phalaris canariensis*, say (8,5)
6. Amphibian chewed on this aquatic (7)
7. Leaves trunks with branches – twig? (5)
13. Reticule hasn't finished being turned out when it reveals part of sedge (7)
15. Al arranged chair to sit on, being concerned with spine (7)
17. This genus may be the genius of Mozart quintets (5)
19. Green - a colour to adore, they say (5)

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## GRANT REPORTS

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### Experiences from the Edinburgh Certificate in Field Botany course

WAHEED ARSHAD, *University of Reading, Berkshire*; (waheedarshad1@gmail.com)

At the end of my undergraduate degree in Durham last May, I was fortunate enough to have secured a place on the Certificate in Field Botany course at the Royal Botanic Gardens, Edinburgh. Run by Dr Heather McHaffie, the course provides practical training in key botany skills and knowledge across a range of areas, from field collection and identification to the preservation and curation of botanical specimens.

While the eight-day course comes with a cost to cover tuition, materials and field trip expenses, there are a limited number of discounts available for full-time students. I sought further funding support and, as a member of the BSBI, I applied for a Training Grant – available for aspiring botanists who want to go on short training courses such as this one. To my delight, I was awarded a £125 grant towards the course, which was a great help, particularly as I was commuting from Durham for each session!

The course itself was immensely useful. More specifically, the unit on plant morphology helped elucidate distinguishing family features, making wildflower identification using Francis Rose's *Wildflower Key* increasingly feasible. Units on information recording and ecological surveying were also useful – making accurate records of specimens both in and away from the field is of vital importance for many reasons. The work on pressing, mounting and handling herbarium specimens provided new curatorial skills, and the field visits to sites around Scotland (Carnethy Hill (see Colour Section, Plate 1), Morrison's Haven and Newhailes) allowed me

to place all the taught material into context. By covering a large number of taxonomic groups – pteridophytes, bryophytes, monocotyledonous and dicotyledonous angiosperms – I was able to broaden my knowledge, skills and love for plants with such a fantastic group of budding botanists.

However, only recently did the results come through from the course. I was extremely happy to learn that I had achieved a Distinction at 86%, among the highest marks of the group! I was over the moon to have done so well, to have the prestigious training under my belt and to have acquired a vital platform that will hopefully lead to further successes!

I believe the practical approach to the course delivery enhanced the skills I learned from my undergraduate degree, and almost certainly acted as a contributory factor in my securing a summer internship with the Herbarium, Library, Art and Archives (HLAA) Department at the Royal Botanic Gardens, Kew. I was extremely happy with the teaching, the funding I was able to source through the BSBI and the skills I developed from the course itself. I was very grateful to the BSBI for the grant, and would like to share my success with you all.

I am now a postgraduate student at Reading University, studying their MSc in Plant Diversity. I hope to pursue a botanical PhD next and look forward to the delights and challenges that lie ahead.

Be sure to follow my blog (<http://kewthebotanist.blogspot.co.uk/>) to keep up-to-date with my latest adventures – be they in the field, greenhouses or research laboratory!

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## OFFERS

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### The Botanical Research Fund

The Botanical Research Fund is a small trust fund which makes grants to individuals to support botanical investigations of all types and, more generally, to assist their advancement in the botanical field. Grants are available to amateurs, professionals and students of British and Irish nationality. Where appropriate, grants may be awarded to applicants in successive years to a maximum of three. Most awards fall within the range of £200-£1000.

The next deadline for applications is February 28th, 2014.

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

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### Perthshire Society for Natural Science: Botanical Section Bulletins

COLIN MCLEOD, *Knowledge & Information Management Unit, Scottish Natural Heritage, Battleby, Redgorton Perth, PH1 3EW*; (Colin.McLeod@SNH.gov.uk)

The Perthshire Society for Natural Science has a long history of botanical recording. Its founder President, Francis Buchanan White, was the author of the *Flora of Perthshire* (published in 1898 after his death). More recently members helped to compile the *Checklist of the plants of Perthshire* (1992), contributed records to the *New atlas of the British flora*, and continue efforts to update knowledge of the flora of the three Perthshire vice counties (v.cc. 87, 88, 89). The Society's Botanical Section was formally established in 1957.

In 1978 the Botanical Section published its first Section Bulletin, and continues to produce one annually. From the start, reports of excursions have made up the major part of the Bulletin. The reports have always been more than records of notable species, usually describing the terrain encountered, the weather and the events of the day, sometimes with notes on plant ecology and identification thrown in. Joint meetings with BSBI and other bodies have remained a consistent feature of the excursion programme down the years. Although outings have always been the main

focus, a few early Bulletins revived the Victorian tradition of including detailed accounts of some of the Section's winter lectures. The Bulletins also show changing recording priorities, with interests in the local distribution of single species such as *Humulus lupulus* (Hop) and *Galanthus nivalis* (Snowdrop) giving way to arable weed surveys, atlasing and now recording towards a new county flora. The Bulletins record the changing membership and fortunes of the Section, including obituaries of deceased members. While the botanical records can be found elsewhere, the Bulletins are the sole source of much social history.

However, with a print-run counted in dozens, the early issues have long been scarce. The Section has now placed scanned copies of all the Bulletin back issues on the PSNS website. The main Botanical Section page ([www.psns.tsohost.co.uk/botanical/botanical.htm](http://www.psns.tsohost.co.uk/botanical/botanical.htm)) displays a link to the latest issue, while a new page ([www.psns.tsohost.co.uk/botanical/bot\\_bulletins.htm](http://www.psns.tsohost.co.uk/botanical/bot_bulletins.htm)) has been added to accommodate the archive of previous Bulletins, displayed in issue/date order.

