

BSBI News

September 2012

No. 121



Edited by Trevor James & Gwynn Ellis

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Fig 1. Diminutive spring-flowering form of *Gentianella amarella s. l.*, Aberffraw, Anglesey (v.c.52), 9th May 2012. Note the size relative to rabbit pellets and the compressed internodes.



Stems and lower leaf surfaces of *Bupleurum tenuissimum* collected at Allhallows-on-Sea, Kent, on 6th August 2011, blistered by sori of the rust *Puccinia bupleuri*. The sori contain dark brown teliospores, one of five spore types produced by this rare fungus.

Photo © Martyn Ainsworth (see p. 62)



Fig 2. Multiple flowered bushy form of spring-flowering *Gentianella amarella s. l.*, Aberffraw, Anglesey (v.c.52), 20th June 2012. Note shoots arising from base and lengthening of some pedicels relative to internodes. Both photos © I. Rees (see p. 43)



Ian Bonner (President, BSBI) (r) receives his copy of the *Flora of North Lancashire* from the author, Eric Greenwood. Photo A. Wright © 2012 (see p. 63)



The BSBI stand at Birdfair, Rutland Water, August 2012. Photo J. Saddington © 2012 (see p. 66)



Clive Stace (centre) at Birdfair 2012, with (l to r): Louise Marsh, Kevin Walker, John Bailey & Rachel Benskin.



The BSBI stand at Birdfair, Rutland Water, August 2012.
Both photos J. Saddington © 2012 (see p.66)

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Cover picture – : *Digitalis lanata* growing by the Plym estuary in Plymouth.
 Photo © P. Pullen, 2012 (see p. 58)

IMPORTANT NOTICES

From The President

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As another field season draws to a close, I feel I must mention the weather....we had some very wet days for our flora group meetings on Anglesey, and I expect this was reflected over much of the country. However botanists, being stoic, still turned out and generally enjoyed themselves!

In the April *BSBI News*, we introduced the dull but important subject of updating the constitution of our charity to that of a Company Limited by Guarantee. This was discussed in some detail at the AGM in Reading, and officers and staff, with legal advice, have now been progressing this to a draft of the Memorandum and Articles of Association in advance of the Special Meeting planned for 24th November in Cambridge. This will put our Society onto a much firmer footing and more detailed information about this appears below in a commentary by Antony Timmins, our Honorary Treasurer.

We consider keeping our members informed to be vitally important. In addition to communicating through *News* and our excellent website, we would like to speed this up by establishing email contact directly with all those willing. However this requires us to install a new server and I hope this will be

completed shortly and that we can take this forward after the next issue of *News*.

We have been raising our profile this summer, with participation at the Big Nature Day at the Natural History Museum, BBC Gardeners' World Live in June, the British Birdwatching Fair held in Rutland in August and our own Biological Mapping Conference in Edinburgh in September. A big thank you to all members and staff who have helped with these events (see p. 66). The BSBI has provided maps and data for the Channel 4 six-part series 'Wild Things', being screened in September/ October. It will be very good if our efforts in these events are reflected by an increase in our membership.

A warm welcome to Dr Maria Long, who, by the time you read this, will have started as the BSBI's Irish Officer. More details about this and many of the other activities of our Plant Unit are outlined elsewhere in this issue by Kevin Walker.

Also elsewhere in *BSBI News* is an outline of the programme for our 2013 AGM in June at Beaumaris on Anglesey. Please put the dates in your diary – it would be good to see you all there! (see p. 63).

Commentary on the Society's new constitution

ANTONY TIMMINS, *154a Warley Hill, Warley, Brentwood, Essex, CM14 5HF*

Background

Readers of previous articles in *BSBI News* and those attending the AGM will know that, in early 2012, the officers became aware that the BSBI had been outgrowing its constitution and that, judged against criteria provided by our principal regulator, the Charity Commission for England and Wales, we had become too large and complex to operate as an unincorporated members' club. Factors leading to this situation include the scale of our investment portfolio, the number of our employees and the

contracts we enter into in relation to the *New Journal of Botany* and the various agencies. We are now quite a complex business, even though we remain both a membership organisation and a charity. Accordingly, our Council took the decision to consult with a firm of lawyers and to start the process of converting the BSBI to a Company Limited by Guarantee. The essentials of this process were presented at the AGM on 12th May, where members approved the outline of certain proposals (see the minutes of the AGM on page 5). Further

details of our proposals, as at the current date (22nd August 2012), are covered below.

We had also been mindful for some time that our decision-making and consultation processes were becoming confused and inefficient, so we are taking the opportunity to modernise those at the same time.

General observations on the new Memorandum and Articles

The BSBI is, at the moment, governed by a set of rules that cover all our activities, and every time a rule changes we must go back to all our regulators: the Charity Commission and the Office of the Scottish Charity Regulator, and discuss it with them.

The new Memorandum and Articles are different. As with most companies, the Articles simply set out the purpose of the Company: who runs it, how you become a member and what your entitlement as a member is, and leave the rest of the rules to be determined by the Company itself. Thus, in our case, our new rules contain our existing objectives, our powers as a company and the rules that govern the relationships between the Board (see below), the Council and the members. Other rules and committees will continue, but will be governed by standing orders, which will permit change when needed.

Governance changes – the Board, the Council and the General Meeting

Under the old constitution, the Executive and Council basically had the same agendas and discussed the same issues, largely from the same point of view. The Council was the trustee body but was too large, at over 30 members, to take decisions effectively. The new Company requires an identified body of people or board to act in the joint capacities of trustee for charity law purposes and director for company law purposes. Under the new system a **Board of Trustees** (of between 7 to 12 people) will replace the Executive and will be responsible for the BSBI’s strategy and day-to-day running. As trustees, Board members will be responsible for the running of the charity in accordance with charity law while they are in office. However, as direc-

tors, they can be dismissed by the Company at a general meeting.

The **Board** will be balanced by a reconstituted **Council** (of up to 20 people, including Country Representatives), which will be responsible for the scientific direction of the BSBI. The Council will therefore be liberated from making decisions about the day-to-day minutiae and from some of the legal processes and technicalities which fall on the trustees, but should have more time to focus on the science and related activities.

Both the **Board** and the **Council** will be elected by the membership for terms of three years and the maximum overall service either as trustee or Council member is nine years. Any member of the BSBI can stand for membership. It is hoped that this will promote an open management structure.

The **Board** and the **Council** will not normally have members in common, although they will need to work together, so at least some trustees will attend **Council** to make reports and discuss matters. As noted, the **Board** has the responsibility for making decisions, but, as with any company, individual **Board** members or the whole board can be dismissed by the membership. It is hoped that this system will produce an efficient **Board of Trustees** who act in accordance with charity law but are mindful of what the members as a society want, and a wise **Council** who will influence their decisions and help build strategy from a critical but constructive perspective.

The new **Board** and **Council** will both be elected and subject to dismissal by a **General Meeting**. Such action would be unusual, but shows that the **General Meeting** has the ultimate control (subject, of course, to charity law).

Employment of Trustees

Trustees, in future, will not be able to be employed or paid by the BSBI. It is felt that the existing ability to pay trustees reflects the large size of the present Council, which would include some people who are doing paid work for the Society. With a smaller Board, this should be easier to manage in future. Employ-

ment restrictions will not apply to the new Council.

Composition of the initial Board and Council

The initial Board, who are also the founding members of the company, will mainly be drawn from the current officers and other members of the Executive until fresh elections at the June 2013 AGM. Thus, in effect, things will carry on through the early part of 2013 as they would have done, minimising disruption.

We are looking to co-opt new trustees with skills in key areas, such as relevant legislation, human resources, financial administration and public relations, and one trustee to be responsible for the national committees. Going forwards, the Board will be wholly elected and it will appoint its Chair, plus the Secretary, Treasurer and the other specialist trustees (Training & Education, Meetings, Publications, Records) from the trustees elected by the members. The first elections to the Board will take place in June 2013.

The initial composition of the Council is under discussion, but in due course it is proposed that the Council consists of up to 20 members, including elected and co-opted members, plus four national representatives (Ireland, England, Scotland and Wales). At least some of the Trustees should attend Council meetings to provide a link between the two structures. It is also proposed that the Council is chaired by the Society’s President, who may or may not be an elected Trustee, but, in the latter case, should attend Board meetings in an *ex officio* capacity.

Other committees

As noted above, the existing committees are not specified in the Memorandum and Articles. The intention is that, at least initially, the existing committees would continue unchanged. Those with executive functions (Training & Education, Meetings, Publications, Records) would effectively have functions delegated by the Board, and at least one trustee would be on each committee. As now, the rest of each committee would comprise non-elected volunteers. Members are strongly encouraged to volunteer to help in this way.

The national committees form part of the Council’s responsibility for overviews, and each will be represented on the Council. It is also proposed that there is one trustee responsible for representing the views of the national committees on the Board of Trustees. The national committees will, of course, continue to liaise with the relevant national officers.

Plant Unit and other staff employed by the BSBI

BSBI employees will report to the new Board through designated responsible trustees.

Mechanics

By November, the new BSBI should have been formed, or will at least be in the last phases of approval from the regulators. If the motion is carried at the Special General Meeting in November, the old BSBI will continue up to 31st December 2012 and will then officially transfer the responsibility and its activities to the new BSBI, with effect from 1st January 2013. In fact, from January 2013 through to at least June 2013 there will be parallel running, and the old BSBI will be transferring things to the new BSBI over that period. There will then be a formal merger of the charitable funds in England and Wales and the old BSBI will cease to exist later in 2013.

The name

We need to give the new company a name, which has to be different from the existing name. The one being used for its formation is ‘Botanical Society of Britain and Ireland’. I am well aware that passions run deep on this. Some like the new name, as it is perceived as less politically divisive; others would prefer a return to the old name, which is more geographically inclusive. Either option is possible. The most important point is that we retain the abbreviated name ‘BSBI’, which is how the Society is most commonly referred to, both internally and externally.

NB

A note about the Memorandum and Articles in progress will be posted on the BSBI website before the Special General Meeting and hard copy will be available on request from the Membership Secretary.

Botanical Society of the British Isles
Minutes of Annual General Meeting, Saturday, 12th May 2012
University of Reading, Berkshire

Apologies were received from Chris Boon, Margaret Bradshaw, David Broughton, Paul Connell, Rod Corner, Peter Gateley, Geoffrey Halliday, Chris Metherell, Tim Pankhurst, David Pearman, Chris Preston, Richard Pryce, Sylvia Reynolds, Joanna Robertson, Martin Robinson, Richard Robinson, Brian Rushton, Simon Smart, Jane Squirrel, Roy Vickery, Russell Walters, Delyth Williams.

1. **Minutes of the last Annual General Meeting**, held on 18th June 2011, Galway, were agreed and signed as a correct record.
2. **a) The Annual Review** for the year ending 31st December 2011 was adopted.
b) The Annual Report of Council and the Accounts for the year ending 31st December 2011 were adopted, following a presentation by the Hon. Treasurer, Antony Timmins.
3. **The President-elect**, Dr Ian Denholm, as nominated by Council, was duly elected with acclamation.
4. **One Vice-president**, Mrs Sylvia Reynolds, was elected to serve, replacing Mrs Jane Croft, who was due to retire. The President thanked Mrs Croft for her contribution to the BSBI in various capacities.
5. **The Honorary General Secretary**, Miss Lynne Farrell, as nominated by Council, was re-elected unanimously.
6. **The Honorary Treasurer**, Mr Antony Timmins, as nominated by Council, was re-elected unanimously.
7. **Two members of Council** were elected unanimously: Ms Louise Marsh and Mr Jonathan Shanklin. The President thanked the out-going members – Ms Sharon Pilkington and Mrs Sylvia Reynolds.
8. The President **thanked all the editors and representatives of the Committees, and also the Plant Unit members and staff**. He reported that Mr Chris Boon has announced his retirement as chair of Publications Committee with immediate effect, and that a replacement was being sought. Interviews had been held this week for the recently advertised Irish Officer post and an offer was being made to the successful candidate.
9. **Two Honorary Members**, as nominated by Council, Dr Roderick Corner, and Mrs Jane Croft, were elected unanimously. Appreciations of their work were read out by Miss L. Farrell.
10. **The Independent Examiner**, Elizabeth E. Irvine FCA, WMT, LLP, was re-elected unanimously.
11. **a) A short update on the Publicity and Outreach policy** was given by Dr I. Denholm.
b) Presentation on the proposed new Corporate Structure. The note in *BSBI News*, April 2012, and the programme for the Spring Conference and AGM, explained that the Council had agreed to move the Society from being an Unincorporated Association to a Company Limited by Guarantee, with the process to be completed by January 2013. Mr Antony Timmins gave a presentation on why the Society should make this change, the steps requiring approval at this AGM, and the stages to be gone through before formal resolutions are put to a Special General Meeting, to be held on Saturday 24th November 2012 at the Annual Exhibition Meeting in Cambridge. Progress would be reported to members through the September *BSBI News* and the BSBI website.

After questions and answers, the following steps were agreed:

That we should approve the move to becoming a Company Limited by Guarantee

That we should agree that all members are members of the Company, with a maximum liability fixed at £1.00

That we agree the change in governance, that although we retain the present Council, the Trustee role passes to a smaller Board of Trustees (probably numbering 10 people). The new charity has to be registered with a new name. It is desirable to retain the initials BSBI, but these are already registered to another company. It was proposed this could be achieved by becoming the Botanical Society of Britain and Ireland (Plan A). It would be possible, but more time-consuming and expensive, to change the name of the existing charity and register the new charity with the current name (Plan B). A vote was taken by show of hands with 44 votes for Plan A and 3 for Plan B. It was therefore further agreed that the new company is registered as the Botanical Society of Britain and Ireland.

12. Other Business

- a) Brenda Harold drew members' attention to **botanical identification courses** that were being run, details of which could be found in April *BSBI News*.
- b) The President reminded everyone present of several **forthcoming events**:
 - i) The autumn conference, 'A great leap forward', being held at the Royal Botanic Gardens, Edinburgh, 20th -21st September, 2012.
 - ii) The AEM and associated conference, 'The flora of cold regions', being held at the British Antarctic Survey, Cambridge, 23rd - 24th November 2012.
 - iii) The next AGM, being held in Beaumaris, Anglesey, 10-14 June 2013.
 - iv) 78 members of the BSBI, including visitors, were present.

Lynne Farrell

15 May 2012

SPECIAL GENERAL MEETING

Notice is hereby given that the SPECIAL GENERAL MEETING of members of the Society will be held at the British Antarctic Survey Cambridge, on Saturday 24th November 2012 at 12.00 am.

by order of Council
LYNNE FARRELL
Honorary General Secretary
31st August 2012

c/o Department of Botany
The Natural History Museum
Cromwell Road,
London SW7 5BD

AGENDA – Saturday 24th November 2012

1. Apologies for absence.
2. Declaration of quorum (Rule 45; seven members).
3. Explanation of purpose of Special General Meeting.
4. Confirmation of incorporation status and common objectives of company limited by guarantee established for the purpose of continuing the activities of the Botanical Society of the British Isles with perpetual succession.

5. To consider, and if thought fit, to pass the following **Special Resolution** of which due notice is hereby given.

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

1. *that the Council put in hand incorporation and registration with the Charity Commission for England and Wales and the Office of the Scottish Charity Regulator a charity with the objects similar to the Society's own objects and that any assets remaining after satisfaction of the proper debts and liabilities be transferred to such incorporated charity; and*
2. *that if the transfer of assets referred to above has not taken place within 12 months of the date of this resolution this resolution shall lapse.*

Note that a two-thirds majority of those present and voting at the Special General Meeting is required to pass the above resolution.

6. Any other business of which due notice has been given.
7. Closure of meeting.

Lynne Farrell, 31st August 2012
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Notes from the Editors

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Chris Boon

Whilst congratulating Chris on receiving the Presidents' Award for 2011 (see p. 64) we also send him our sincere condolences on the sudden death of his wife Margaret; may she rest in peace.

Corrections to *BSBI News* 121

In the note on 'Aquatic plants in nineteenth-century canals' on p. 22, Table 2, far right hand column. Insert "0" into lines 9 and 10 (i.e. to indicate that *Carex paniculata* and *Carex vesicaria* were not recorded in the Ripon Canal). On p. 23, in the footnote to Table 2, line 3. "(-)" should read "(0)". Our apologies to the author Ray Goulder.

Biological Recording Programme saved!

With great relief, we heard, just before we went to press, that the Biological Recording and Species Identification Programme previously administered by the University of

Birmingham has now been transferred lock, stock and barrel to the Manchester Metropolitan University. Well done to all who helped bring this about.

Publicity and outreach

Congratulations to all involved with the very successful presence at the Birdfair held at Rutland Waters in August (see p. 66). Let's hope that Louise and her team go from strength to strength. If any member has thoughts about setting up a 'local group' please do contact Louise who will be delighted to help.