## BSBI journals on offer, free to a good home

TREVOR JAMES, 56 Back Street, Ashwell, Baldock, Herts., SG7 5PE (tel.: 01462 742684; trevorjjames@btinternet.com)

A local deceased BSBI member's widow has given me the following journals to dispose of, in case anyone might like to have them to fill gaps in their runs. They are offered free to anyone who wants them, first come, first served, and can either be picked up from me direct, or, if necessary, sent by post (at cost, of course!). I shall keep these until the end of February 2014, after which they will be disposed of, as I have no space to store my own journals, let alone spares!

### 1. *Watsonia*

Vol. 17: 2, 3; Vol. 18: 1-4; Vol. 19: 1-4 + index; Vol. 20: 1-3; Vol. 21: 1, 3, 4; Vol. 22: 2, 3, 4; Vol. 23: 1, 3, 4 + index; Vol. 24: 1, 4 + index; Vol. 25: 3 + index; Vol. 26: 1-4 + index; Vol. 27: 1, 3, 4 + index; Vol. 28: 1, 2.

### 2. *BSBI Abstracts*

Parts: 11-14 inclusive, 16, 19-27 inclusive, 29.

## Back numbers of *Watsonia*

RACHEL HEMMING, *The Anchorage, South Woodchester, Stroud, Gloucestershire, GL5 5EL*;  
(Tel.: 01453 873297; hemming399@btinternet.com)

I have the following issues of *Watsonia* which I shall be happy to pass on to anyone who will collect or refund postage: Vol. 17: 1, 2; Vol.

20: 3; Vol. 21: 2, 3, 4; Vols 22, 23, 24, 25, 26, 27 complete; Vol. 28: 1.

## NOTICES

### Scottish vice-county recorder vacancies: Easternness and Dunbarton

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

The Scottish Committee continue to seek keen, fit botanists to fill vice-county recorder vacancies in Easternness and Dunbarton. The appointments are likely to be alongside existing (joint) recorders, as this has many advantages, such as mutual support, a shared workload, learning from each other *etc.* Living in or near the vice-county is an advantage, but is not essential. Some recorders live remotely and operate very successfully, but you would have to be able to spend significant time in the vice-county each year; perhaps three weeks survey time per year.

Good recorders are critical to the BSBI's success. The focus for all recorders is helping to fulfil the aims set out in the BSBI's *Recording the British and Irish flora 2010-2020* strategy. The principal task is the collec-

tion, validation and maintenance of vascular plant records in the vice-county on behalf of the BSBI. Being a reasonably competent botanist is important, but knowing one's limits is even more so. No one can be an expert in all aspects of a county's flora, especially when just starting out as a recorder, and our referees are on hand to support and help on identifications and confirmations.

You would have the full support of the BSBI Scottish Committee, Scottish Officer and fellow BSBI staff, and neighbouring and retiring recorders are always happy to help with general advice and support. Competency with computers, particularly e-mail, the internet and MapMate, would be highly desirable (although some training can be provided).

### Easternness, v.c.96

Easternness is the largest vice-county in the British Isles and one of the most important in Scotland. It is enormously varied and includes coastal, riparian, semi-natural woodland, moorland and montane habitats, as well as a large part of the Cairngorm National Park. These montane habitats hold several important populations of rare species, such as *Carex lachenalii* (Hare's-foot Sedge), *Carex rariflora* (Mountain Bog-sedge), *Saxifraga rivularis* (Highland Saxifrage), *Salix lanata* (Woolly Willow) and *Phylodoce caerulea* (Blue Heath). Fen habitats host *Carex buxbaumii* (Club Sedge) and *Carex chordorrhiza* (String Sedge), whilst the woodlands provide habitat for *Moneses uniflora* (One-flowered Wintergreen) and *Linnaea borealis* (Twinflower). Inverness was the subject of a major project that resulted in the publication of the excellent *Map flora of mainland Inverness-shire* in 1985.

### Dunbarton, v.c.99

Despite being the third smallest Scottish vice-county, it has the sixth highest number of species. It straddles the Highland boundary fault, with low and fertile ground to the south, and more mountainous terrain to the north, culminating in Ben Vane and Ben Vorlich - its highest point at 941m. It includes Loch Lomond, Britain's largest freshwater lake, and much of the Loch Lomond and the Trossachs National Park. Apart from Loch Lomond and its islands, its key natural features are its extensive Atlantic oakwoods, the River Leven and the Clyde Estuary. It holds important populations of *Callitriche palustris* (Narrow-fruited Water-starwort), *Carex elongate* (Elongated Sedge) and *Rumex aquaticus* (Scottish Dock). Some 60,000 v.c.99 records were digitised by the Scottish Computerisation Project in recent years.

If you are interested in either of these vacancies, or would like to register a general interest in Scottish vacancies that arise from time to time, please e-mail me with your cv. by 31<sup>st</sup> March.

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### New address for Dr Tim Rich

TIM RICH, 57 Aberdulais Road, Cardiff CF14 2PH; (tim\_rich@sky.com)

Following financial cuts and reorganisation at the National Museum of Wales, I am taking redundancy and left the Museum on 31 December 2013. I am happy to continue as referee for *Sorbus*, Brassicaceae and Gentianaceae, which can be sent to me at the address below. Apologies, but I will no longer

be in a position to help with more general botanical enquiries.

For access to, and enquiries about, the Welsh National Herbarium, please contact Dr Heather Pardoe or Ms Sally Whyman, National Museum of Wales, Cardiff CF10 3NP. Telephone 029 2039 7951

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### Natural history holidays in Spain in 2014 with Teresa Farino

Teresa's website has been updated, and you can now peruse her complete programme of Spanish natural history holidays for 2014 at <http://www.iberianwildlife.com/teresa-farino.htm#Teresa-Farino-Trips>

As a general rule, those joining her can expect a little bit of everything – flora, butter-

flies, dragonflies, reptiles and amphibians, birds and mammals – as she aims to explore each of these wildlife-rich areas in full rather than concentrating all the attention on any one aspect of their natural history.

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## RECORDERS AND RECORDING

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### Panel of Referees and Specialists

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

**Alan Newton** has said that he would like to retire as general Referee for *Rubus*. He has been Referee for the genus for some 39 years, and we owe him a big thank you for everything he's done for members.

We would also like to warmly thank **Alan Silverside**, who is stepping down as official Referee for *Euphrasia*, after 28 years and countless determinations.

We have received complaints that plant material has been arriving without stamps for a reply. Even if it's not necessary for speci-

mens to be returned, please note that not all referees use email for their replies and still require a stamped address envelope.

This will be my last entry here as I am retiring from co-ordinating the panel of Referees. We are very pleased that this will be taken over by **Jeremy Ison**, who should be contacted on all matters concerning referees from now on. His address is 40 Willeys Avenue, Exeter, Devon EX2 8ES; 01392 272 600; jeremy\_ison@blueyonder.co.uk

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### Panel of Vice-county Recorders

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

All the following are reflected in the *2014 Yearbook*, but are reproduced here for convenience and acknowledgement.

#### New recorders and changes:

13	W. Sussex	Matthew Berry (joint)
14	E. Sussex	Matthew Berry (joint)
24	Bucks.	Andy McVeigh (joint)
29	Cambs.	Jonathan Shanklin (joint)
37	Worcs.	Paul Reade (joint)
62	N.E. Yorks.	Jill Magee (joint)
71	Man	Philippa Tomlinson
H12	Co. Wexford	Paula O'Meara (joint)
H20	Co. Wicklow	Pauline Hodson (joint)

#### Retirements:

14	E. Sussex	Arthur Hoare (1999) retires
32	Northants.	Gill Gent (1965) retires (Rob Wilson becomes sole & correspondent)

62	N.E. Yorks.	Mike Yates (2006) (joint) retires
71	Man	Linda Moore (2006) retires
H34	E. Donegal	Pauline Hodson (1989) retires

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

#### Change of address:

48	Merioneth.	Mrs S.E. Stille, 38 Foregate, Fulwood, Preston, PR2 8LA ( <i>mossysal@btinternet.com</i> )
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## Maximising the accuracy of identification during refereeing: an orchidological perspective

RICHARD BATEMAN, 10 Elizabeth Cottages, Kew, Richmond, Surrey, TW9 3NJ;  
(r.bateman@kew.org)

IAN DENHOLM, School of Life Sciences, University of Hertfordshire, Hatfield, Herts., AL10 9AB;  
(i.denholm@herts.ac.uk)

It is now a quarter-century since we became BSBI co-referees for that most promiscuous of genera, *Dactylorhiza* (Marsh- and Spotted-orchids), and five years since we added to our portfolio the remainder of Orchidaceae other than *Epipactis*. During that time, the nature of our role has changed substantially. Firstly, the workload has increased considerably – between us, we respond to perhaps one hundred identification requests per annum (and some of these requests concern several plants and/or populations). We have no complaints – we are happy to be of some help, and we unquestionably benefit professionally from seeing an intriguing cross-section of the many problematic plants found in the field by so many BSBI members. The incoming orchid-related requests most commonly concern *Dactylorhiza*, *Gymnadenia* or unusual floral morphs of well-known species – all areas in which we are actively engaged in research.

But secondly, and more significantly, technology has radically altered the way in which identifications are requested. Today, only rarely do we receive packages via the Royal Mail that, if delayed and/or inappropriately packed in moss, contain rotted orchid flowers and leaves (or, on at least one occasion, a well-fed slug and no flowers at all!). We also receive fewer and fewer envelopes containing traditional printed colour photographs. Instead, almost all identification requests arrive as one or more digital images (preferably JPEG files 3Mb or less in size, to avoid overwhelming our Inbox folders!) attached to a short e-mail. Again, we have no complaints – BSBI's members have voluntarily converged on an approach to identification requests that is potentially the most efficient currently available. However, in

practice, few correspondents are making the most efficient use of this system. The most common failures are omitting any form of scale, ignoring some key characters, and/or withholding key supporting information.

With regard to scale, we have spent three decades amassing an unprecedented morphometric 'reference collection', notably a matrix of 52 characters thus far measured for 1,455 British and Irish dactylorchids. But, if the images that we are sent lack any information on scale, much of that invaluable quantitative information cannot be deployed to aid the identification; and very few of the images sent to us possess a scale. At this point, we should probably admit that our own images also routinely lack a visible scale; also, that we share the general view that, although inclusion of a ruler, coin of the realm, lens cap or similar may be desirable in theory, it also reduces the aesthetic appeal of the image. One solution is to capture at least one image of each problem plant at a constant scale (*i.e.* at the same lens settings). RB takes at least one image of every relevant flower spike, such that the long axis of the image represents 35mm (that figure is a legacy of previously capturing 1:1 images on 35mm slide film). Any further images can then be taken at any scale while still allowing measurement of all visible macroscopic features, provided that the unscaled images are accompanied by the initial fixed-scale image of the plant.