We hope to have some kind of small rotating 'slot' in *News* showing different v.c. promotional events, to demonstrate what is happening locally.

Apologies to those authors whose contributions have had to be held over until the next issue through lack of space.

NOTES

Common problems with identification experienced by the Norfolk Flora Group – 2

BOB LEANEY, 122 Norwich Road, Wroxham, Norfolk, NR12 8SA

I here present some more of my common problems of identification. I hope that at least one or two will strike a chord with most botanists. They involve common, or fairly common species, which are usually easy to separate but where variants frequently cause difficulties if one is doing a lot of recording (e.g. very small forms of *Trifolium dubium*). Problems are especially likely in inbreeding genera (e.g. *Atriplex* and *Polygonum*), and here problems of identification tend to be intertwined with problems of taxonomy (e.g. *Polygonum*). In many cases it is important to realise that some individuals may be unnameable.

As before, although the problems are frequent, the illustrations come from individual representative specimens, with drawings, descriptions, and measurements copied from my notebooks.

The alternative terminology and characters used are not meant to discourage use of the standard keys, but aid in their interpretation and assist in the all-important first step of deciding when to take material home for keying out. The characters should only be used in distinguishing the ‘usual culprits’ dealt with and may not reliably separate these species from others in the genera. The term ‘diagnostic’ is used to mean diagnostic only in the context of the species concerned.

***Atriplex* (oraches)**

Over the last few years I have been looking at *Atriplex* bracteoles, trying to correlate variations with leaf shape so as to better define both the typical bracteole characters and the more common variations that can definitely be assigned to one or other taxon. I hope to publish these drawings in a separate article.

During this study I found oversized, long-stalked bracteoles in *A. patula* (Common Orache) and *A. laciniata* (Frosted Orache) (stalks < 2 mm, and < 15 mm respectively),

which could result in at least the first species keying out as *A. longipes* (Long-stalked Orache) or one of its hybrids. As a result I decided to look for other diagnostic features that could be added to length of bracteole and bracteole stalking to help define better the *A. longipes* group, and possibly also delineate *A. longipes* from its hybrids with *A. prostrata* (Spear-leaved Orache) and *A. glabriuscula* (Babington’s Orache).

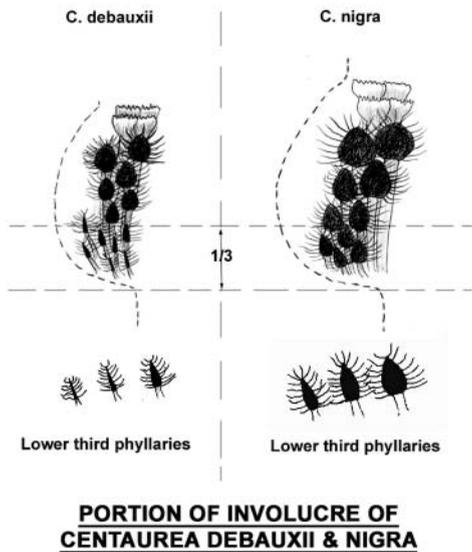
I have now completed a survey of the Taschereau *Atriplex* collection at MANCH, looking at all the 120 odd specimens of the *A. longipes* group that he found or were sent in by BSBI members in 1977, from all around the British coast (Taschereau, 1988). I have yet to fully analyse my drawings and measurements, but when this is done I hope to publish drawings of both the *A. longipes* group and the other frequent native *Atriplex* species. I might also be able to make the drawings available on-line. In the meantime I would be pleased to send photocopies to anybody interested – coastal vice-county recorders might well find them useful.

***Centaurea nigra* (Common Knapweed) / *C. debeauxii* (Chalk Knapweed)**

After publication of the *New flora of the British Isles* (3rd ed.) (Stace, 2010), I had a look at several dozen knapweed populations, mostly in Norfolk but also in Cumbria, finding plants only conforming to *C. debeauxii*. In the Swann collection at NWH, however, I found three out of around 20 Norfolk specimens fitting with *C. nigra*.

The main floral characters seemed to work well, but only once I realised that the crucial phyllary differences in Stace apply only to the lower third of the capitulum. The basal third in *C. debeauxii* looks largely pale brown (or pale green at first) because the black expanded tips of the lower (outer) phyllaries are very

small, with undivided portions that are narrowly lanceolate (or even near linear at the very base), thus exposing the pale bases of the upper (inner) phyllaries beneath. In *C. nigra* the lower third of the capitulum is almost a confluent black, due to much larger, closely spaced black phyllary tips, the undivided portions of which are broadly ovate-orbicular. In both taxa the upper two-thirds of the capitulum is almost completely black, as all the phyllary tips are this shape and contiguous to overlapping.



The three specimens in **NWH** that corresponded to *C. nigra* on phyllary characters did all have large capitula (≥ 15 mm diam.), but I did not check the swelling on the peduncles, the other key character. Leaf shape in the numerous *C. debeauxii* I examined, both in the field and in **NWH**, was extremely variable, with some plants with typical phyllary characters having undivided leaves (“often more deeply lobed” in Stace).

It is worth noting that all the *C. debeauxii* plants I found had even more narrow phyllary tips on the lower half of the capitula than shown in the Stace illustration – there seem always to be some right at the capitulum base with very narrowly triangular or near linear undivided portions. This would appear to be a very useful character.

The narrowness of the undivided portion of the phyllary tips at the base of the capitulum (lower third) seems a more fundamental distinction than the exposure of the underlying upper phyllary bases – I have found quite a few ‘plants’ with small capitula where the phyllary tips near the base were much larger than the typical form and therefore much more closely spaced, but still showed the characteristic narrowly lanceolate to near linear shape – I think these plants should probably be regarded as *C. debeauxii*. Stace, however, mentions that such intermediates could be hybrids, or an indication that the two taxa are not separate species.

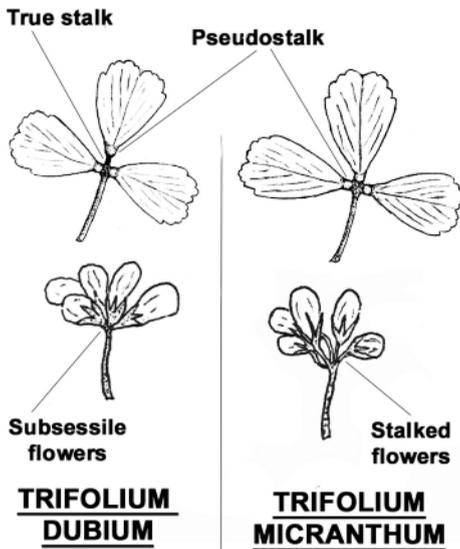
***Trifolium dubium* (Lesser Trefoil) / *T. micranthum* (Slender Trefoil) / *Medicago lupulina* (Black Medick)**

There is much overlap between flower numbers in the first two of these species – 3-20 vs. 1-10 in Stace, and 4-26 vs. 2-6 in ‘CTW’ (Clapham *et al.*, 1962). According to these figures, plants with 3-10 flowers can possibly be either species, and those with 4-6 (a frequent situation) certainly either. Furthermore, *T. dubium* is very variable in size, and plants growing on the poorest soils, where one is looking for *T. micranthum*, can be very small indeed.

In my experience, it is all too easy in tiny plants to have a cursory look for the central leaflet stalking of *T. dubium*, miss it, and make a determination of *T. micranthum*. Another problem is that the central leaflet can be said to be stalked in both taxa – the central leaflet has a short, cylindrical basal portion in *T. dubium*, which could be called a ‘pseudostalk’, but this is present on all three leaflets, in both species. The central leaflet stalking in *T. dubium* means the presence of a further, usually longer, stalk as well. Usually this ‘true stalk’ is darker reddish-green, contrasting with the whitish pseudostalk, and separated from it by a visible joint. The true stalk can be very long and obvious, but can also be very short and easily missed.

The pale ‘pseudostalks’ and dark reddish central true stalk occur in other *Trifolium* species and even in *Medicago lupulina*! The

medick is usually hairier and a yellow-green rather than grey-green colour, but subglabrous, grey plants do occur. The diagnostic ‘mucro’ can be reduced to the tiniest vein and is often anyway bent downwards and only visible on looking at the leaflet tip from the side. The very conspicuous, large, pale ensheathing stipules, often ‘telescoped’ into each other, are very helpful.



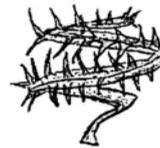
The best floral character for *T. micranthum* is not flower number but its long stalked flowers, giving the inflorescence a completely different look from those of the other trefoils, where the flowers are subsessile and arise more or less from the same spot to form a dense ‘head’ (in fact still a very congested raceme). This is well shown in some illustrations, but little remarked upon. Stace mentions the longer pedicels (<1.5mm as opposed to <1.0mm), but this small difference makes for a surprisingly different, loose-looking, inflorescence. This is a very good field character (see illustration).

***Medicago polymorpha* (Toothed Medick) / *M. arabica* (Spotted Medick)**

The available illustrations for *Medicago* fruits, other than for *M. lupulina* and *M. sativa* (Lucerne) always look much the same, and, at least in this pairing, tend not to show the obvious differences. The population of

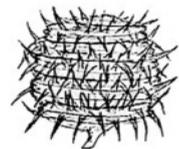
M. polymorpha near the north Norfolk coast, quite possibly introduced in grass seed (see below), has very few coils to the fruit, always 2.0-2.5 (1.5-5 in Stace), whereas *M. arabica* in the area has 3-4 (6) (much as in Stace). Most strikingly, however, one can see clear daylight between the two full coils in *M. polymorpha*, which are angled and not parallel to each other, and there is nearly always a small half coil on the top. In *M. arabica*, the pod edges are thicker and grooved on each side of the margin. But much more useful is the fact that the coils are parallel and compressed tightly together to form a confluent doughnut or barrel shape with the ‘top’ coil more or less the same size. Although grooving, veining, and mode of origin of the spines may be necessary to separate rarer species, these characters seem to me to be confusing and unnecessary in this pairing.

MEDICAGO POLYMORPHA



Coils divergent with marked gaps

MEDICAGO ARABICA



Coils parallel and contiguous

MEDICAGO FRUITS (N. NORFOLK POPULATION)

M. polymorpha is most commonly found on very poor suburban road verges near the sea in our area, sometimes with other presumed ‘grass seed aliens’, such as *Erodium moschatum* (Musk Stork’s-bill) and *Trifolium striatum* (Striated Clover), and often mixed with *M. arabica*. The latter quite often has only a very small central leaflet blotch, or occasionally none at all. In this circumstance *M. polymorpha* usually stands out as being smaller and paler leaved, and with noticeably smaller, paler, flowers. As Poland & Clement (2009) point out, *M. polymorpha* has more lateral veins on the leaves than *P. arabica* ((5) 6-8 (9) vs. 4-6 in the population I looked at).

The deeply lacinate stipules are also important of course for confirmation of *M. polymorpha*, but three other species have this character, so a specimen should be taken for keying out and possible referral.

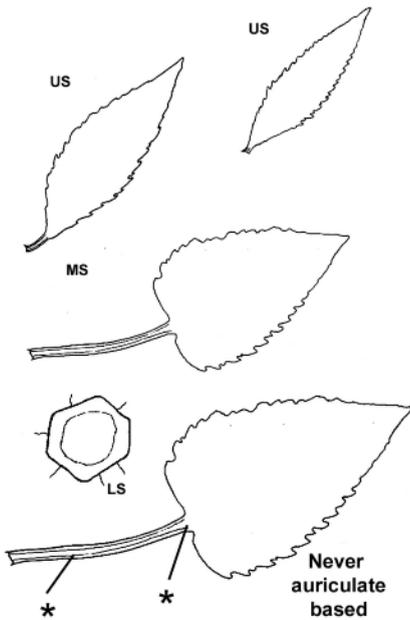
***Campanula latifolia* (Great Bellflower) / *C. trachelium* (Nettle-leaved Bellflower)**

Over the last few years the group has, on several occasions, found a tall *Campanula* at the pre-flowering stage, with only obscurely angled stems and lanceolate, finely serrate leaves, all features suggesting *C. latifolia*. Unfortunately, we became confused on determination because the Stace key has this species with “middle and lower stem leaves sessile and cuneate at the base”. These plants had all lower leaves long-petiolate, and a few of the lowest leaves had bases that were rounded-subcordate – yet the overall leaf shape did not seem right for *C. trachelium*.

In view of this problem, I had a look last year at two populations of *C. latifolia* I know well at the flowering stage, and two of *C. trachelium*, as well as a few specimens in the NWH collection. By far the most striking difference was in leaf shape and serration, and the lower stem leaves of both species were petiolate, with some petioles in *C. latifolia* up to 7cms long! Furthermore, some of the lowermost leaves of *C. latifolia* were confirmed to be rounded-subcordate, rather than cuneate based. The stems in *C. latifolia* were obscurely angled, but those in *C. trachelium* were sharply angled to narrowly winged, as in Poland & Clement. The stems of both taxa had sparse bristly hairs, and degree of hairiness did not seem to be a very good distinguishing character.

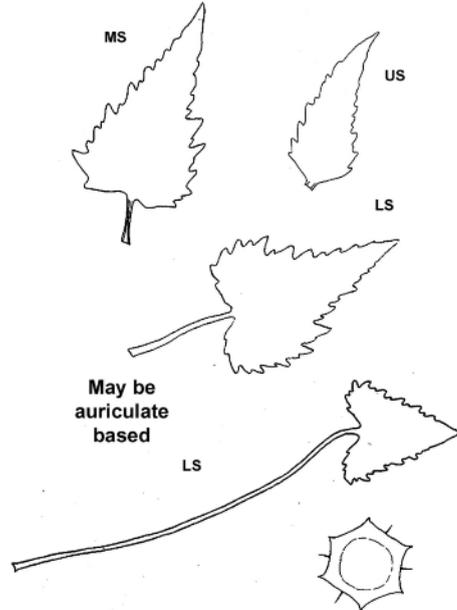
The best vegetative characters to separate this pairing seem to be the broadly ovate to equilateral triangular shape of some leaves in

Campanula latifolia (leaf outlines)



Middle and lower stem - leaves are always petiolate (not sessile), and may have rounded - subcordate (not cuneate) bases.

Campanula trachelium (leaf outlines)



Middle and lower stem leaves always long petiolate and may be auriculate based; upper stem leaves can be sessile and cuneate based.

C. trachelium and especially their very deep biserration, with the primary serrations sometimes amounting almost to lobing – all leaves in *C. latifolia* were fairly narrowly lanceolate and finely serrate. All lower and midstream leaves in *C. trachelium* were subcordate – cordate at the base, most deeply so, and sometimes nearly auriculate. The leaf bases in *C. latifolia* can be subcordate low down, but the mid and upper stem leaves are always definitely cuneate based.

As mentioned in ‘CTW’ and in Poland & Clement, it is the mid- and upper-stem leaves, not the lower, that tend to be sessile in *C. latifolia* and petiolate in *C. trachelium*. Certainly the lower stem leaves are *not* sessile in *C. latifolia*. It is leaf shape and leaf serration, plus angling/winging of the stem, that best separate this pair at the pre-flowering stage.

***Lotus corniculatus* (Common Bird-foot-trefoil) / *L. pedunculatus* (Greater Bird’s-foot-trefoil)**

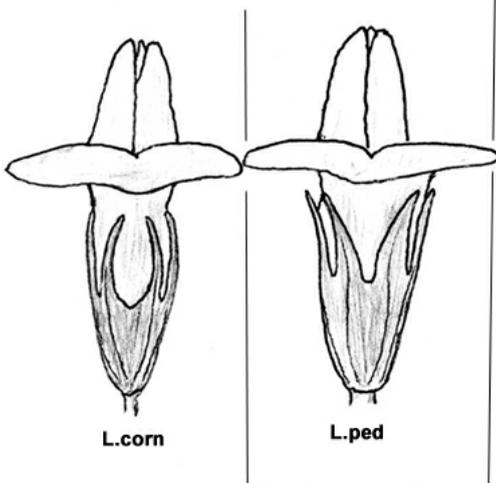
This pair is not usually a problem, one being typically short, decumbent and close to the ground, the other much taller, ascending and scrambling, with much larger, floppier leaflets.

However, plants with intermediate habit occur and are a not infrequent difficulty. The hollow stem character is not very constant, depends on the level at which the stem is divided, and does not separate *L. pedunculatus* from *L. corniculatus* var. *sativus*.

The raised 2° veins under the leaf (Poland & Clement, 2009) are a good way of confirming *L. pedunculatus* when necessary, and are absent on *L. corniculatus* var. *sativus* as well, although the leaves of this form otherwise can look much like *L. pedunculatus*.

The shape of the sinus between the upper two calyx teeth can be very helpful, but the meaning of ‘acute’ and ‘obtuse’ seems to cause confusion, mainly I think because the inner edges of the sinuses are curved, so that a true angle cannot really be defined. The essential difference is that the inner edges of the sinus, and the calyx teeth themselves, curve inwards in *L. corniculatus* (looking like an earwig’s pincer) and are straight or usually outwardly curved in *L. pedunculatus* (which is also the reason for the reflexed calyx teeth in bud, a very reliable character). The upper calyx sinus character is present in *L. corniculatus* var. *sativus* as well as in the native form.