As digital cameras improve, so does the average quality of close-up images of flowers that we are sent. Nonetheless, we are often unable to score key features simply because they are not visible in the image(s). For example, the dimensions of the labellar spur are critical in differentiating among *Dactylorhiza* species and hybrids, yet in dense inflo-

rescences the spurs often remain obscure unless they are deliberately exposed by their discoverer prior to imaging. More commonly, the unscorable characters are those representing the vegetative parts of the plant, as many correspondents concentrate solely on the inflorescence and so fail to illustrate features such as the number, size, posture and markings of the leaves, all of which would prove helpful.

The final weakness in many – indeed, perhaps a majority – of orchid identification requests sent to us concerns the range of information included in the e-mail letter that accompanies the relevant images. Whether through reticence, unwarranted brevity or a determined attempt to render our verdicts maximally objective, we may not be told the name and grid reference of the locality, the nature of the habitat, the date the image was taken, and/or the identities of any co-occurring orchid species in the case of putative hybrids.

As well as often reducing our ability to offer confident identifications, withholding such information also prevents us from submitting directly to the BSBI database a cohesive spreadsheet summarising our annual tally of determinations. This failure on our part is important, as it is our impression that, at present, only a minority of our determinations are eventually deposited in the database by means of the discoverer of the plant(s) reporting them to the relevant vice-county recorder. Needless to say, we respect (but do not actively encourage) explicit requests not to disclose records to other parties.

Obviously, we are both willing and able to continue operating under the current *ad hoc* conditions. Nonetheless, any steps taken by our correspondents to improve the information fed to us will be greatly appreciated – please help us to help you!

## A new long-term survey to measure the impacts of ash dieback on the flora of British woodlands

OLIVER L. PESCOTT, *Biological Records Centre, CEH Wallingford, MacLean Building, Benson Lane, Crowmarsh Gifford, Wallingford, Oxfordshire, OX10 8BB*; (olipes@nerc.ac.uk)

CHRIS D. PRESTON, *Biological Records Centre, (as above)*; (cdpr@ceh.ac.uk)

KEVIN WALKER, *97 Dragon Parade, Harrogate, North Yorkshire, HG1 5DG*; (kevin.walker@bsbi.org)

The ongoing development of a new plant surveillance and monitoring scheme for seminatural habitats (Walker *et al.*, 2010) has coincided with the arrival of the fungal disease ‘ash dieback’ in Britain. This is caused by *Hymenoscyphus pseudoalbidus*, the sexual (‘teleomorphic’) stage of the ash dieback fungus. The perhaps better known name *Chalara fraxinea* applies to the asexual (‘anamorphic’) stage, now thought to be less epidemiologically significant (Sansford, 2013). The arrival of ash dieback on our shores has created an unprecedented opportunity to monitor the impacts that the spread of a fungal pathogen might have on woodland ecosystems. Research in Sweden has already suggested that the loss of epiphytic lichen communities associated with ash could be severe (Jönsson & Thor, 2012), but to our knowledge no European country has yet

implemented a nationwide programme to monitor systematically the changes to communities that might occur as a result of this disease. Furthermore, even at a global level the information on the consequences of the loss of tree species on associated organisms is scarce (Ellison *et al.*, 2005).

To this end, the BSBI and other volunteer societies (the British Bryological Society and the British Lichen Society) have been working with the Centre for Ecology and Hydrology to develop a survey method to identify the long-term impacts of ash dieback on the ground flora and epiphytes associated with ash trees in woodlands. By monitoring plots both in stands of ash and stands of other broad-leaved species, we hope to measure the impacts of the disease, whilst controlling for changes that may be due to other drivers, such as climate and management. The British Bryological



Society and the British Lichen Society are to focus on epiphytic bryophytes and lichens growing on ash in woodland and in open habitats, such as parkland and hedgerows.

We are aiming to launch the scheme in 2014 with plots being revisited as part of an ongoing monitoring programme. We hope that this note will encourage people to leave a couple of free days in their field calendars to enable them to participate. The survey comprises a minimum of two field visits to a single monad or adjoining areas, although visits to multiple monads are possible. The project website is still undergoing development (ash-related photographic contributions are welcome), but several key documents, including a project overview, specific instructions for the vascular plant survey, and a recording form, are already available for download (see <http://www.brc.ac.uk/splash>). A list and accompanying map of 'core' monads that we aim to survey is also available.

If you are interested in taking part monads can be reserved now by emailing: [ash-survey@ceh.ac.uk](mailto:ash-survey@ceh.ac.uk). Additional monads selected by surveyors can also be contributed to the project, so do not despair if the core monads near you appear to have already been taken.

We hope that this survey will be an important step towards quantifying the effects of ash dieback on the biodiversity of British woodlands, and we look forward to working with all members who are keen to take part in this project.