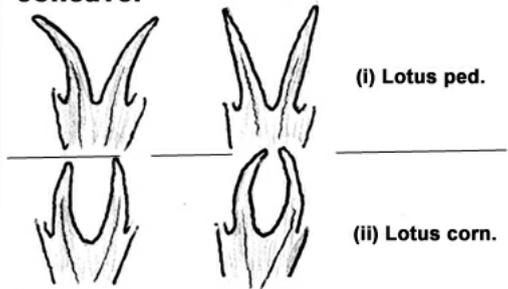
TYPICAL



ATYPICAL (EXTREMES)

(i) *Lotus ped.*:- upper sinus lobes always straight to outwardly curved, inner edge convex.

(ii) *Lotus corn.*:- upper sinus lobes always inwardly curved, inner edge concave.

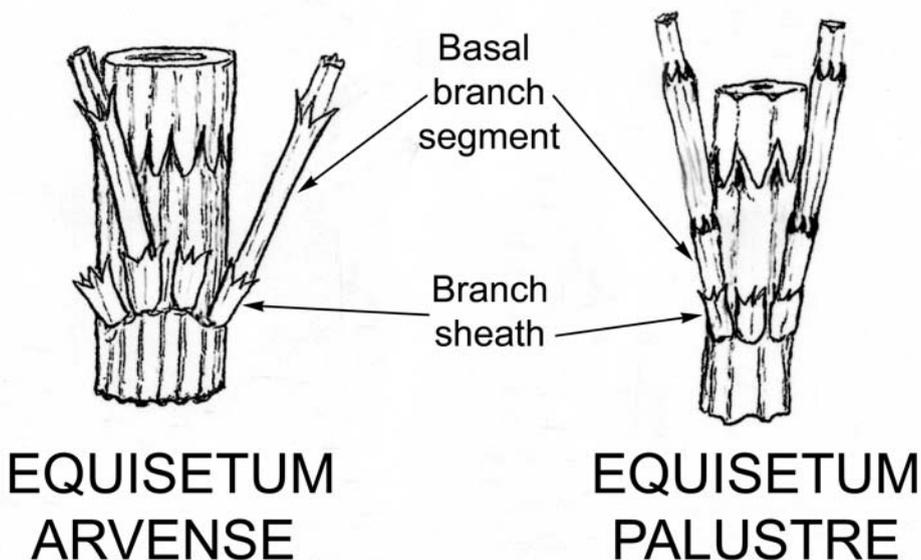


UPPER CALYX SINUS IN LOTUS CORNICULATUS & L. PEDUNCULATUS

***Equisetum arvense* (Field Horsetail) / *E. palustre* (Marsh Horsetail) (correction)**

A misplaced pointer made a nonsense of this section of my first article. I was meaning to show how the short ‘basal sheaths’ (or basal scales - see Page, 1997) of the branches can be taken as the basal branch segment (first inter-

node), resulting in *E. arvense* being misidentified as *E. palustre*, as shown in the illustration below. Sometimes the basal sheaths are black and obviously different from the branch segments above, but they look very much like them when the same green colour.

***Polygonum aviculare* agg. (knotgrasses)**

The main key characters used by Stace to separate the three southern taxa within *Polygonum aviculare* agg. are isophylly/heterophylly, achene length and shape, leaf shape and width, and tepal fusion, together with tepal lobe shape and whether the achene is exposed between the tips of the lobes or not (Stace, 2010). In my experience in Norfolk, there are quite frequent examples where these characters do not correlate, both in separating *P. aviculare* s. str. (Knotgrass) from *P. arenastrum* (Equal-leaved Knotgrass), and, in one striking instance, in determining *P. rurivagum* (Cornfield Knotgrass) (see below and illustration).

In some instances problems occur because of difficulties in interpreting these key characters. It is often difficult to demonstrate heterophylly and not only because the main stem leaves may

be lost (Stace, 2010). Plants frequently show bifurcate (equal) branching for much of their length, so that there are no main stem and branch stem leaves to compare, and in such plants the true (much narrower) branch stems may be so near the shoot tip that one wonders if the leaves on them are fully grown. Such shoot tips in *P. arenastrum* can show slight heterophylly.

In my view, leaf shape is a pretty good ‘proxy’ for the presence or absence of heterophylly, and much more useful in the field. Isophyllous plants usually have dark green elliptic, blunt tipped, leaves, short internodes, and a prostrate habit (*P. arenastrum*). Heterophyllous plants usually have mid-green lanceolate (-ovate) leaves with their distal halves attenuating very gradually to a very acute tip (*P. aviculare* s. str.), or very long, narrow, linear-lanceolate leaves with near

parallel sides for much of their length (*P. rurivagum*).

Tepal fusion is not as useful a character as was once thought, especially in the field. Old floras used to have tepal fusion as around half or \geq third for *P. arenastrum* and “at the base only” or \leq $\frac{1}{4}$ for *P. aviculare* and *P. rurivagum*. Unfortunately, all examples I have measured of the last two species have had tepal fusions between 30 and 40%. This has been recognised by Stace in his 3rd edition (Stace, 2010), where he uses a cut off point of 40% rather than two non-overlapping ranges. As a result one really has to look at 5-10 flowers, and preferably use a micrometer, to make the distinction (see illustration). It should also be realised that tepal fusion must be measured in flowers with mature fruits visible – fusion can be around a third in *P. arenastrum* at anthesis, only becoming around a half when the achene and perianth tube have elongated.

Achene shape is much more useful in distinguishing *P. arenastrum* from *P. aviculare s.str./P. rurivagum*, and is readily used in the field. Ripe, blackish achenes can be obtained by rolling several flowers vigorously between the palms to remove the perianth, and the shape is best seen by holding the achene by the ‘blunt end’ between finger and thumb, and viewing from the ‘sharp end’. In *P. arenastrum*, two sides usually look convex and the third side concave, but the third side is often only very minimally concave, flat, or slightly convex. The shape in *P. aviculare/P. rurivagum* is usually more clear-cut, with all three sides deeply concave. Fruit length would seem also to separate *P. arenastrum* (< 2.5mm) from *P. aviculare s. str./P. rurivagum* (>2.5mm) according to the standard floras.

Even if one avoids pitfalls in the interpretation of characters, there are undoubtedly frequent ‘intermediates’, which often have to be assigned to *P. aviculare* agg. for recording purposes. Here are four rather more clear-cut forms, all from Norfolk:-

(i) Plants that would be clearly assigned to *P. arenastrum* on fruit and flower characters, leaf shape and isophylly, but with larger

leaves, a decumbent to semi-erect habit and long internodes. Plants like this differ from classical *P. arenastrum* only in habit and jizz, but can easily be taken as *P. aviculare s. str.* at a glance. This seems to be the most common ‘intermediate’ form, and, in my experience, occurs chiefly on non-trampled urban substrates.

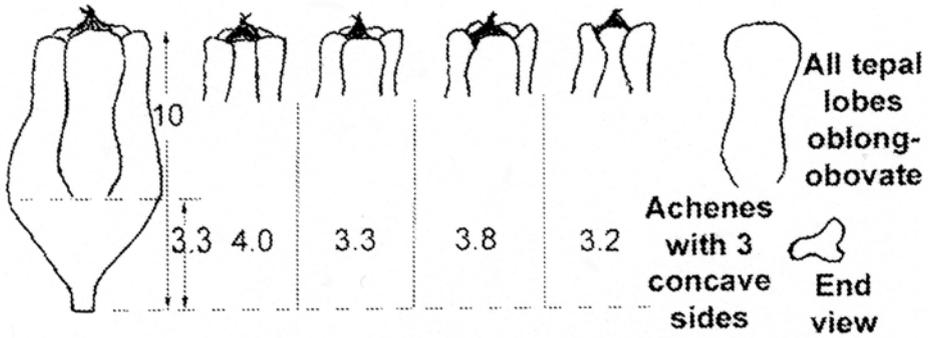
(ii) Procumbent, isophyllous plants with fruit and flower characters of *P. arenastrum*, but with some lanceolate-ob lanceolate (rather than elliptic) leaves.

(iii) Plants typical of *P. aviculare s. str.* in fruit and flower characters, and with gross heterophylly, but with rather parallel sided, oblong-elliptic (rather than lanceolate) leaves.

(iv) One population of *P. aviculare* agg., found by the Norfolk Flora Group in 2009 (Beetley, v.c.28) on consolidated arable land, was accepted by the referee as *P. rurivagum*, but had the tepal lobe shape of *P. aviculare/arenastrum*, with expanded tips and no achene exposure (see illustration p. 15), and a strictly procumbent habit – all of the hundred or so plants were absolutely prostrate (see illustration p. 15). These plants were markedly heterophyllous, with extremely long and narrowly linear-lanceolate main stem leaves (22 - 29 mm x 2.0 – 3.0 mm), and very long ochreae teeth (10 – 20 mm), yet these classic features of *P. rurivagum* went along with the equally classic features of *P. arenastrum* and *P. aviculare s.str.* described above.

The group as a whole seems to be always self-fertilised (Styles, 1962, in Grime, Hodgson and Hunt, 2007), so these intermediates are unlikely to be hybrids and are presumably examples of the true-breeding lines that can develop in an inbreeding group. Stace, in his generic description, mentions that many such forms could be given taxonomic status, but that “recognition of a third common taxon (*P. neglectum*) ... appears not to aid their determination”.

It is interesting in this regard to note that a large morphometric study in Belgium (Meerts *et al.*, 1990) was unable to define more than one species! The study assessed 16 morphological characters in 300 plants from 27



All leaves linear-lanceolate, 2.0 - 3.0 mm wide;
ochreae teeth 10 - 20 mm

**POLYGONUM AVICULARE AGG. :- PLANT WITH LEAF
SHAPE/WIDTH, AND OCHRAE LENGTH, OF
P. RURIVAGUM, BUT STRICTLY PROCUMBENT AND WITH
EXPANDED TEPAL LOBE TIPS LIKE P. AREN./P. AVIC S.L.**



Photocopy of same plant from which the above drawings were made, showing very narrow, linear-lanceolate leaves characteristic of *P. rurivagum*, Beetley (v.c.29), 2009

populations from the whole ecological range of the group in Belgium, using principle component analysis, cluster analysis, and discriminant analysis, and could only define four segregates within one species: *P. aviculare* ssp. *aviculare* (= *P. heterophyllum* or *P. aviculare* s. str.) with two varieties (var. *monspeliense* and var. *calcatum*), and *P. aviculare* ssp. *aequale* (= *P. arenastrum*). *P. rurivagum* has been described from Belgium (*Flora Europaea*, Vol. 1 (2nd ed., 1993)), but was not supported on this evidence.

It is possible that *P. rurivagum* has separated further in the British Isles than in Belgium, but the restriction of this taxon to arable land would seem to indicate varietal status as an ecotype. Varietal status would also seem best for forms like the first three described above, each of which has only one or two characters distinguishing them from the two common taxa, and presumably therefore only a one or two gene difference (see Sell & Murrell, 2006; p. xviii; Bateman, 2011). However, these forms do not seem to show any strict ecological isolation like *P. rurivagum*, so probably do not merit even this rank.

The Beetley plant above would seem to show that even *P. rurivagum* is not a very well-defined entity. Giving even more ill-defined forms taxonomic status, at whatever rank, will not promote study and recognition of their distribution or ecology. The group is so common, and variations so frequent, that few recorders are going to be able to select plants to send to the referee.

Salix cinerea* (Grey Willow) ssp. *oleifolia* / ssp. *cinerea

The best character with this pairing is undoubtedly the rusty (or coppery) hairs on the underleaf of ssp. *oleifolia* (Meikle, 1984), but these hairs are not in themselves diagnostic as they can also occur in hybrids between the two subspecies (Meikle & Webb, pers. comm.). In *BSBI News* 117, I suggested that ssp. *oleifolia* might have been over-recorded in E. Norfolk (v.c.27), and in Suffolk, probably for this reason (Leaney, 2011) – it is the usual subspecies outside East Anglia. Alec Bull, former v.c.27 recorder, agreed that this might be the

case in his article in the next edition (Bull, 2011).

I have found or seen five examples of ssp. *oleifolia* from E. Norfolk or N. Suffolk over the last few years, all confirmed by Meikle & Webb. Examining them under the microscope, at up to ×40 magnification, they showed the following features in addition to rusty hairs:

(i) *A markedly dark green leaf upper surface*, either smooth and lustrous as in *Quercus ilex*, or a little dull and with slightly indented veins. This seems the most constant character and diagnostic – the leaf upper surface of ssp. *cinerea* is dull and a greyish mid-green.

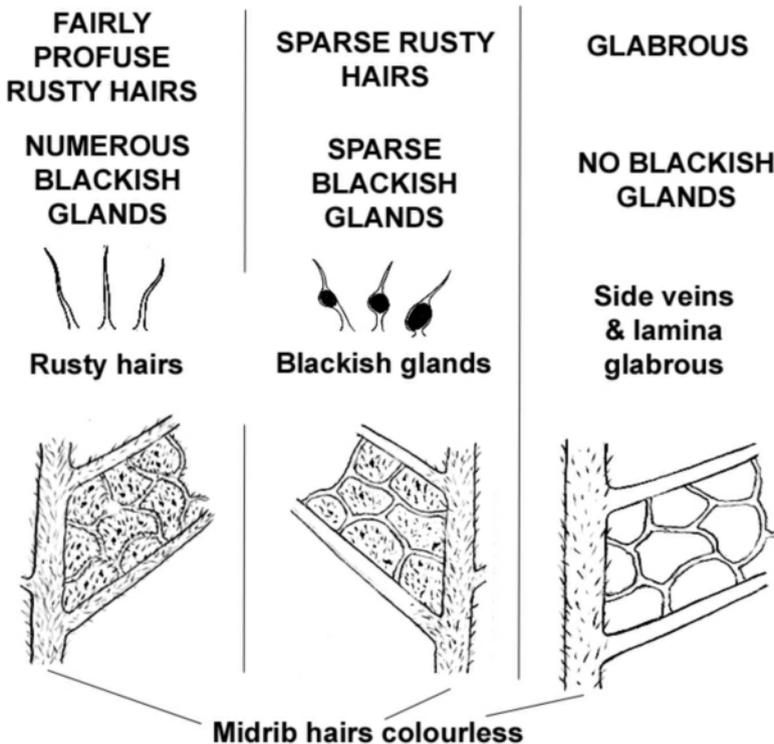
(ii) *sparse underleaf indumentum compared with ssp. cinerea, at least on the lamina, virtually all composed of rusty hairs*. It should be realised that the midrib hairs are usually colourless, and these are the only ones easy to see at ×10 in the field. One needs to look on the lamina of the underleaf, in good light, and at ×20 or more magnification, to be sure to spot the rusty hairs – they only show up as rusty or coppery when the light shines through them. They are not present until around August, and are best looked for in October, just before leaf fall, the rusty colour being due, presumably, to waste products. One should look at several leaves, because the underleaf indumentum is very variable – of three leaves examined from one tree, all had the dark green and lustrous upper surface of ssp. *oleifolia*, but only two out of the three had typical rusty hairs on the lamina – the other leaf had colourless hairs on the midrib and a completely glabrous lamina even on the veins (see illustration p. 17). A sparsely hairy or even glabrous indumentum seems to be an important character for ssp. *oleifolia*, and may mean a complete absence of rusty hairs on some leaves.

(iii) *At least some leaves on the tree oblanceolate to narrowly oblong*, and with more entire, less undulate-serrate, margins. However, leaf shape can be very variable and some leaves were quite broadly obovate, as in ssp. *cinerea*. It is possible that this character may be absent on occasions from the whole tree.

(iv) Sometimes one can also find the “minute blackish glands” of Meikle on the underleaf, but some leaves do not have them (see illustration below), and it is possible that they may be absent completely from some trees – I have not seen enough to say. Furthermore, these ‘glands’ are actually no more than collections of extra waste pigment in the rusty hairs, and not really an additional character. At ·30-40 the ‘glands’ are seen to be more or less spherical, very dark amber swellings in the body of the rusty hair, usually near the base or about half way up. The hair below and beyond is a pale coppery colour with through light, and exactly like the other rusty hairs in appearance.

All these confirmed examples of ssp. *oleifolia* were growing in dry conditions on tracks, road verges, greens or field margins, sites typical for ssp. *oleifolia* (Meikle, 1984), and never in marsh, fen or other wetland situations. Most were in sites where one would assume they had been planted. They were looked at because of their strikingly dark green leaves, making the trees look quite unlike our usual grey willows. Finding rusty hairs on *S. cinerea* hybrids, otherwise resembling *S. cinerea* ssp. *cinerea*, growing in typical wetland sites, is probably the reason for recent over-recording of ssp. *oleifolia* in our region.

INDUMENTUM OF LAMINA



**INDUMENTUM VARIATION ON LEAF UNDER SURFACE
OF SALIX CINEREA ssp. OLEIFOLIA
(3 LEAVES FROM SAME TREE)**

Acknowledgements:

I would like to thank John Akeroyd for confirming the *Polygonum rurivagum* specimen, Desmond Meikle and Jeanne Webb for determinations and correspondence concerning *Salix cinerea* ssp. *oleifolia*, and Bob Ellis for frequent discussions on some of the above problems. The opinions are all my own.

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A possible pollinator of *Orobanche rapum-genistae* (Greater Broomrape) (Orobanchaceae)

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Records of pollinators of British broomrapes *Orobanche* spp. seem to be sparse. The only information I have found about pollination of *O. rapum-genistae* Thuill. (Greater Broomrape) is that it is visited by bees (Rumsey & Jury, 1991). On 26th May 2011, in the middle of an overcast cool drizzly morning, I watched two wasps repeatedly entering the flowers of an *O. rapum-genistae*. One wasp was collected and proved to be *Dolichovespula*

sylvestris. The broomrape colony is parasitising *Ulex europaeus* within the North Wales Wildlife Trust’s Caeau Pen-y-clip nature reserve, Anglesey (grid ref.: SH555729).

Reference:

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Hybrid violets at Brockadale and Hetchell Woods, and a search for the Teesdale Violet (*Viola rupestris* F.W. Schmidt) and its hybrid (*Viola* ×*burnatii* Greml) with Common Dog Violet (*Viola riviniana* Rchb.)

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B. A. 'Jesse' Tregale and I went to Brockadale and Hetchell Wood, v.c.64, to see if we could find hybrid violets, though this was mainly Jesse's idea as I was interested in seeing *Carex ericetorum* (Rare Spring-sedge) which grows at Brockadale. The main violets that we were looking for were: *Viola riviniana* (Common Dog Violet) and *V. reichenbachiana* (Early Dog Violet), their hybrid (*Viola* ×*bavarica*) and *Viola odorata* (Sweet Violet), *V. hirta* (Hairy Violet) and their hybrid (*V.* ×*scabra*). So that the impact was minimal, only single flowers on plants with more than one flower were collected so that the plant remained intact and carried on flowering, as these taxa are perennials. The *Viola* flowers for the former species pair that we collected were varied and it was not possible to tell by looking at them which were hybrids and which were not. Some plants were also difficult to tell which species they belonged to, as some seemed to be *Viola riviniana* with pale purple to darker purple spurs, with most looking like they had a notch at the end of the spur (and therefore were potential hybrids). There were a few which were uncertain whether they were *V. riviniana* or *V. reichenbachiana* but they were one or the

other species as the pollen was more or less fully fertile in most plants (see notes on flower veins below).

Within the woods at Brockadale, plants that were sweet-smelling with very dark purple flowers were *V. odorata*. This species has stolons and very short hairs, mostly ≤0.3mm, on the petioles. Plants without stolons and longer hairs, up to 1.2mm long, were *V. hirta*. Some of the large patch-forming plants with stolons appeared to have very variable hair characters, some long and some short, and with hairs going in different directions. Flowers were collected to check for fertility. These hair characters were potentially pointing to the hybrid, *V.* ×*scabra*.

A total of 28 flowers was collected where we thought they might be potential hybrids. Only four of these belonged to the *V. odorata/hirta* group. To be certain that we had found any hybrids, the pollen was checked on all these plants for the level of fertility. The hybrid *V.* ×*bavarica* is said to be highly sterile and *V.* ×*scabra* partially sterile. The table below shows the number of flowers from each site and the individual taxa involved.

Table of pollen analysis: from flowers collected.

Taxon	Brockadale	Hetchell	Totals
<i>V. riviniana</i> *	1	2	3
<i>V. reichenbachiana</i> *	6	2	8
<i>V.</i> × <i>bavarica</i> (± sterile)	2	1 (+1 poss.)	3 (+ 1)
Specimens, not sure which species* see text	5	4	9
<i>V. hirta</i>	1	0	1
<i>V. odorata</i>	Commonly seen	Seen	Many seen
<i>V.</i> × <i>scabra</i> (partially sterile)	3	Not seen	3
TOTALS	18	10	27 (+ 1)
Comment	Not possible to tell which were hybrids in <i>V.</i> × <i>bavarica</i> on morphology alone		

This shows that there were two sterile *V. ×bavarica* hybrids from Brockadale and one from Hetchell Wood (with one that seemed partially sterile and may have been a backcross but more likely the species, just partly sterile for some reason?). The pollen in these hybrid plants was highly sterile compared to those with fertile pollen. Fig. 1 shows good pollen from *Viola riviniana* and Fig.2 shows the ± sterile pollen of *V. ×bavarica*.

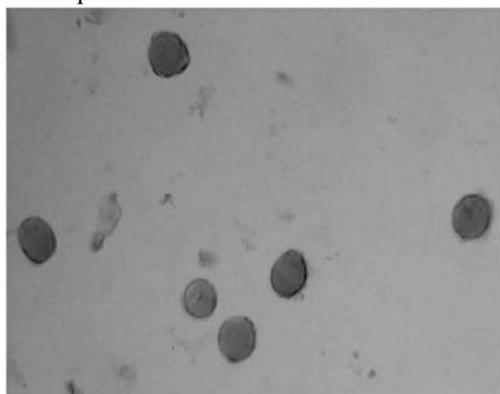


Fig. 1

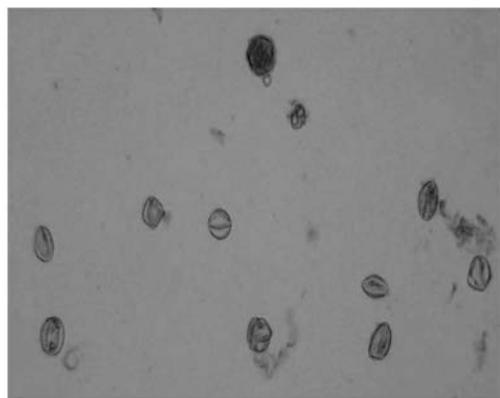


Fig 2

In relation to the other hybrid most of the large patches that we saw of the stoloniferous plants had varied hair types and were likely candidates for the hybrid *V. ×scabra*, so fewer were collected, with a few being *V. odorata* (as *V. hirta* is without stolons). While both parents seem to occur at Brockadale, *Viola odorata* seems easier to pick out, although it was evident that several more were the hybrid

when the hair characters and pollen were checked.

V. ×scabra was only seen at Brockadale, partly because we did not appear to see *V. hirta* at Hetchell Wood, although it is likely to have been there. The pollen in this hybrid is a mix of good grains seen amongst a few sterile ‘see-through’ ones (Fig. 3). It may be frequent where these parents occur and may in some instances be more common than either parent perhaps!

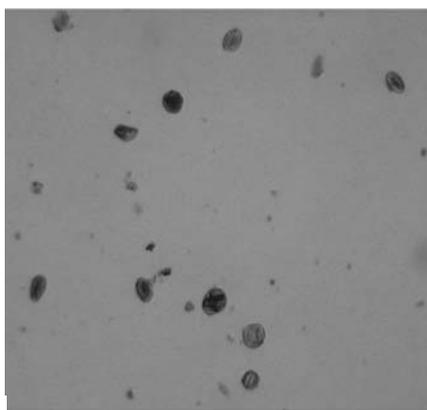


Fig. 3

It seems that the hybrid *V. ×bavarica* occurs in both woods, Brockadale and Hetchell, but in smaller numbers than one would expect or consider given the variation in what appeared to be *V. riviniana* with purple spurs (the veins in the flower suggested they were this species, see below). From 24 flowers collected by selecting only ones that might have been hybrids (rather than ones that seemed to be straight species, of which there were many) only three were definite hybrids, coincidentally in which the spur was pale-mid-purple and at least partially notched. It may be, for hybrids, that if they are pollinated by insects needing cross-pollination, then this may not be a common event and most are likely to be self-fertile and although overlap must occur, *V. reichenbachiana* maybe generally a little earlier than *V. riviniana*. The hybrid, *V. ×scabra*, from Brockadale seemed to be relatively more frequent and may be due to its stoloniferous heritage from *Viola odorata* and its partial fertility.

It seems evident from these findings that *V. ×bavarica* is probably uncommon and that it is not possible to tell if it is a hybrid from leaves, flowers, spur colour or any jizz factors given the variation in the parents, (particularly what appear to be *V. riviniana* with dark purple spurs - maybe these are a different form of it or another taxon?). Mostly, *V. riviniana* has a whitish to sometimes pale to mid-purple spur (sometimes dark purple) that is notched at the end and mid to dark violet flowers that also appear to be broad-faced, with the 'petals' being of a similar size. Often, when looking into the 'mouth', the veins are well branched and there often, but not always, appears to be a dark band of colour between these and the white of the throat (see Colour Section, Plate 3). In *V. reichenbachiana* the flowers look pale blue-purple (although colour is difficult to describe) and the spur is usually mid to dark purple, often slender and usually without a notch. The flowers often have petals that appear narrower and the upper seem to be more erect because of this. The veins in the mouth of *V. reichenbachiana* are usually straighter with very little branching (which is at the end of the veins, i.e. nearest the base of the lower-middle petal) (see Colour Section, Plate 3) and usually without a darker region between the white of the throat and the pale blue-purple colour of the flowers. There appears to be quite a bit of variation, (which seems mostly to be in *V. riviniana*, in which some may be in part from a hybrid origin) but these characters given would pick out the two species where there are several to look at.

The search for the Teesdale Violet and its hybrid

The Bradford Botany Group (BBG) had organised a trip to Ingleborough, Crummock Dale, v.c.64, to see the Teesdale Violet, (*V. rupestris*) and potentially its hybrid (*V. ×burnatii*) with *V. riviniana* (Common Dog Violet) on 26th of April 2008. This was a date that I would be unable to attend and was a bit disappointed. Nevertheless, a further trip was planned for the weekend after (03/05/08) on my own, but B.A. 'Jesse' Tregale came with me, as by then Jesse might have seen the

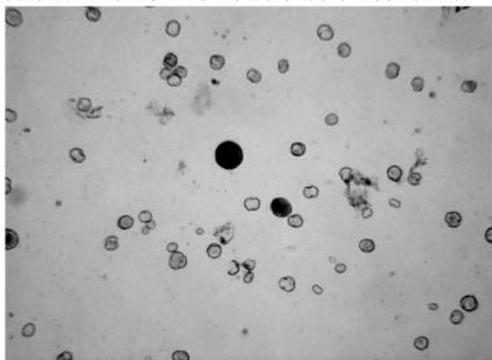
species and the hybrid on the trip mentioned above as he attended that meeting.

Like Hetchell and Brockadale, it was to be another complicated affair. On arrival it was a glorious sunny day, the plant known as Town Hall Clock (*Adoxa moschatellina*) was seen as we stepped out of the car. The summer birds were beginning to be more plentiful, with one or two Wheatears and Curlew flying about and spectacular views of two pairs of Ravens and a female Peregrine flying high in the sky. It was not far to walk to the bank where the BBG had been the previous weekend. We spent some time searching the bank, with only a few scattered plants, although leaves could be seen amongst the vegetation. We moved across to the second bank where violets became more common but still many shy flowerers. Amongst the vegetation were many plants, including *Carex caryophylla* (Spring Sedge), *C. pulicaris* (Flea Sedge) - mostly vegetative or grazed, the lovely *Sesleria caerulea* (Blue Moor-grass), and lots of the silvery leaves of *Antennaria dioica* (Mountain Everlasting) were also seen. Another highlight was spotted while checking a violet closely and that was a young plant of *Botrychium lunaria* (Moonwort).

It was difficult to determine if some of the violets were Common Dog Violet or the Teesdale Violet. However, most of the dark-flowered plants which showed a darker band of colour between the white of the throat and the rest of the lip were considered to be *V. riviniana*. The pale flowered plants (except sun-bleached flowers) were considered to be *V. rupestris*, of which there were few, at least in flower. An examination of the leaves was made in order to check whether they had an open sinus or narrow to overlapping sinus. *V. rupestris* is said to have a wide sinus with a leaf that looks a bit like the 'ace of spades', more or less blunt tipped, and the edges are said to be slightly upturned, giving it a 'scoop' shape. In *V. riviniana* the leaves are said to be more pointed and have the narrower to closed-overlapping sinus, and often the leaves are curled inward. However beware, the leaves change shape with age after anthesis. Hairs are

said to be longer in *V. riviniana*. It seemed impossible at times to tell if one was looking at *V. rupestris* or *V. riviniana*. From the plants we saw, a selection of flowers was collected. These were taken from plants that had more than one flower. The remainder of the plant was left intact to continue to flower and produce seed if it was fertile. Both species are perennial. Occasionally a few leaves were collected to see what the sinus shape was like. The flowers that had been collected were to see if an analysis of the pollen could tell us more. During our time there on Ingleborough we had seen about 150 plants with flowers and many more without, with only 22 flowers collected in total. Incidentally, in the latter part of the day we bumped into Bruce Brown and he too was looking around to see if he could see the Teesdale Violet. He teamed up with us for a short time and we pointed out some of the said differences to look for and he seemed more convinced we had seen both species. Bruce was also pleased that we had seen the diminutive Moonwort. The hybrid violet was elusive!

The pollen analysis was carried out at home using aceto-carmin staining. An anther was removed and wetted with the stain on a glass slide, and each was viewed in the same way under the microscope. Good pollen shows up as red round (plump) spots, see fig. 1, p. 20. When most of the flowers had been looked at, (all being fertile so far), it was not until number 20 that a sterile one was found. The pollen grains look like tiny glass beads of differing shapes and sizes and more or less do not stain red. For the photograph it was placed near to one of the only partially fertile grains so that many of the sterile ones can be seen next to a single grain, see fig. 4 below. The last two flowers were also fertile.



This study, although limited, shows a number of factors. Both species seem to occur on Ingleborough but it is sometimes difficult to tell them apart and the leaves seem to vary, as the size of the plant and its growing conditions affect them. It is said that the leaves change in violets as they mature and go through anthesis, so later leaves might be different from younger ones and so often confuse the issue. The paler flowers, without any darker band before the white throat of the Teesdale Violet, seems to be a useful character in combination with the ‘ace of spades’ leaf type, with no or very short even hairs on the petiole and occasionally on the leaf surface. Most of the Common Dog Violets there are extremely small (var. *minor* Valentine) but this could be due to the conditions, and further confuse the issue. Some seem to have an uncertain leaf type, although hairs are longer and often scattered and can easily be seen with a hand lens.

From 22 carefully selected flowers, only one (luckily) turned out to be the hybrid. I would suggest that the hybrid between these two species is difficult to determine and very unlikely to be confirmed in the field. Confirmation of this hybrid should be made by analysing the pollen of selected flowers of plants suspected of being the hybrid. Plants with seed pods could also be checked, as the seeds would remain very small and white in the hybrid rather than plump and brown in the fertile parents. This is the case for the hybrid violets mentioned above in the previous notes on hybrid violets, but plants are harder to find when not in flower. Both parents and the hybrid are perennials and even though common in places, I would suggest only collecting single flowers, and only where one suspects that a hybrid might occur, possibly only in new areas where the Teesdale Violet may be found in the future. The reason for this is that the hybrid (*V. ×burnatii*) is already known from the site we visited, despite it being seemingly very elusive. Like other hybrid violets it is potentially advisable to check the fertility of anthers or seed pods. That way the plants will not be affected by collecting vegetative parts.

Investigations into a previously unknown population of Black Poplar (*Populus nigra* ssp. *betulifolia*) at Formby Point, Merseyside

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Introduction

Populus nigra L. (Black Poplar) is a large broad-leaved tree of “rugged grandeur” (Rackham, 1986) that extends across northern Eurasia from Britain to central China and, in the south, from North Africa to north-west India and Afghanistan (Cooper, 2006; Meikle, 1984). This species is particularly associated with the alluvial forests of large European and Siberian rivers (Tabbush, 1998). Its taxonomy is complex, several sub-species and varieties having been described (Cooper, 2006; Penfold & Abraham, 2000). *P. nigra* ssp. *betulifolia* occurs in Britain, France and western and southern Germany, differing from the type ssp. in thin (and deciduous) pubescence of young shoots, petioles and rachises (Meikle, 1984). There are also many hybrid clones (*P. nigra* × *P. deltoides* = *Populus* × *canadensis*) some of which have the potential to back-cross with *P. nigra* (Cooper, 2006; Stace, 1971, 2010).