#### References:

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- JÖNSSON, M.T. & THOR, G. (2012). 'Estimating coextinction risks from epidemic tree death: affiliate lichen communities among diseased host tree populations of *Fraxinus excelsior*'. *PLOS One*, **7(9)**, e45701.
- SANSFORD, C.E. (2013). *Pest risk analysis for Hymenoscyphus pseudoalbidus (anamorph Chalara fraxinea) for the UK and the Republic of Ireland*. Forestry Commission.
- WALKER, K.J., DINES, T., HUTCHINSON, N. & FREEMAN, S. (2010). *Designing a new plant surveillance scheme for the UK*. Joint Nature Conservation Committee Report No. 440. JNCC, Peterborough.

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## New Plant Surveillance Scheme – plans for the 2014 field season

KEVIN WALKER, *Botanical Society of Britain and Ireland (BSBI)*, 97 Dragon Parade, Harrogate, North Yorkshire, HG1 5DG ([kevin.walker@bsbi.org](mailto:kevin.walker@bsbi.org))

DAVID ROY, *Centre for Ecology and Hydrology, CEH Wallingford, MacLean Building, Benson Lane, Crowmarsh Gifford, Wallingford, Oxfordshire, OX10 8BB* ([dbr@ceh.ac.uk](mailto:dbr@ceh.ac.uk))

In 2014 we are planning to enter the next phase of the new Plant Surveillance Scheme (name yet to be decided) that we have been developing with our partners, Plantlife, the Centre for Ecology & Hydrology (CEH) and the Joint Nature Conservation Committee (JNCC), over the past few years. All being well the scheme will be fully launched in 2015, once long-term funding has been established and all aspects of the scheme have been fully developed and 'road' tested. This work is ongoing and will incorporate the 2014 field season. We would therefore like to invite members to take part in the 2014 survey. The key elements of the

scheme from a recorder's perspective are as follows:

- Recording will be based on a stratified random sample of 1km squares, selected to have a high chance of containing semi-natural habitat types targeted by the scheme. Squares will be allocated to recorders once they join the scheme;
- Within each square recorders will be asked to record species abundance within small plots (usually 10 × 10 m) in a range of semi-natural habitats types. Recorders will be provided with maps showing the location of semi-natural habitats within

their squares where this information is available;

- The fixed plots are intended to be re-locatable (but not permanently marked) by others and re-recorded every few years (with a maximum of 5 years between visits);
- Within plots, recorders will choose to record all species, or just a subset of c. 400 habitat indicators (roughly 20 indicators per habitat type). The habitat indicators will include a subset of 'easy-to-identify species' to encourage beginners and less

experienced botanists to take part in the scheme;

- Much of the administration of the scheme (e.g. provision of squares, method protocols, recording forms, guidance documents, etc.) will be available online via a dedicated website. The website will also provide a facility for online data entry.

If you are interested in taking part in the scheme then please keep an eye on the BSBI website where we will post details of how to register and take part in the New Year.

## Responding to developers' requests for BSBI data

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

The most frequently occurring question Recorders ask me is on responding to developers' consultations. Such requests are becoming more frequent with the increase in windfarm and other renewal energy proposals. If Recorders have the time and inclination we would be pleased if they would respond directly as it may result in rare plant populations avoiding damage by developments. At the very least it might highlight the need for a more detailed plant survey which might ultimately result in a less damaging development.

Recorders now have an excellent tool to help them respond, the BSBI Distribution Database, which may provide more records than held locally. Here are a few tips to help you. Before starting, however, I strongly recommend you agree in advance payment for your time and effort. This ensures that such requests are not sent lightly and that your expertise is properly valued. I would recommend £250 per day or (more likely) a £125 charge for a half day, which you are welcome to retain, or donate to the BSBI, as you wish.

Also it is important to ensure you clearly understand what information they are looking for. If they ask for details of all notable plant records, you may wish to clarify precisely which Conservation Statuses they are interested in. Is it just those with Red Data List

status, or National Status (*i.e.* Nationally Rare or Scarce) for example? Are they interested in Locally Rare or Scarce status species (from a Rare Plant Register, if one exists)? Finally you might want to clarify their deadline.

Generally consultants will specify an area of interest, usually by supplying a map, but occasionally by defining a point, typically a six figure grid reference, and a search radius.

1. Login to the DDb. Depending on the shape and size of the area of search, either enter one or more monad (or tetrad) grid references, clicking on the green '+' to add extra rows, as required, until the search area is completely covered.
2. Or type the OS grid ref. into the *grid reference* field, then click the adjacent box's down arrow and change *grid square* to *centroid*. Then, if required, change the "5,000" in the next box to the right, to the required search radius in metres.
3. To constrain the search to more recent records, or at least not return historical ones, type the year of the oldest records you would wish to include in the *Date Recorded* field. Then click the adjacent field's down arrow and select *from*.
4. To only list Native status species, Click the *More Options* button, then *attributes*, then *status (external scheme)*. The *BSBI atlas* (2000) is the default source.

5. Click the box immediately to the right of *checklist/attributes* to bring up the menu of available checklists. Hover over *Conservation Status* and select one from the list of: *W&CA (1981)*, *Wales S42*, *Wales NERC*, *Scottish Biodiversity List*, *Red Data List (2005)*, *National Status*, *England NERC (S41)* and *BAP 2007*.
6. If you wish to limit the search further you can, for example, type “NR” for Nationally Rare after selecting *National Status* or “VU” for Vulnerable after selecting *Red Data List (2005)* in the adjacent respective *value* fields.
7. Finally click the *Display Results* on the bottom left. Various options allow you to download the data into a spreadsheet where it can be further manipulated and tidied up. I usually repeat the search for each Conservation Status constraint, and copy and paste the results into a single spreadsheet, taking the opportunity to add a column which identifies the Conservation Status, but you could click on

*More Options* and select *join with a sub-query*, then repeat the above but with another Conservation Status constraint.