Reaching heights of up to 33m, this tree is considered a British native, scattered throughout most of England and Wales and frequent in east Wales, central England and East Anglia (Stace, 2010). *P. n.* ssp. *betulifolia* is absent from Cornwall and the extreme west of England and Wales, except where planted. Similarly, north of a line between the Mersey and Humber estuaries, it occurs as a planted tree but is not thought indigenous (Meikle, 1984). The taxon is locally common in the Irish midlands where it appears to be native (Hobson, 1991). Hutchinson & Preston (2002) mapped *P. n.* ssp. *betulifolia* in 601 post-1986 hectads in Great Britain, the northernmost being in south-east Scotland, and 60 in Ireland.

P. n. ssp. *betulifolia* seems not to grow naturally in British woods (Rackham, 2003) but is characteristic of lowland river valleys and flood-plains (Cooper, 2006; Hobson, 1991; Meikle, 1984). However, most rural

trees of this taxon in Britain now occur in hedgerows, while significant numbers are found on common land, village greens and beside ponds, probably reflecting its ease of vegetative propagation and popularity as a boundary marker (Cooper, 2006).

Rodwell (1991) listed *P. n.* ssp. *betulifolia* as occurring only in National Vegetation Classification community W5: *Alnus glutinosa* - *Carex paniculata* woodland, which occurs on rather infertile or moderately eutrophic soils. However, Lockton (2009) suggested it should also occur in W6: *A. glutinosa* - *Urtica dioica* woodland, which is typical of more enriched eutrophic river floodplains. He noted that the tree's apparent absence from W6 indicates that it is unable to compete successfully in the highly modified, eutrophic conditions of present-day floodplains.

Ellenberg indicator values show that Black Poplar is adapted to partial shade (L = 6), fairly wet soils (F = 8), weakly acid to basic conditions (R = 7) and is often associated with richly fertile places (N = 7). It has no tolerance to salinity (S = 0) (Hill *et al.*, 2004). Nevertheless, its widespread occurrence as a planted tree indicates that this taxon has considerable adaptability. Thus, its tolerance to air pollution led to large numbers (“Manchester Poplars”) being planted in Greater Manchester in the late 19th and early 20th centuries to replace trees killed by industrial emissions (Cooper, 2006; Red Rose Forest, 2005; Stace, 1971).

P. n. ssp. *betulifolia* has a long history of human use in Britain, having fire resistant and shock absorbent properties (A'Hara *et al.*, 2009; Cooper, 2006). Rackham (2003) found that it was the third most common surviving medieval timber after oak and elm, being used especially for crucks and floor-boards. However, these cultural uses have largely been replaced by alternative products and the tree has greatly declined in the British landscape.

Cooper (2006) cited a number of possible reasons for this, including drainage of flood-plains and changes to riparian vegetation leading to poor germination conditions, the unpopularity of female trees because of their copious fluffy seed and the introduction of faster-growing hybrid poplars in the 18th century. As a result, although the taxon is included in the Red List's "Least Concern" category (Cheffings & Farrell, 2005), it is now said to be one of Britain's most endangered trees, little new planting or regeneration having occurred over the past two centuries. Many existing specimens are about 200 years old and reaching the end of their life-spans (Cooper, 2006; Milne-Redhead, 1990).

The tree's perilous status was first highlighted by Milne-Redhead (1975; 1990), who undertook a national survey between 1973 and 1988 on behalf of the BSBI. He clarified its distribution as a lowland tree, showing that it had become scarce in several English counties and suggesting that the total population in natural or near natural habitat was not likely to be much more than 1000 individuals. Subsequent survey work, especially during the 1990s, considerably increased this estimate to about 7000 trees, of which about 600 are female (Cooper, 2006). However, this does not include the Manchester Poplar, which Milne-Redhead (1990) omitted from his national survey, describing it as "a male clone of *P. nigra* of unknown origin". This taxon had already been determined as a clone of *P. n. ssp. betulifolia* (Stace, 1971). A rough estimate by Red Rose Forest in 2000 put the Manchester Poplar population at 5-7000, but, by 2005, about half of these had been felled due to disease (Long, 2009) and this tree may soon be lost from the conurbation (Cooper, 2006).

Status in North-west England

Most of North-west England lies outside the natural range of *P. n. ssp. betulifolia*, though some of the over 300 trees counted in Cheshire (v.c. 58) may be native. Unusually, about 50% of them are female. They are found mainly along the flood-plains of the Rivers Goway and Weaver, a few being adjacent to marl-pits and ditches and in hedgerows (Cheshire Biodiver-

sity, 2008). Most trees are old and not breeding, apart from a small population around a group of marl-pits in southern Wirral (Hallwood Farm Marl Pit SSSI) which regularly produces fertile seed (H. Ash *in litt.*, 2009).

Nineteenth century floras had little to say about *P. nigra* in the Merseyside area. Thus, Hall (1838) stated only that it had occurred in the "neighbourhood of Liverpool", while Dickinson (1851) wrote: "moist woods and hedges, but introduced". Savidge *et al.* (1963) described *P. nigra* in South Lancashire (v.c. 59) as frequent, introduced and naturalised in hedges, parks and woods. The *New flora of South Lancashire* (2011 archive version) mapped *P. n. ssp. betulifolia* in 111 tetrads (97 post-1986) and referred to it as widely planted in both rural and urban areas and extensively planted in Manchester parks, the habitats being riverbanks, ditch-sides, shelterbelts, roadsides and parks (D.P.Earl, *in litt.*, 2011).

The Biodiversity Action Plan (BAP) for Lancashire (post-1974 boundary), which includes part of v.c. 59 and all of v.c. 60 (West Lancashire), has a Species Action Plan (SAP) for *P. n. ssp. betulifolia*. It states that no accurate assessment has been made of the population, though it is estimated that there are fewer than 200 trees in the County, only three (two surviving) being female. Most are considered planted but perhaps derived from local stock (Jepson, 2007; P. Jepson, *in litt.*, 2009). Greenwood (2012) described the tree as "rare" in north Lancashire (mainly v.c. 60), having been recorded in twelve tetrads. Several specimens were clearly planted but he suggested that the few surviving trees may be relicts of more widespread riverside populations. The Lancashire SAP mentioned an estimate of about 4000 Manchester Poplars in Greater Manchester County, but declining due to disease and planning decisions (Jepson, 2007).

This taxon was not shown as occurring in any of the North Merseyside boroughs in the Biodiversity Audit of North West England (Regional Biodiversity Steering Group, 1999). However, Hutchinson & Preston (2002) gave a post-1986 hectad record for Formby Point, Sefton (SD20), while the *New flora of South*

Lancashire (loc. cit.) mapped the tree in 27 (24 post-1986) North Merseyside tetrads. The oldest Sefton record of *P. nigra* (ssp. not specified) in the above Flora's database was noted at Freshfield (tetrad SD20Z) in 1907 by Liverpool Botanical Society. Several records for Sefton between 1913 and 1943 are supported by voucher specimens in LIV, material dated 1941 and 1943 being determined as *P. n.* ssp. *betulifolia*. More recently, the late Vera Gordon gathered this taxon in 1995 at Freshfield (SD20S). In 1990, she also collected material as *P. nigra* at Freshfield "south of Victoria Road carpark".

In Cumbria, *P. n.* ssp. *betulifolia* has been recorded in only three tetrads on the banks of the River Eden. These were stated to be the northernmost native records in Britain (Halliday, 1997). However, Cooper (2006) considered that the appearance of the tree at Langwathby implied a hybrid origin.

Studies at Formby Point

Introduction & methods

Although both Edmondson *et al.* (1988/89) and Gateley & Michell (2004) recorded *P. nigra* in their National Vegetation Classification studies of the Sefton Coast dunes, until recently the presence of large numbers of *P. n.* ssp. *betulifolia* trees in Sefton had been largely overlooked. However, being shown a specimen during a visit to Wirral in October 2008 reminded PAL that the late Vera Gordon had identified a tree of this taxon some years previously on the National Trust estate at Formby Point. A few days later, we visited this individual at grid reference SD274077, south of Victoria Road carpark. Not only did it possess convincing identification features but it was situated on the edge of a plantation with another 83 similar specimens (named "Vera's Grove" by PAL). There were also many other smaller trees, apparently of this taxon, on the nearby boundaries of former asparagus fields. A more detailed survey followed. In October/November 2008, the positions of putative *P. n.* ssp. *betulifolia* and hybrid trees at Formby Point were determined using a handheld GPS device and notes made on visible characteristics, this information being

stored on a database. A distribution map was produced using the Sefton Coast Geographic Information System (GIS) (Fig. 1, p. 34). The trees were revisited in spring and summer 2009 to check further identification features, additional specimens being found up to December 2009.

Dr Hilary Ash, who has considerable experience of *P. n.* ssp. *betulifolia* in Cheshire, visited Formby Point on 28th May 2009 and was able to see a large sample of the trees, including several putative hybrids. Material was sent to Dr Fiona Cooper who confirmed our provisional identification of *P. n.* ssp. *betulifolia* for the majority of specimens. Three different hybrids (*P. × canadensis*) were also present but these proved difficult to ascribe to a particular cultivar.

The history of the poplars at Formby Point was investigated by reference to estate records, Ordnance Survey maps and early aerial and ground photographs.

In autumn 2009, the circumferences of a sample of 36 trees with single trunks in sheltered sites was measured at 1.5m above the ground (see fig. 3, p. 33). Taking advantage of a project organised by Chester Zoo, samples of twigs were collected in July 2010 from *P. n.* ssp. *betulifolia* trees at Vera's Grove and Albert Road, Ravenmeols, for clone typing in Edinburgh by the Forestry Commission.

Results

Identification and appearance of trees

A check list of identification features used to distinguish *P. n.* ssp. *betulifolia* from its hybrids is given in Table 1, p. 26. An attempt to use male catkin characters based on criteria described by Meikle (1984) proved unsatisfactory, as the differences between the taxa are small. With experience, it became possible to pick out likely hybrids by their more upright stature and open canopies but closer examination of leaf and shoot characters was necessary for confirmation. The colour of young leaves in spring and the presence or absence of yellow exudate on terminal buds later in the summer were particularly useful characters. Although Cooper (2006) stated that shoot and petiole pubescence often disappears by mid-July, we did not find this to be the case at

Table 1: Characters used to distinguish *P. nigra* ssp. *betulifolia* from hybrid poplars (*P. × canadensis*) at Formby Point

	<i>P. nigra</i> ssp. <i>betulifolia</i>	<i>P. × canadensis</i>
Appearance	Leaning, often bossed trunk	Straight or slightly leaning trunk
	Irregular, deep bark fissures	More regular bark fissures
	Lower branches arching down; upper branches and twigs sweeping upwards	Branches and twigs more erect
	Dense canopy	Open canopy
Twigs	Twigs rounded in cross section, ochre-coloured	Twigs square in cross-section
	Yellow exudate around terminal bud	No yellow exudate
	Short, fine hairs on young twigs	Usually glabrous young twigs
Lateral Buds	Gingery, shiny, outward turning	Closer to stem
Leaves	Variable size, deltoid to ovate, vivid green with flattened petiole	Grey-green leaves with oval or rounded petiole
	Short, fine hairs on petiole which is rarely coloured red	Glabrous petioles, sometimes red
	Margins serrated or toothed with very few hairs	Strongly toothed margins with many fine hairs (ciliate)
	Teeth not or slightly hooked	Strongly hooked teeth
	No glands at junction of lamina and petiole	Glands present at junction of lamina and petiole
	Spiral galls often present on petioles	Galls usually absent
	Early leafing; young leaves slightly or not bronzed	Late leafing; young leaves strongly bronzed
Root suckers	No suckers, unless roots are damaged	Occasional suckers present

Sources: Cooper (2006); H. Ash, *in litt.* (2009); personal observations.

Formby Point; indeed pubescence proved easy to detect (with a hand-lens) well into the autumn, even on the petioles of freshly fallen leaves. No hybrids were found with petiole spiral galls caused by the aphid *Pemphigus spyrothecae*, these being almost always present on putative *P. n.* ssp. *betulifolia*, though sometimes infrequent and largely confined to the more sheltered side of the tree. Again, the galls were readily detected on fallen leaves as late as October/November. Leaf shape and size and degree of marginal “hooking” proved to be variable characters, though hybrids always had leaves with more hooked margins than putative *P. n.* ssp. *betulifolia*.

Although the latter taxon is said to be characterised by the presence of bosses or burrs on

the trunk (Cooper, 2006), this feature was largely confined to trees at Vera’s Grove. Few if any bosses were noted on other specimens. All the trees identified as *P. n.* ssp. *betulifolia* were male.

Putative *P. n.* ssp. *betulifolia* invariably showed the heavily leaning trunk, with down-sweeping branches and up-sweeping shoots, described in the literature (e.g. Cooper, 2006). The larger limbs of older specimens have often layered into the ground, some sending up new stems that have matured into substantial trees in their own right. Many of the trees on field boundaries and track sides were evidently coppiced or trimmed in the past and are multi-stemmed. Those in more westerly positions

frequently have their lower parts deeply buried in blown sand.

Considerable dieback of branches was seen in some Formby Point trees, especially those in particularly exposed positions or in areas where recent conifer plantings are causing over-shading. Several old individuals adjacent to footpaths and access roads have been felled in recent years, presumably because of perceived danger to the public. South of Firwood (SD281060), three ancient specimens of apparent *P. n. ssp. betulifolia* were found dead and fallen, while another had been recently broken by the weight of attached *Hedera hibernica* (Atlantic Ivy).

Distribution

A total of 653 trees of *P. n. ssp. betulifolia* was mapped at Formby Point, from Range Lane in the south (SD283054) to Victoria Road in the north (SD279082), a linear distance of about 2.75km, covering an area of about 250ha (Fig. 1). They occur in five tetrads: SD20S, SD20T, SD20U, SD20X and SD20Y. A few specimens were noted outside this limited area, including a single tree on Altcar Rifle Range (SD20X) to the south and, further north, small numbers at Ainsdale Sand Dunes National Nature Reserve (SD20V), Birkdale Sandhills Local Nature Reserve (SD31C) and Queen's Jubilee Nature Trail, Southport (SD31I). All these sites are situated on recent blown sand, part of the Sefton Coast sand-dune system. A few trees of this taxon were also noted in the built-up area of Formby (SD20Y) and alongside Moss Lane, Hightown (SD30B; SD30C), which lies 1km to the south-east of Altcar Rifle Range.

Many of the Formby Point trees were planted on boundaries, especially around fields that were used in the past for growing asparagus, a major industry in the Formby area, during the 19th and early 20th centuries (Yorke & Yorke, 2008). A second group was found on the edges of unmade tracks extending into the dunes from the adjacent built-up area. Two of these, Albert and Alexandra Roads, were constructed in the late 19th century as part of a failed speculative development to create a rival holiday resort to Southport (Gresswell, 1953; Smith, 2009).

More trees are associated with the edges of plantations of mainly *Pinus nigra* ssp. *laricio* (Corsican Pine) that were established here from the 1880s to the early 1930s by the two manorial families, Weld-Blundell and Formby (Gresswell, 1953). Yorke & Yorke (2008) referred to the use of poplars, known locally as "Frenchmen", as nurse trees for Weld-Blundell's plantations. This was mentioned in a letter dated 10th January 1921 from Charles Weld-Blundell to James Wright, the then Estate Manager, as follows:

"If 2' 6" rabbit wire is now getting a good bit cheaper I think we ought to make at least one large inclosure of Frenchmen so as to save them and if they grow as well as they did at Larkhill - wise in a large french clump every 2 years say among the Corsicans. Pray don't forget Ainsdale either - there is a lot of planting to be done there too - especially sycamore and poplars and willows."

Several *P. n. ssp. betulifolia* trees can still be found along the edges of Corsican Pine plantations in the National Trust estate between Victoria Road and Blundell Avenue, while a much smaller number was noted within the plantations, these exhibiting die-back or complete loss of lower branches.

A fourth group is associated with an area north of Lifeboat Road where commercial sand-extraction took place before and after the Second World War. About 60, often multi-stemmed, trees were found, some on low ridges left behind after sand-winning, others having been planted at the foot of a slumped former quarry face.

Finally, there is Vera's Grove. This group of 84 trees was evidently planted as a single-species block, perhaps to create shelter for asparagus fields to the east.

Hybrids

About 175 hybrid poplars (*P. ×canadensis*) were identified at Formby Point, their positions being shown in Fig. 2 (p. 34). Some of them are large trees, comparable in size to those of *P. n. ssp. betulifolia*, but many are smaller, appearing to be of more recent origin, perhaps from suckers. Their distribution is

similar to that of the latter taxon, being found on or near the edges of pine plantations, on field boundaries and track-sides, often interspersed with specimens of *P. n. ssp. betulifolia*. Almost all were recorded as males, the only trees with female catkins being four on the edge of a small disused asparagus field in the National Trust estate (SD279079). Determining the cultivars proved problematic but, based on the keys in Poland & Clement (2009) and Stace (2010), it is likely that the commonest male form is *Populus* ‘Serotina’, though a few appear to be ‘Robusta’. The rare female cultivar has bronzed young leaves and is perhaps ‘Regenerata’.

Age of trees

As tree-ring dating was not available, establishing the approximate planting dates of the trees must rely on indirect evidence. Mitchell (1974) stated that the mean growth in girth, measured at 1.5m above the ground, of most trees with a full crown is about 1 inch (2.5cm) a year, although allowance has to be made for young and very old specimens. However, he listed Black Poplar with species that may have a higher growth rate of up to 2 inches (5cm) per year. The girths of 36 *P. n. ssp. betulifolia* trees in sheltered locations range from 108 to 244cm, with a mean of 169cm (Fig. 3). Based on Mitchell’s lower growth rate, these trees might be about 43–98 years old; or half that for the higher rate.

The 1921 quotation from Charles Weld-Blundell cited above suggests that “Frenchmen” may have been used for some time, perhaps also on the adjacent Formby estate, where conifer planting began in 1884 north of Lifeboat Road and in 1901 to the south. Both estates largely ceased planting in the early 1930s, due to concerns about taxation and a requirement to obtain permission from the Local Authority for felling timber (Gresswell, 1953; Yorke & Yorke, 2008). Early Ordnance Survey (OS) maps, such as the 1893 edition at a scale of 25 inches to the mile (surveyed in 1892), show these plantations with symbols indicating mixed conifers and broad-leaved trees, supporting the idea that the latter were planted to give shelter to the young

pinus in the hostile, mobile dune landscape that applied at that time (Smith, 2009). The plantations, within or along the edges of which *P. n. ssp. betulifolia* trees presently occur, are shown on the 1893 OS map, planting having commenced near Victoria Road in 1887 (Yorke & Yorke, 2008).

Evidently, broad-leaved trees were also much planted on field boundaries and along tracks through the dunes, many being indicated on O.S. maps. A north/south boundary, about 200m long, north of Lifeboat Road (SD275069) is shown on the 1893 map as a double row of “shrub” symbols about 16m wide. This still exists, at similar width and length, as two rows of *P. n. ssp. betulifolia* trees, now severely weathered, with hollow, almost horizontal trunks and foliage largely confined to the eastern (lee) side. The appearance of these trees has changed little in the last 40 years (personal observations). They are also clearly visible on aerial photographs flown in the 1940s and are indicated on various 20th century editions of O.S. maps. They may, therefore, now be over 120 years old, as may be other trees associated with the pre-1893 pine plantations.

An 1876 Plan of Estate in the Formby Civic Society archive for the “Formby-on-Sea” development at Albert and Alexandra Roads shows broad-leaved tree symbols on the south side of Alexandra Road. This boundary is currently mainly occupied by *P. x canadensis*, while Albert Road is flanked largely by *P. n. ssp. betulifolia* (Figs. 1 & 2, p. 34). Although tree symbols are not shown on Albert Road until the O.S. 1927 edition (revised 1925/26), it is likely that the poplars were planted as amenity trees, or for shelter, shortly after the roads were laid out in the late 19th century.

More evidence comes from historic photographs. The Albert Road trees are well shown as mature, heavily weathered individuals in two Formby Civic Society archive photographs taken in summer and winter 1969 (R.A. Yorke, *in litt.* 2009; Yorke & Yorke, 2009), their appearance having altered little in 40 years. Gresswell (1953) included a 1933 photograph of Formby Promenade

(SD275056), which was built between 1876 and 1880, joining the seaward ends of Alexandra and Albert Roads. Gresswell's plate shows a row of trees just to the west, and parallel to, the promenade, this being partly buried in sand. They are not present in a similar photograph taken in about 1919 or 1920 (Formby Civic Society archive) and reproduced in Smith (2009). A row of rather aged *P. n. ssp. betulifolia* currently occupies roughly the same position as those in the 1933 photograph. If, as seems likely, these are the same trees, they must be over 80 years old.

Predictably, the above trees also appear on aerial photographs taken by the Luftwaffe in 1940/41 (Formby Civic Society archive) and 1945 (Sefton Council, Coastal Defence archive), as indeed do those at Albert Road, Range Lane and west of Asparagus Cottage, most being *P. n. ssp. betulifolia* today. The three dead individuals south of Firwood, mentioned earlier, can be clearly seen on the 1945 stereoscopic photographs as large full-crowned trees in an open landscape which has subsequently been colonised by dense secondary woodland.

Aerial photographs are also helpful in dating sand-quarries between Lifeboat Road and Wicks Lane, where some of the trees are situated. The documented history of sand-winning here has been studied by Crosby (2007). Unfortunately, most detailed plans and other written sources seem to have been lost, probably during local government reorganisation in 1974. Crosby therefore had to rely largely on minutes of the Formby Urban District Council. These do not mention sand working until 1928 and there are few references to these operations until after 1947, when mineral consents had to be sought under the Town & Country Planning Act. The 1945 aerial photographs show that the area between Lifeboat Road and Wicks Lane had been extensively worked for sand before that date, the steep quarry-face, vehicle tracks and parallel excavation channels still being visible. Although there was much bare sand, lower-lying areas had re-vegetated, so extraction must have finished some years earlier.

Similarly, a photograph taken by the Luftwaffe in 1940/41 (Formby Civic Society archive) shows more bare sand than in 1945 but also darker strips of vegetation in the quarry. These observations accord with Crosby's (2007) assertion that little, if any, sand-working took place during the Second World War. The photos show small "bushes" on the quarry floor in areas currently occupied by *P. n. ssp. betulifolia*. These individuals appear larger in the 1961 aerial photographs, providing convincing evidence that they were indeed trees of this taxon and that they were planted in the quarry before the Second World War. This would make them now at least 70 years old.

Perhaps the youngest trees of *P. n. ssp. betulifolia* at Formby Point are those currently occupying field boundaries in a large former asparagus field south of Victoria Road. They do not appear on the 1945 or 1961 aerial photographs but are present as saplings on the 1974 photos when the field was under cultivation. This suggests they were planted as wind-breaks by asparagus growers in the 1960s or very early 1970s, making them about 40-50 years old. As would be expected, these trees are now somewhat smaller than many others in the study area.

With the few exceptions mentioned above, it seems that poplars were not much planted after the 1930s when conifer planting ceased and the estates became increasingly unprofitable (Smith, 2009; Yorke & Yorke, 2008). Therefore most of the *P. n. ssp. betulifolia* trees at Formby Point should be over 70 years old, as appears to be the case.

Clone typing

Trees at Vera's Grove belong to clone 23. Being recorded mostly in Essex and Suffolk but also in Scotland, the Cotswolds and Cheshire, this clone is considered fairly common in the U.K. Albert Road samples were assigned to the less frequent clone 34, which has been found in Cheshire, Essex, Suffolk and Sussex. Both are currently available in the nursery trade (S. Bird, *in litt.*, 2011).

Discussion

Although the Formby trees possess many of the features of *P. n. ssp. betulifolia*, only the 84 trees of Vera's Grove show the heavily-bossed trunks that are said to be characteristic. However, Cooper (2006) pointed out that some individuals of this taxon do not display the bossy [*sic.*] habit, including many trees in Ireland, Cheshire and Gloucestershire. It is likely that these trees were all planted at the same time and, as clone typing demonstrates, they represent a different strain from other, non-bossed, trees elsewhere on the coast.

Except for the hybrids, most Formby Point trees have leaves with petiole spiral galls. That this gall may be specific to *P. n. ssp. betulifolia* was first suggested by Lowe (2004). However, Cook (2005) also found galls on a tree thought to be *P. n. ssp. betulifolia* × *P. nigra* var. "Italica" and stated that *Pemphigus spyrothecae* was known to occur on *P. nigra*, *P. "Italica"* and *P. balsamifera*.

The natural habitat of *P. n. ssp. betulifolia*: heavy, wet soils on river flood-plains, could hardly be more different from the study area's dune sand, which is freely draining, relatively low in nutrients and subject to occasional saline aerial deposition (Smith, 2009). These edaphic factors contrast with those inferred from the Ellenberg indicator values for this taxon. No trees were found in or near dune-slacks where a higher water-table might create more favourable conditions for growth. The more westerly located trees at Formby Point are exposed to wind-driven sand and salt-spray, this being sufficient to damage or kill the needles of such hardy species as Corsican Pine growing nearby (personal observations). Although *P. n. ssp. betulifolia* is said to have no tolerance to salinity (Hill *et al.*, 2004), Maun (2009) points out that most coastal dune plants are not halophytes, that high salinity events, such as storm-driven spray, are seasonal and mostly occur in autumn/winter when plants are dormant, and that the salt concentration of coastal dune soils is too low (due to leaching) to influence plant growth. In any event, the Formby Point trees seem to cope well with the conditions and, although severely wind-pruned, the trees have survived,

seemingly for a century or more in many cases. Evidently, the manorial estate managers of the 19th and early 20th centuries were aware of this tree's robust adaptability and planted it widely in a landscape that was much more open and therefore harsher for tree growth than that we see today (Smith, 2009).

The use of the term "Frenchmen" by Weld-Blundell to describe the planted trees is puzzling and may infer that the estate imported material from France where several poplar hybrids were developed during the early 19th century (Mitchell, 1974). Unfortunately, it has not been possible to find documented evidence for this. It seems that smaller numbers of *P. × canadensis* trees were planted at the same time as those of *P. n. ssp. betulifolia*. However, H. Ash (*in litt.*, 2008) suggested that this may have happened by mistake as, even today, the different taxa can easily get mixed up in the nursery. This point was also made by Barnes *et al.* (2000), who stated that, in Norfolk, many trees supplied by nurseries as native were later identified as hybrids.

Indirect methods for ageing trees have produced estimates that appear to be historically consistent. Thus, based on Mitchell's formula, girth measurements of individuals in sheltered positions suggest a range from 43 to 98 years, though the fact that the trees are growing in infertile dune-sand may well have reduced their expected growth rates. Estate records and maps indicate that the trees associated with the earliest pine plantations, field boundaries and track-sides could well be up to, or over, 120 years old. Ground photographs provide evidence of trees aged over 80 years at Formby Promenade, while the earliest aerial photographs (1940s) show that many of the trees were well established nearly 70 years ago. Herbarium records for the Formby area from 1907 to the 1940s also confirm the presence of *P. nigra* from about 70 to 100 years ago, some specimens being determined as *P. n. ssp. betulifolia*.

As yet, at Formby Point there is no sign of the fungus disease attributed to *Venturia populina*, which has devastated the Manchester Poplars (Red Rose Forest, 2005).

If the spores of this fungus are wind-dispersed, the prevailing westerlies may help to protect the sand-dune population.

Conservation

The population of about 650 trees of *P. n. ssp. betulifolia* at Formby Point could well be considered nationally significant, though the fact that they were planted reduces their nature conservation importance. However, these trees certainly have considerable landscape and historical value locally. Although some individuals in sheltered positions show evidence of vegetative propagation by layering, many others are heavily weathered and have extensive die-back. The natural life-span of this taxon is thought to be over 200 years (Cooper, 2006) but this may be less for trees growing in the relatively harsh conditions that apply here; indeed, several dead specimens were found during this study, while others have been felled to ensure public safety.

P. n. ssp. betulifolia is not included in the U.K. Biodiversity Action Plan but local BAPs have been drawn up in 18 administrative regions in England and five in Wales with policies to conserve this taxon (A'Hara *et al.*, 2009), though Lockton (2009) challenged the justification for this for reasons other than sentiment. All the local BAPs recognise the importance of surveying and creating inventories of existing trees and specify the need to carry out additional planting of locally sourced material (A'Hara *et al.*, 2009). Several small nurseries have been established nationally to propagate the tree, this being easy to do by cuttings (Cooper, 2006). Because of the extent of vegetative propagation in the past, relatively few clones of *P. n. ssp. betulifolia* occur in Britain and genetic diversity is low (Cottrell *et al.*, 1997). A'Hara *et al.* (2009) therefore recommended that conservationists should arrange for material to be DNA-fingerprinted to ensure that as many locally sourced clones as possible are included in propagation and planting schemes. They also suggested that priority is given to conserving the less common clones, which would include clone 34 found at Albert Road.

P. n. ssp. betulifolia does not appear in the North Merseyside BAP (Merseyside Biodiver-

sity Group, 2001). However, conservation of the Formby Point trees might be addressed through the Sefton Coast Nature Conservation Strategy and Biodiversity Delivery Plan (Sefton Coast Partnership, 2007). This includes proposals "To maintain and enhance the elements which make up the cultural landscape of the Sefton Coast; the semi-natural elements and boundary features". Currently, a Sefton Coast Landscape Partnership Scheme is seeking to take forward aspects of the Strategy through a series of HLF-funded Projects (Sefton Coast Partnership, undated).

In autumn 2010, Formby Civic Society took cuttings from clone 34 trees at Albert Road and grew them on in containers. It is hoped to plant these out in a Formby Park (R.A. Yorke, *in litt.*, 2010).

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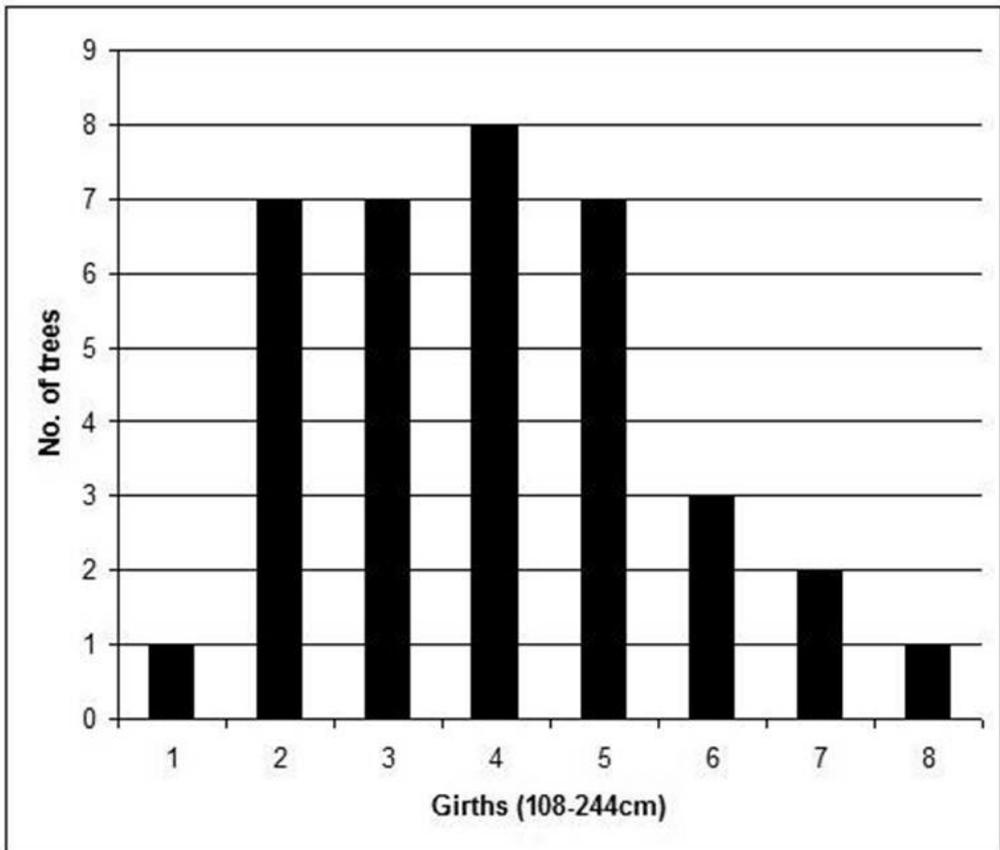


Fig. 3. Frequency distribution of girths, in units of 20cm, of 36 single-stemmed *P. n. ssp. betulifolia* trees growing in sheltered sites.



Fig. 1. Locations of *Populus nigra* ssp. *betulifolia*.

Both at Formby Point.



Fig. 2. Locations of hybrid trees (*Populus* × *canescens*)

Both at Formby Point.

The serpenticolous, dodecaploid (endemic?) ‘Shetland Mouse-ear’

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In June 1953 I landed from a MacBrayne steamer on the island of Unst with my small (125cc BSA Bantam) motor-bike. A fellow Queen Mary College (London) post-graduate, Olive Brett, also visited the island at this time. She risked a pillion ride with me, a learner driver, to various sites, and introduced me to *Cerastium nigrescens*, then called Edmonston’s Chickweed, but now the Shetland Mouse-ear of Stace (2010), growing at an altitude of 500ft. on the slopes of Keen of Hamar. This site, now part of a National Nature Reserve, includes a barren¹ area of stony debris over serpentine rock (Spence, 1957). It is neutral (pH 7.0: Proctor, 1971) and extremely rich in compounds of the phytotoxic elements nickel and chromium (Spence, 1957; Proctor, 1971). Keen of Hamar plants were found by Brett to possess $2n = 108$ chromosomes, and to be similar in this respect, and in their morphology, to plants from the Scottish highlands. They were mistakenly regarded by taxonomists at that time as representing *C. arcticum* (Brysting *et al.*, 2007; Brysting, 2008). ‘*C. arcticum*’, a truly arctic species (also with a chromosome number of 108, but with a different ancestry from *C. nigrescens*) is omitted from the latest edition of *New flora of the British Isles* (Stace, 2010).