It is quite likely that a tightly constrained search will not return any records. Or it may only return records for hectads which intersect your search area. In either case you can, if you think it appropriate, recommend a detailed site survey. (You might even offer your own services!) By the way, when tidying up the spreadsheet you may wish to exclude hectads records, perhaps after inspecting their placenames or checking for more detailed corresponding records.

Members should note that the same search technique may also be used to find notable species records in a local area – perhaps in the vicinity of your home, or B&B when on holiday. A similar technique can be used to search for notable species in a SSSI or NNR; instead of entering grid references, just type in the name of the site in the *bounded area* field.

## OBITUARY NOTES

Since the publication of *BSBI News* 124, we regret to report that the news of the deaths of the following members has reached us. We send regrets and sympathies to all the families.

**Mr K Abram**, 69 The Green, Charlbury, Oxon, OX7 3QB. He joined the Society in 1997.

**Dr P I Aihe**, 18 Tudor Wood, 79 Northlands Road, Southampton, SO15 2LH. He joined the Society in 1992.

**Dr R K Brummitt\***, The Herbarium, Royal Botanic Gardens Kew, Richmond, Surrey, TW9 3AE. He joined the Society in 1957.

**Mr C Bucke**, 29 Downshire Square, Reading, RG1 6NH. He joined the Society in 1964.

**Dr S J Hammonds**, 114 Walcote Drive, West Bridgford, Nottingham, NG2 7GY. He joined the Society in 2010.

**Mrs M E Heywood-Waddington**, 1 Folder’s Gardens, Folders Lane, Burgess Hill, RH15 0FY. She joined the Society in 1977.

**Mr P D Sell\***, 109 Blinco Grove, Cambridge, CB1 7TX. He joined the Society in 1952.

**Ms J Shane**, 34 Chelwood Gardens, Kew, Richmond, Surrey, TW9 4 JQ. She joined the Society in 1992.

**Mr P Vlasto**, Little Ham, The Common, Child Okeford, Blandford, Dorset, DT11 8QY. He joined the Society in 1981.

**Mr A M Wilshaw**, 5 Gilberthorpe Drive, Clifton, Rotherham, S. Yorks., S65 2TR. He joined the Society in 2012.

**Mr G R Worrall**, 6 Redland Close, Barrowden, Oakham, Rutland, LE15 8ES. He joined the Society in 2003.

Obituaries of those marked (\*) will appear in *BSBI Yearbook 2014*. and of others may appear in *BSBI Yearbook 2015*.

## Sir Thomas William James David Dupree, Bt (1930–2013)

David's hereditary title (which came from a baronetcy that had been in his family since 1921 when an ancestor of his was awarded it for services to industry) fell to him only in recent years, and being a quiet and modest man, it was not something he advertised other than occasionally on headed notepaper. Born on 5<sup>th</sup> Feb 1930 in Hampshire, he never married and died on 29<sup>th</sup> June 2013 in Chesterfield Hospital.

He was educated at Harrow and Trinity College Cambridge, and became a BSBI member in 1953. Philip Oswald has written of him as "a close friend when we were undergraduates here from 1951 to 1954; we botanised together in Cambridgeshire, we visited the Isles of Scilly just before my 21st birthday in April 1954 and he drove me all over Scotland and Ireland in his sports car soon after we went down later that year".

He was a secondary school teacher in history and later classics, teaching at the local Stancliffe Hall School for many years at the end of his career. He was apparently a very inspiring and dedicated teacher and a number of his ex-pupils attended his funeral at the Chesterfield Crematorium.

His bungalow in Darley Dale was surrounded by a fantastic garden, the slope allowing for the major part of it to be a rockery. A series of ponds and rills carried the water from a spring at the top down its full length. He had a marvellous selection of alpine plants as well as the occasional native raised from seed so that he could check on its characteristics. A gin and tonic on the patio enjoying the view down the valley whilst dinner cooked was as memorable as some of the exciting botanical finds or being able to use his extensive botanical library.

Those who knew him describe him as a very knowledgeable field botanist who will be greatly missed; for instance he was always ready to help the current and previous county recorders in Derbyshire both on his own and at

organised field meetings. He made many discoveries of new plants in the county including *Bromopsis benekenii* (Lesser Hairy-brome) and *Juncus foliosus* (Leafy Rush).

Some members will recall the striking story of another of David's discoveries – this one a rediscovery as described by Max Walters in *Watsonia* **10**: 49-54 (1974) – and be aware that such things reveal a quality more worthy than luck. Stepping across a fenland ditch in Cambridgeshire in 1972 for reasons of personal comfort he encountered *Senecio paludosus* (Fen Ragwort) which had been thought to be extinct in Britain for most or all of the 20<sup>th</sup> century. Knowing it was something unusual he collected just a single capitulum and cauline leaf, which proved to be sufficient for confirmation.

His love of plants travelled with him to places such as Majorca where his sister lived, as well as the Scottish Isles, Cornwall and the Scillies and Staffordshire, and he was happy to work on 'square-bashing' for the *New atlas of the British & Irish flora*. In August 1992, he was also a member of the privileged group who enjoyed a visit to the Castle of Mey and had tea with the Queen Mother, our Society's Patron, (see *BSBI Scottish Newsletter* **15** (1993)).

The proceeds of a collection at his funeral were donated to BSBI and we understand that a significant five-figure legacy was left to BSBI in his will; as his nephew wrote; "We are all very happy your Society was mentioned in his will and will help to support more activities in a field where my Uncle was an enthusiast". We understand that arrangements are in place for his herbarium to be taken into the Natural History Museum (**BM**).

*Compiled by C M Lovatt, BSBI Administrative Officer, from the Society's records, and the personal recollections of our members Alan Willmot, Dorothy Brookman and Philip Oswald, who knew him well.*

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## NOTES FROM THE OFFICERS

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### From the Hon General Secretary – *LYNNE FARRELL*

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

#### Members of long-standing

We would like to offer our congratulations to the following people who have been members for 60 years: Mr. D.M. Barling, Mrs. B.A. Hulme, Mr. D.H. Phillips, Prof. Sir G.T. Prance, Mr. T. Schofield.

Congratulations also go to the Committee for Ireland which was set up 50 years ago and will be celebrating this at a Members' Conference on 29<sup>th</sup>/30<sup>th</sup> March 2014 at the National Botanic Gardens, Glasnevin, Dublin.

A very successful Scottish Annual Meeting was held at the Royal Botanic Gardens, Edinburgh on 2<sup>nd</sup> November 2013, attended by 148 people, which we think is a record number. Special mention was made here of Richard Pankhurst, who worked at the RBGE until his recent retirement, but who sadly died earlier this year. Richard has very kindly left us a legacy, which we would like to use to encourage training younger people to develop their interest and expertise in some of the more difficult plant groups.

We have also benefited from legacies left to BSBI by Sir David Duprée and Dr G.A. Swann. These have really helped BSBI, especially with our increased staff complement, projects and activities.

The Annual Exhibition Meeting was held in the Flett Theatre at the Natural History Museum on 23 November and around 200 people dropped in to view the exhibits, hear the talks, and perhaps most importantly to meet and discuss plants and projects with other BSBI members and visitors. Even a fire at the nearby tube station, a fair in Green Park, the opening of the NHM ice rink, plus the presence of the Beckham family did not deter our members, who battled through it all to reach the meeting. Thank you all for coming and supporting this event.

In 2014 the Annual Exhibition Meeting will be held at Leicester University on 22 November and this will also include the AGM for the New BSBI. There will also be a short AGM for the Old BSBI at the Summer Meeting being held in June in Perthshire. Two AGMs in one year it would seem, and we will keep you informed of what is happening when through the News and website.

Finally, congratulations to Dr. Heather McHaffie, Scottish Plants Officer at the Royal Botanic Gardens, Edinburgh, on the award of an MBE for services to the Conservation of Plants in Scotland.

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### Diary for 2014

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

25 Jan	Irish Committee	2 Apr	Board of Trustees
4 Feb	Records Committee, London	13 May	Scottish Committee
7 Feb	Welsh Officer Steering Group	4-7 Jun	Summer Meeting & final AGM of old BSBI, Birnam & Dunkeld, Perthshire
8 Feb	Welsh Committee	18-20 Jun	Welsh AGM, Tintern
12 Feb	Training & Education Committee, Shrewsbury	21 Jun	Irish Committee
13 Feb	Publications Committee, London	23 Jul	Board of Trustees, London
26 Feb	Meetings Committee, Leicester	Mid Sep	Irish AGM, N. Ireland
4 Mar	Scottish Committee	23 Sep	Scottish Committee
11 Mar	Species Status Assessment Group, London	1 Nov	Scottish Annual Meeting
12 Mar	Council, London	22 Nov	Annual Exhibition Meeting & Annual General meeting of new BSBI, Leicester
29/30 Mar	Irish Members' Conference, Dublin		

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## From the Welsh Officers – POLLY SPENCER-VELLACOTT & PAUL GREEN

POLLY SPENCER-VELLACOTT: *c/o Natural Resources Wales, Glan y Nant Unit 19, Mold Business Park, Wrexham Road, Mold, CH7 1XP* (Tel.: 01352 706633; polly.spencer-vellacott@bsbi.org). Normal working hours approx. 8.15-3.15 Wed-Fri

PAUL GREEN *c/o BioSyB, National Museum of Wales, Cardiff, CF10 3NP* (Tel.: 02920 573152; 077 72111113 paul.green@bsbi.org)

It's been a hectic time for Welsh Officers, as Polly spent most of the last year getting used to motherhood, although she did manage to attend a few field meetings – generally with a baby on her back! Paul, as many people will know, had to have nine weeks of sick leave in the peak of the field season, but despite this he managed to carry out a lot of fieldwork and a large part of Wales in his year in charge.

Now Polly is back we have agreed that Paul will continue in the role in a job-share basis, with a 50% split between us. Polly continues to be based in Mold, at the NRW office, and Paul at NMW in Cardiff, which will enable us to visit most of the country more easily. Polly intends to work Wednesday-Friday while Paul can be a little more flexible but also to work Wednesdays whenever possible. There will be a largely north-south split in our work programme, but Paul will take a lead on rare plant monitoring and organising training meetings, while Polly will lead on Vice-county Recorder support.

One of our major priorities especially over the winter months is to work with Vice-county Recorders to improve or update the County Rare Plant Registers. We have a vision of Wales as the first country in the world to have complete coverage of Rare Plant Registers, and we hope that the Vice-county Recorders will support us in this aim. Most of our counties have existing Rare Plant Registers, but we would like to (1) publish Registers where none have previously been published and (2) work on a programme to update the older registers.