The above Norwegian workers confirmed, on the basis of low-copy number nuclear gene sequences², that the Shetland plants belong taxonomically with others from the Scottish Highlands (as Brett had concluded) as do non-arctic plants in Norway, and not to *C. arcticum*. All records of *C. arcticum* for Britain, including those in *New atlas of the British & Irish flora* (Preston *et al.*, 2002) might now safely be altered to *C. nigrescens*. The regular separation of chromosomes into two groups of 54 at first meiotic anaphase, as recorded by Brett in Scottish and Shetland plants, and the evolutionary network proposed by Brysting (2008), together suggest that the high polyploidy of *C. nigrescens* has resulted from an ancestral combination of three separate tetraploid ($4n =$

36) lineages. *C. nigrescens* hybridises with other species, and irregular meiosis in some plants in the field, and occasional failure of seeds or seedlings reported by Brett, indicated that this was so, although the missing parent was not known at the time. Hybridisation in nature is now known to occur with *C. alpinum* (which has 72 chromosomes), but it is at rates insufficient to break down species integrity (Hagen *et al.*, (2002). *C. alpinum* is not recorded from Unst.

The dark purplish leaves (betacyanin colouration?) and small stature characteristic of the Keen of Hamar plants suggest responses to lack of water and exposure⁴ (“wind is a master factor in this habitat”: Spence, 1957). Shetland Mouse-ear will not now be recognised as representing a full endemic species, as under cultivation it was found by the Norwegian researchers “not to differ particularly from Scottish and Norwegian plants”. A designation for the Shetland plant, according to Stace (2010), might be *C. nigrescens*³ var. *nigrescens*, or it might be regarded as a subspecies of *C. nigrescens*.

Apart from a colour image from The Keen of Hamar Nature Reserve website there cannot be many published photographic records of the Shetland Mouse-ear. With belated homage to Olive Brett, who was soon to publish the key paper on the cytotoxicity of the British Mouse-ears (Brett, 1955), here is a monochrome photograph taken on our visit which relates to her chromosome count for the Unst *Cerastium nigrescens* (Fig. 1, p. 36).

¹Google Satellite views illustrate the barren nature of the vicinity.

²Some functional genes in an organism are present in variable (high or low) numbers of copies (see Wikipedia): = the polygenes of earlier usage.

³(H.C. Watson) Edmonston ex H.C. Watson (*C. arcticum auct. non Lange, C. arcticum* ssp. *edmonstonii* (Edmondston) Á. & D. Löve).

⁴Kristy *et al.* (2005) reported drought tolerance to be as important as metal tolerance in serpentine adaptation.

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Fig. 1. *Cerastium nigrescens* growing on serpentine debris, Keen of Hamar, Unst, Shetland, 28th June, 1953. Photo: D. J. Hambler.

Do you know where your vice-county boundary really is?

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Rodney Burton's note in *BSBI News* **120** (April 2012) has prompted me to point out yet another complication in the boundary problem. Members may not be aware of an often overlooked item of information regarding the precise position of the boundary.

A few years ago I was invited to join the Dorset County Boundary Group. It had been set up to investigate, in a multidisciplinary way, the boundary from its inception in the Anglo-Saxon charters to the present. For much of this period the boundary was the v.c. boundary, at least in Dorset, and so of interest to me. We are having an extraordinarily interesting time walking the boundary and recording its morphology and biota and I am learning some history. Naturally we have had many discussions of exactly where it is.

The answer to this is that in the latter half of the 19th century the Ordnance Survey set about the task of recording exactly where the boundary was in relation to the hedges, fences, streams, roads *etc.* This is, fortuitously, the time that Watson set out the vice-counties. The surveyors worked with the meresmen of each parish to agree the exact position of the administrative boundary. Their deliberations are archived in the Public Records Office at Kew as a set of field notebooks called 'boundary remarks books' and 'boundary sketch maps'. There is a succinct description of this in: <http://www.boundary-problems.co.uk/boundary-problems/hedges.html>

The results of this extensive survey were published on the large scale O.S. maps, viz. those at 1:1250 and 1:2500. To interpret the abbreviations you will need the legend at the bottom of the map, or failing that, the website: <http://www.ordnancesurvey.co.uk/oswebsite/aboutus/reports/misc/abbreviations.html>

Typically the note will say 3ft RH, which means 3 ft (or 0.91m on modern maps) from the root of the hedge. Other common abbreviations are BB – base of bank; FF – face of fence; CS – centre of stream. The convention is that the note is on the same side of the feature as the boundary. It is not unusual for the boundary to swap sides of a hedge at some point, possibly indicative of a lost field hedge perpendicular to the parish boundary. The common situation where the boundary is a metre or so from the hedge or fence will often put the ploughed field in one v.c. and its unploughed margin and hedgerow species in another.

In Dorset we are fortunate that the county council has made available to us all a large part of their map database on Dorset Explorer. As well as aerial photographs and maps of various dates, it has the definitive boundary as a separate layer. This can differ by a substantial amount from what is shown on a 1:25000 O.S. map. Fortunately this is rare. More importantly it has the O.S. notes on exactly where the boundary is and, because it includes parish boundaries, the v.c. boundary can be discerned when it diverges from the modern county. Other counties may have comparable websites.

If you have the relevant, large scale O.S. map, it might resolve problems of plants growing out of walls. On the other hand, it only shifts the problem by a metre or so! One solution might appear to be to scrap vice-counties and use grid squares (or better, sites) exclusively. Attractive though this might sound, you still have a line to locate. The precision of a handheld GPS aside, there may be a mismatch with the line on the O.S. map and the satellite system that varies throughout Britain, but that is another story.

A capital idea, but please keep all the hyphens

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Simon Harrap made clear that his detailed and well-argued article on vernacular naming of plants (Harrap, 2012) was intended to stimulate debate, so I am happy to participate. Of his six enumerated points, four addressed the use of hyphens in vernacular names, one simply stated that vernacular names need not reflect taxonomic relationships, and the last argued that vernacular names should be treated as “proper names” (and presumably also proper nouns) and thus capitalised.

I could not agree more strongly regarding capitalisation. What is the point of having recommended vernacular names for particular species if we then use exclusively lower case so that the reader cannot discern whether that species is being explicitly discussed or whether some more general statement has been made? Consider the classic example of *Dactylorhiza incarnata* ssp. *cruenta* – should this be the Bloody-early Marsh-orchid, the (annoyingly elusive?) bloody Early Marsh-orchid or the (precociously flowering?) bloody early marsh orchid?! I regret that, in my experience, capitalisation is waning, perhaps undermined by the now ubiquitous and baleful ethos of the text message.

I also agree with Simon that it is not essential that vernacular names reflect ‘taxonomic’ (more accurately, phylogenetic) relationships, though I think that this usage is *desirable*, all else being equal. It is more convenient if a Rose belongs to the genus *Rosa*, though in most cases there will be a Rock-rose (*Helianthemum*) or its vernacular equivalent to complicate matters (just how many vernacular names contain ‘lily’?).

Where I am less comfortable with Simon’s arguments is his declared war on hyphens. Although he uses Stace (2010) as his nomenclatural yardstick, he is really laying down his gauntlet to Dony, Jury & Perring (1986), only one of whom survives today to defend the positions taken in the second edition of *English names of wildflowers* (*ENoW*). Simon notes that his “impression is that some authors/editors have an aversion to a name that has three or

more words.” Indeed! A key part of the logic underpinning *ENoW* was to preclude names that contain more than two separate words, such that the vernacular names mirror formal Linnean binomials in eschewing middle names. To me, at least, this remains a sensible constraint – one that, moreover, is consistent with capitalisation of the first letter of both names in a vernacular binomial. Unfortunately, my recent experiences as a journal editor and reviewer suggest to me that, at least with regard to hyphens, anarchy already prevails.

I admit that the binomial rule creates some cumbersome names but I think that this is a small price to pay for limiting names to two components. I do agree with Simon that this and other rules of naming have not been applied consistently, and also that some of the names are suboptimally descriptive (e.g. I have always regretted the substitution of Burnt Orchid for Burnt-tip Orchid, and Green-flowered Helleborine for Pendulous-flowered Helleborine). However, I would note that perhaps the strongest case for maintaining recommended vernacular names is their potential for achieving greater stability than Linnean binomials, which remain prey to the whims of the law of priority enshrined (rather too deeply for my taste) in the *International Code of Botanical Nomenclature* (Bateman, 2009). Even if we followed Continental botanists and accepted that *Ophrys fuciflora* (Crantz) Moench is more correctly *Ophrys holoserica* (Burm. f.) Greuter, it could nonetheless happily remain the Late Spider-orchid.

It is the strength inherent in stability that discourages me from tinkering with existing vernacular names, though I admit that there is a case for reappraising all vernacular names used in the British Isles, given that a quarter century has passed since Dony *et al.* (1986) finalised their benchmark list in *ENoW*. If such a revision should ultimately be contemplated, it should certainly be done systematically and according to an explicit set of widely accepted rules.

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More on English names

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What a refreshing article on English plant names by Simon Harrap in *BSBI News* 120! His criticism of the apparently arbitrary use of hyphens in these names in ‘Stace 3’ is totally convincing. I would add to it that such an approach makes demands that no normal memory can cope with. If I want to write something with a lot of English plant names, I will not remember many of the versions in Stace, and even the ones I think I remember may be mis-remembered. So I would have to look up most of them individually, which seems inappropriately time-consuming. It certainly doesn’t make them ‘popular’ names.

I do wonder, however, why Simon went into reverse gear and allowed quite a lot of hyphens back in. Could we not start with the question “Why do we need hyphens at all?” and take a lot of convincing before accepting any? Simon argues for a number of categories of their use, but, in doing so, has to construct a somewhat complex set of rules, which most of us probably won’t use.

Only one of these rules seems to me fully convincing. Hyphens are appropriate for compound adjectives like ‘small-leaved’. This is normal English grammatical usage and should slip off the keyboard without conscious use of a rule. But the other exceptions are questionable. The main ones seem to be:

- Possessives, *e.g.* Jacob’s-ladder. The hyphen is duplication. The apostrophe already makes clear that Jacob is linked to ladder.
- Where it helps reading or pronunciation, *e.g.* St John’s-wort. See later.
- Names made up of several words, *e.g.* Lily-of-the-valley. This is another duplication.

If you use Lily of the Valley, the initial capitals for the main words make it clear it’s a name. Does it require hyphens any more than we need to call ourselves John-presland and Simon-harrap? However, there may be a few instances where their use would be unavoidable: Forget-me-not, for instance, since no one would think of spelling it otherwise.

- Names that form a related group, *e.g.* Water-lily. This seems arbitrary. Water Lily or Waterlily are quite clear. There is a logic to this rule, but I think it contradicts points he makes elsewhere. He tells us, for instance, that English names do not need to reflect taxonomic relationships, yet here he seeks to make them do so extensively. Another of his points is that you don’t need English name rules to tell you about relationships that you either know in advance or won’t pick up from the existence of a hyphen, yet isn’t that what he’s doing here? They almost invite confusion - as when Simon himself brackets *Nymphoides* with *Nuphar* and *Nymphaea* as a ‘Water-lily’ when it’s actually in an unrelated family. So, while there’s nothing illogical or invalid about this rule, I don’t think it helps.
- Where part of the name would make no sense on its own, *e.g.* Parsley-piert. Piert is actually an abbreviation of the French *perce pierre*, meaning ‘break stone’, and the plant has sometimes been called Parsley Breakstone. But even if it had no meaning, a hyphen wouldn’t give it one. So what’s wrong with Parsley Piert?

How about allowing hyphens only in compound adjectives? This raises questions about what we

should do in other cases where there are hyphens in Stace. While it may not be possible to think of any really useful guidelines, the following might be worth a thought:

- With words like wort, herb or grass, which are functionally just words for plant and therefore need no attention drawn to them, regard them as part of the name and therefore have an un-hyphenated word, *e.g.* Knotgrass.
- Where part of the name refers to the group of plants to which the example belongs, emphasise the group by having a separate word, *e.g.* Dog Rose.
- Where part of the name refers to a group of plants to which the example does not belong, think first of having a single unhyphenated word which lays less stress on the misleading group, *e.g.* Rockrose. If the result looks odd, either have separate words, or go for a single word and see if people will buy it.

These tentative suggestions raise several issues:

- Some examples would be different from names commonly used, but I think not very much.
- Some produce double letters *e.g.* Yellowwort. I can accept that without difficulty - it's better than the hyphens.
- Some of the names which would result from my 'first think' just wouldn't work, *e.g.* Stjohn'swort. I would go for St. John's Wort. In Crane'sbill, I would omit the apostrophe and have Cranesbill. My 'rule' is not meant to be inflexible.
- Other 'first think' names would look unfamiliar, and people might be reluctant to use them. While Waterlily might come to be accepted, would Marshmarigold or Deadlynightshade or Eveningprimrose? The approach is logical, but may not be widely workable. But if some people write Marshmarigold and some Marsh Marigold, does it matter? Which is the worse point of departure – a logical principle or confusing hyphens?

I realise that my last two suggestions try to link English names with classification, which both Simon and I say is unnecessary. However, the principles involved are very simple, requiring

only the most elementary knowledge of plant classification, and, hopefully, would not cause confusion.

As Simon points out, we need to see English names as part of our culture and not change things more than we have to. The guidelines I have suggested are built on that culture and try to make it more logical. Where they contradict tradition, tradition is likely to win, but perhaps that's part of the culture, and we should treasure it. Civilisation as we know it is preserved! Perhaps it's not appropriate to have guidelines at all - did they play any consistent part in the original naming? I would not be distressed if we operated rule-free - but with minimal use of hyphens. Tradition would ensure that the outcome was a long way short of chaos. Even if such variations are seen as a problem, using hyphens beyond compound adjective formation is unlikely to solve it. It is more likely to make it worse - and add to the memory load.

Simon, of course, is writing a book and has to decide which names to use. My sympathies are with him, and I have no doubt I will be pleased with his general direction, if not every detail.

And another thing! Why can we have only one English name for so many plants? Again, we are losing part of our culture by leaving out widely used names.

Finally, a few examples of what I would feel inclined to do, subject to further argument:

Aesculus hippocastanum (Horse Chestnut)
Atriplex prostrata (Hastate Orache)
Barbarea verna (American Wintercress)
Blackstonia perfoliata (Yellowwort)
Caltha palustris (Marsh Marigold)
Cerastium tomentosum (Snow in Summer)
Epilobium montanum (Broad-leaved Willowherb)
Geranium lucidum (Shining Cranesbill)
Helianthemum nummularium (Rockrose)
Hypericum perforatum (Common St John's Wort)
Mercurialis perennis (Dog's Mercury)
Nymphaea alba (White Waterlily)
Ornithogalum angustifolium (Common Star of Bethlehem)
Polygonum aviculare (Knotgrass)
Pulmonaria officinalis (Lungwort)
Sonchus asper (Prickly Sowthistle)
Teucrium scorodonia (Wood Sage)
Umbilicus rupestris (Wall Pennywort)

Sorbus devoniensis: the ‘Otmast’ of Heligan

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Two unexpected emails were received from staff at The Lost Gardens of Heligan, about a month apart, at the end of 2010, in response to an article I had written for the Devon Wildlife Trust (Cann, 2009) highlighting my interest in *Sorbus devoniensis*. The article was also reproduced for Plant Heritage Devon Group’s newsletter (Cann, 2010). The former magically appeared on the internet shortly after publication and was seen by Jim Briggs (Heligan Estate Manager), and the latter was shown to Peter Stafford (Managing Director) by Ros Smith of Duchy College, Camborne.

Staff at Heligan had been made aware of an unusual fruiting tree (see *Heligan Survivors*, 2007 published by Alison Hodge) following the presentation of copies of documents from the Courtney Library of Truro Museum at a Heligan Friends’ Evening. One concerned the collection and use of a tree fruit called ‘otmast’ at Heligan in 1912, from two widely separated locations. They were said to be used for “stuffing cooked pheasants”. The identity of the tree was not known and a query was put in a subsequent Friend’s Newsletter. Mrs June Ford (a long-time Friend of Heligan) was able to relate how her father Mr Preston Thomas had taken her to two locations in the late 1930s and early 1940s (each with a single tree) where the trees would be climbed and the fruits thrown down, so presumably large, strong trees. Mr Leonard Ford set out to find the trees. After much searching at both locations, an unknown tree was found at one and a specimen, including some fruit was determined as *Sorbus devoniensis* by staff at the Westonbirt Arboretum, Gloucestershire. This was reported in *Countryside Matters* with Trevor Beer, *Western Morning News*, 29 January 2002, page 28.