Paul is working on a programme of rare plant monitoring for next year and once more we hope that volunteers, not just vice-county recorders, will be keen to come out and record some of the most interesting species in Wales. Hopefully this will include species including *Trollius europaeus*, (Globeflower), and several species of orchids, plus some interesting ferns in the winter season.

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## STOP PRESS

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### Obituaries Editor wanted!

Publications Committee is looking for an Obituaries Editor to help the work of the committee. The role is primarily to invite authors to write obituaries for recently deceased prominent members (often factual and amusing accounts of their botanical career). No prior editorial experience necessary, only a good knowledge of BSBI membership and an eye for detail required. Attendance

at Publications Committee meetings (twice yearly) is desirable, but not essential, as most communication and liaison will be done by email.

For further details please contact the Secretary of Publications Committee, Mr Chris Boon; Tel.: 01525 715686; [chris.boon45@btinternet.com](mailto:chris.boon45@btinternet.com)

**Solutions to Botanical Crossword 21****Across**

1. BONSAI 5. BEFITS 8. PORE  
 9. FURROWED 10. BLOSSOMS  
 11. BASE 12. MATURE 14. ENTIRE  
 16. OVER 18. CHARLOCK 20. BOCCONEI 21. VEIN 22. GAMETE 23. NETTLE

**Down**

2. ONOCLEA 3. STEMS 4. INFLORESCENCE 5. BIRDSEED ALIEN 6. FROGBIT 7. TREES 13. UTRICLE  
 15. RACHIAL 17. VIOLA 19. LOVAT.

**Crib to Botanical Crossword 21****Across**

1. BON/sigh 5. anagram BEST IF  
 8. (S)PORE 9. FUR/RO/WED  
 10. BLO<SS>OMS 11. double definition  
 12. MAT/URE 14. double definition  
 16. reverse REVOLution 18. CHAR/LOCK  
 20. two-headed clover 21. Vain  
 22. GAME/TE 23. red dead-NETTLE

**Down**

2. mONO CLEARer (sensitive fern) 3. double definition 4. anagram SCENE FOR CLINE  
 5. 'charade' 6. charade 7. just a string of homonyms 13. anagram RETICUL  
 15. anagram CHAIR + AL 17. double definition 19. love it

**CONTRIBUTIONS INTENDED FOR *BSBI NEWS* 126  
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Botanists searching for introduced young *Asparagus prostratus* plants at a site near the eastern end of Chesil Beach (v.c.9). Photo P. Willows, BNPS.co.uk © 2013 (see p. 41)



Young *Asparagus prostratus* in flower at the introduction site near Portland Bill (v.c.9). Photo S.J. Leach © 2013 (see p. 41)



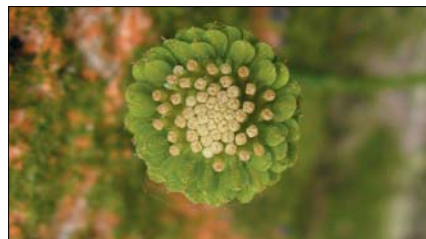
*Allium ampeloprasum* var. *babingtonii* (Babington's Leek) on roadside bank at Rahamiska (v.c.H9). Photo O. Martin © 2013 (see p. 27)



On the hunt for Poaceae, Cyperaceae and Juncaceae on Carnethy Hill, Midlothian (v.c.83). Photo W. Arshad © 2013 (see p. 54)



*Cotula squalida* ; habitat (upper); detail of plant (lower left) and detail of capitulum (lower right). All photos taken in Whirlowbrook Park, near Sheffield (v.c.57) © A. Baker 2013 (see p. 46)



*Cotula australis* in pavement cracks (upper); inflorescence (lower left); phyllaries (lower middle) & fruiting capitulum with pedicellate achenes (lower right). All photos taken at Heygate Estate, Elephant and Castle, London (v.c.17) © G. Hounsome 2013 (see p. 48)

Illustrations showing two previously confused *Symphytum* hybrids in Norfolk, both with under half dissected calices and pale blue flowers



Norfolk Comfrey (*S. xnorvicense*). Garden grown plant from type colony at Intwood, TG1971.0414 (v.c.27), 8.5.13. Note truncate to cordate bases to mid and upper stem leaves (upper right, bottom left), and long sky blue corolla bell with absent or obscure purple blotches on lobes (bottom right)



Causasicum hybrid (probably with *xuplandicum*). Road verge, Bergh Apton, TH3096.0000 (v.c.27), 10.5.13. Note cuneate bases to mid and upper stem leaves (above right), which tend to be “upswept” in the *uplandicum* manner (bottom right), and very short, bulbous, intense blue *causasicum* type corolla bell, but with constant and sharply defined purple striations. All photos © R. Leaney (see p. 21)



*Medicago sativa* ssp. *varia* (Sand Lucerne) at Grogan Burrow (v.c.H12) with close-up of fruits (r) Photos P. Green © 2013 (see p. 20)



*Salix x doniana* at Lifeboat Road, Formby (v.c.59). Leaves (l) 2012 and male catkins (r) 2013. Photos © P. Smith (see p. 6)



Leaf and fruit (with £1 coin for scale) of True Service-tree (*Sorbus domestica*), from Camel Estuary site, (v.c.2). Photo I.J. Bennallick © 2013 (see p. 37)