Peter Stafford kindly sent me a copy of *Heligan Survivors*. Following this, arrangements were made to see the tree on the 21st June 2011. Jim Briggs took me to the site of the extant tree. It is not within the Lost Gardens of Heligan but in woodland on the

greater estate and managed by a neighbouring farmer, Richard Lobb, who met us at the tree. With confirmation that it was *Sorbus devoniensis* it became the most southerly specimen of the species. It is a coppice tree *i.e.* not a single trunk, the main trunk a minimum 10m high (the canopy is lost in the foliage of the surrounding trees, evergreen oaks and Beech), with two side trunks at an angle of c.40 degrees; and it is sadly hollow-trunked in parts of the lower 2m (see Colour Section, Plate 2). If the main trunk is coppice regrowth then the age is greater than any tree ring count that trunk could have given if it were sound. Jim asked for confirmation of a plant in the garden itself. This is also *S. devoniensis*, presumably self-sown, on a boundary wall of the north of the garden. There had been a second plant in the garden, possibly also self-sown *S. devoniensis*. In 2006 a sapling was planted in the Poultry Orchard and fruited well in 2010 and 2011 (see Colour Section, Plate 2).

“We are delighted to have the identification of this tree confirmed and by doing so have undoubtedly saved it from recent woodland clearance and have in fact turned this to the tree’s advantage by providing it with more light. We hold high hopes that we might see some flowering in 2012 or 13” (Jim Briggs, pers. comm.).

Just as new populations of Plymouth pear (*Pyrus cordata*) were discovered around Truro in 1986 (French *et. al.*, 1999), a long distance from the Plymouth populations, this population has taken time to be discovered. This is a record of great importance. It represents the third location for *S. devoniensis* in Cornwall (all v.c.2). Of the previous two records, only one is extant (Boyton, East Cornwall). There is no reason to doubt the native status of the Estate plant. It is c.34 miles from the nearest known plants on Roborough Down, north of Plymouth (and c.35 miles from Boyton). Those plants are themselves 20 miles from the nearest plants and represent the same long

distance dispersal exhibited in the populations at Little Haldon and Chudleigh (both v.c.3), the two populations in South Somerset (v.c.5) and those of south-east Ireland.

Acknowledgements:

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Sorbus devoniensis at Little Haldon, Devon

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The earliest known record of *Sorbus devoniensis* on Little Haldon, Bishopsteignton (part of a north to south ridge in south-east Devon) was in 1936. This was published in the Botanical Exchange Club Report (1937: 400), repeated in the *Flora of Devon* (Martin & Fraser, 1939) and was supported by herbarium specimens at Torquay Museum and the Natural History Museum, London. It was unusual because of its relative remoteness from other populations. It is odd that it was not recorded or collected sooner at this location, based on the current population and large trunk size of existing trees. It is a significant population, as it is a large distance from the main area of distribution – around 35km. A survey in 2008 recorded 396 individuals, four with a girth over 100cm, of which one had a girth of 150cm.

This hill-top population is neighboured by two others: two bushes in a hedge at Chudleigh 8.5km away, and quarry-edge plants at the bottom of Little Haldon, of considerable age.

However, searching the documented specimens on the website for ‘Herbaria@home’ in late December 2011 produced a specimen

collected at White Well, Haldon, in May 1848. White Well is at the western end of a narrow strip of land that contains the majority of the present population of *Sorbus devoniensis* on Little Haldon. This specimen was collected 88 years earlier than the previous specimen at Little Haldon. It is 16 years prior to the first specimen from north Devon (which has the major distribution) so is now the earliest known herbarium specimen of *Sorbus devoniensis*. The specimen was collected by William Risdon Hall Jordan in May 1848, and determined by David Price using Herbaria@home on 6th December 2011. It is in the herbarium of the University of Birmingham, specimen no. 035447.

This valuable information reduces the likelihood of it being a very recent migration or introduction. In addition it highlights the value of the ‘Herbaria@home’ project in getting specimens determined that may otherwise not be seen by people who can use them and the information they contain.

Acknowledgement:

My thanks to Tom Humphrey.

Spring flowering by *Gentianella amarella* s.l. in Anglesey (v.c.52)

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Gentians. *Gentianella amarella* s.l., have flowered in spring (April-June) on the dunes at Aberffraw, Anglesey (v.c.52). *G. amarella* s.str. (Autumn Gentian), which occurs on several Anglesey dune systems with *G. campestris* (Field Gentian), normally flowers during July-October (Stace, 2010). As substantial numbers of plants flowered in the spring during three successive years (2010-2012), it is unlikely to have been a mere aberration.

Spring flowering by gentians at Aberffraw was first noticed during a BSBI Wales field trip on 13th June 2010, when a single rather bushy plant with multiple flowers was noticed in dune slack grassland. Subsequently it was examined more closely and four much smaller plants were found in flower within c.25m of it. Some flowers on the first plant had already died back by mid-June, so it would have been in flower in May. These plants had features not fully fitting either *G. amarella* s.str. or the other closely related British taxa flowering before mid-summer (*G. anglica* (Early Gentian) and *G. uliginosa* (Dune Gentian)). In 2011 a gentian was noticed in flower at Aberffraw on 22nd April by James Robertson and, on 14th May, several plants were in flower at the 2010 spot. Later that year, ones that had flowered early were found at two other places, but their taxonomic status or causes for aberration remained enigmatic.

During 2012 more effort was made to determine how widespread the spring flowering by gentians was at Aberffraw and their particular morphological features. Near the original site five young plants about to flower were present on 21st April, and at another location c.100m away one plant had five well-developed flower buds, a smaller plant had one bud and there were six other young plants. By 27th April, at this location there were eight plants in flower or with swollen flower buds and about 20 other plants within a patch only c.10m across. On 4th

May several flowering plants were then seen at a third location by James Robertson in the short turf of sand-covered, rocky knolls. Searches here on 9th May found at least 20 in flower (see inside front cover). Several of these were flowering when so small that they barely showed in the rabbit-cropped sward. Also on 9th May, at least another 8-10 flowering plants were seen scattered over another part of Aberffraw dunes. Thus, in 2012, there were probably at least 40-50 plants that had produced flowers by early May. At the same sites on 19th and 22nd May far fewer could be found and it appeared that many of the diminutive plants had died back into the sward after having produced only 1-4 flowers or buds. Hundreds more young plants were clearly visible by then in several places. Visits on 1st and 20th June found few diminutive plants flowering but more bushy ones with multiple flowers (see inside front cover). Because they were so small the diminutive plants had been difficult to spot even in the shortest rabbit-cropped turf earlier in the season and may have been under-recorded.

Morphological features

Growth form

In general growth form the spring flowering plants could be grouped into two types (see photos in the colour section). One type were low bushy plants producing multiple flowers (sometimes >20), but, unlike most illustrations of *G. amarella* s.str., they usually lacked a clear leading shoot with branches coming from it, often producing more shoots of similar height from the base. These bushy plants seemed to produce flowers over a prolonged period, continuing into the normal flowering season for *G. amarella* s.str. The other type were diminutive plants <25mm high, producing only 1-4 flowers. Leaves on these diminutive plants were often short and sometimes barely visible at all. In many cases the leaves

on the diminutive plants were yellow-brown rather than dark green.

Internodes

The diminutive plants were so compressed that the leaf pairs were contiguous. Counting leaf pairs, where these were present, indicated that there were usually the equivalent of only 2-3 internodes. The same low internode count applied to the middle parts of the bushy plants, although, by June, with the sward growing longer, the internodes were less compressed.

Pedicels

The most diminutive plants often lacked visible pedicels. The bushy plants later in the season often grew pedicels longer than the combined length of the internodes.

Corolla and calyx lobe numbers

Often 4- and 5-merous on the same bushy plants. Diminutive ones were either 4- or 5-merous.

Calyx

Differences in calyx lobe widths were often apparent but not as great as the dimorphism typical of *G. campestris* (Field Gentian). The 4-merous flowers usually had one calyx lobe narrower than the others. On the 5-merous flowers there were often two narrower lobes and three wider ones. There was a degree of variation in the relative difference between the narrow and wider lobes and differences in their shape. Some calyx lobes partly diverged from the corolla tube.

Corolla tube

The length of the tube relative to the length of the calyx lobes was variable. In some the calyx lobes reached barely beyond half way up the tube. At the other extreme the calyx lobe tips came almost to the slits between the corolla lobes. Sometimes a slight waist was visible at the top of the corolla tube.

Discussion

Even *Gentianella amarella* s. str. is a highly variable taxon. Stace (2010) followed the convention of treating *G. amarella*, *G. anglica* and *G. uliginosa* as separate species, with several additional named sub-species and hybrids. But, based partly on DNA evidence, Sell & Murrell (2009) grouped them all within *G. amarella* s.l. Although *G. uliginosa* is mainly known from a few dune sites in south Wales, plants ascribed to this taxon have been reported from elsewhere, including Colonsay, based largely on pedicel length characters (Rose, 1998). The Colonsay plants are now thought to differ from the south Wales *G. uliginosa* and are a small form of *G. amarella* (pers. obs.: T. Rich, 2012). It is therefore suggested that the spring-flowering gentians at Aberffraw may be yet another variety, analogous to the Colonsay ones, within a broad *G. amarella* s.l. taxon. Given the high morphological variability of the spring-flowering form at Aberffraw and lack of obvious discontinuity with the autumn flowering form it would be difficult to circumscribe them formally as a named variety except by reference to the locality and season of flowering. Considering how frequently the Aberffraw dunes have been visited over many decades by botanists, we are at a loss to explain why spring flowering was not noticed till 2010.

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Another Bee Orchid mutant?

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This story starts in Belhus Woods Country Park, near Aveley, in South Essex, v.c.18. In the beginning there were normal *Ophrys apifera* (Bee Orchids). They grew in a small area of sparse sward, with a few patches where sand or gravel had been dumped earlier and later removed, between a path on the north side and a rather thin hedge on the south side. With the mixed vegetation between the path and the hedge, Bee Orchids could hide quite well, so they rarely got picked or trodden on. Numbers varied from about four to about 18, different every year since 2004, when the first ones were seen.

One day in June 2007 I was phoned by one of the rangers, asking me to come and have a look at something strange in the group of Bee Orchids. So I went to see, and there was a beautiful mutant Bee Orchid looking more like a 6-tepal pink lily, with the normal column but no sign of any ‘bee’. My husband came to photograph it (see Colour Section, Plate 1, photo 1). Then I largely forgot it.

A couple of years later, this mutant was called to mind by an article about mutations of various kinds in *BSBI News* 112 (September, 2009). So I wrote about my plant for the next issue (*BSBI News* 113 (January 2010), and got some interesting responses. One was from someone elsewhere in Britain who said he had spent 30+ years looking for mutants among Bee Orchids, and had never found any, so what was my trick? Well, of course, there was no trick, just Lady Luck. David Lang wrote me a letter and told me it was a peloric-2 type mutation, as one among others in his book on *Orchids of Britain*. He said I should continue to look in that area, as more may appear, since most of the mutants seemed to produce viable seeds. His words were very true!

In June 2011 another ranger called me to say another mutant one had appeared, presumably an offspring of the first, after four years. David Lang came to see it and took a photo. I

understood that this was only the second site in the British Isles.

This year, in June 2012, somebody else told me that another peloric-2 mutant had appeared, clearly five years on from the first. These are beginning to be boring! Just for curiosity, as I had some time to spare, I walked around a bit further to see if there were any more. Only a few metres away, but hidden in tall herbs in the flower-rich hay meadow just south of the hedge, was another strange mutant. This was a new one, not listed in David Lang’s book. I sent two photos to David Lang, and he replied that he had not seen one like this.

As you will see from the pictures (see Colour Section, Plate 2, photos 2 & 3), the top flower had three normal pink sepals, two normal small, pale pink-green petals (one slightly twisted) and a normal column, but with a tiny piece of flat brown tissue in a triangle, but only about 3mm long and with no velvet edge, convexity or varied colouration. This was not a ‘bee’, but presumably a mutant or primitive form of it. I was with a group of botanical students later the same day, and luckily two of them had cameras and took the pictures for me. We all noticed that the whole plant was past its best, with only the top flower in good condition. However, it was very clear that the three flowers below had been exactly the same as the one at the top. So this was not something simple like insect damage. All had swollen ovaries, so I hope I will see some progeny in 3-5 years. One student suggested that it looked like a hybrid of the peloric-2 mutant and a normal Bee Orchid, which it definitely did, but, since they all self-pollinate in Britain, hybrids are not allowed!

The term ‘peloric’ means a regular or actinomorphic form of a flower that is usually irregular or zygomorphic. This implies to me that a peloric form of any flower would be considered to be less highly developed than the normal form. This would suggest that peloric-2 is a primitive orchid from many millions of

years ago. Would my new mutant be equivalent to something a bit less old, *i.e.* further up the evolutionary line, as it is distinctly zygomorphic?

Please can anyone tell me if they have seen anything like this? Does anyone have a name for it? All comments welcome! My students would be delighted if they were among the first to see a rare mutant in the British Isles!

An after-thought: am I lucky to have two different Bee Orchid mutants on my patch, or what? Or is something else causing all these mutations, and, if so, what might the rays do to me? Luckily, I am beyond breeding age!

Acknowledgement:

I want to say a big thank you to David Lang for his help and encouragement.

William Powell – recording and collecting during the Great War

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Mr W.P. ‘Percy’ Powell, DCM (born 22nd September 1887, Hinckley; died 9th July 1954, Hinckley,), served during World War 1 in northern France in the Royal Army Medical Corps, where he attained the rank of Sergeant. He had been an active amateur botanist before the outbreak of the war and continued to record plants in northern France while he was stationed there. Six herbarium sheets of collections he made during 1918 while on active service (see p. 47) were deposited with his archive at Leicester City Museum in 1967, since transferred to Leicestershire County Council’s Museum Service in 2010.

Early botanical interests

His father was John Powell (b. 1865; d. 1954), who lived in Hinckley, and was a hosiery counterhand and later a hosiery warehouseman. He is almost certainly the J. Powell recorded as a ‘recent correspondent’ in Horwood & Gainsborough’s *Flora of Leicestershire* (1933, p. ccxxxv). No doubt, John stimulated Percy’s botanical interests and both father and son were keenly interested in the Leicestershire countryside, spending their holidays walking there, rather than in other parts of Britain.

Percy had trained as a teacher under the pupil-teacher scheme, and was an Assistant Master at Hinckley Council School in Holliers Walk, Hinckley from 1906 until he enlisted in 1915. His notebook contains records arranged by family with dates and locations. Nearly all of them are single (first?) records of flowering

plant species and ferns, but no grasses were recorded.



Fig. 1. William Powell, from a copy of a photograph loaned to Leicester Museums by his daughter in 1982.

There are many records of flowering plants for 1914, mainly from Hinckley and Burbage Common & Wood, and also a set of 34 labels, dated March-June 1914, again nearly all from Burbage Common & Wood (Burbage Wood and Aston Firs is now a SSSI, as it is one of the best remaining examples of ash-oak-maple woodland in Leicestershire). He was interested in bryophytes at this time, as six drawings of mosses, three with specimens attached and dated January-February 1914, are also present in his archive.

War-time recording and collecting

In 1914, after the outbreak of war on 28th July, he only made four more local records in August (not given here). In 1915, he enlisted for war service on 28th February, and, from May, made 11 records of plants in northern France (Table 1, p. 49). There is one undated record, which probably dates from 1915, given its location.

There follow 18 records from northern France in 1916, and another undated record that may be from 1915 or 1916. These contain eight records for the period during which the Battle of the Somme was fought (1st July-18th November, 1916), one of the largest and bloodiest battles of the war. The *London Gazette* of 22nd September 1916 reports that he was awarded the Distinguished Conduct Medal (DCM) “For conspicuous gallantry in charge of bearers, frequently close up to the enemy’s wire, and in the open, under heavy artillery fire. On two occasions enemy patrols were encountered, who fired on his party, but he continued, with great coolness and courage, to carry out his work.”

His records from May-September 1917 are all from English locations in Derbyshire, Leicestershire, Warwickshire, Staffordshire, Avon, Somerset and one from Gwynedd, which show he returned for some reason, possibly recuperation. (An Excel spreadsheet of these records is available from the author on request). But, in 1918, he was back in France and, although he only made one record (Table 1), he collected six specimens from various locations in northern France in June of that year (Table 2, p. 50), which he pressed and,

presumably, mounted after his return home. They were deposited in Herb. **LSR**, and their museum accession numbers are given in Table 2.

His records in France are mainly of ruderal and cornfield species, although there are some of woodland species, many of which were new finds for him. Perhaps he collected while on active service to remind himself of what he did at home, to retain a sense of normality in exceptional circumstances. Perhaps it gave him hope for the future.



Fig. 2. Herbarium specimen of *Agrostemma githago* (Corncockle) collected by William Powell on 6th June 1918 from cornfields at Oissy, Somme Department, Picardie, France

Post-war interests

Cessation of hostilities occurred on 11th November, 1918 and he eventually returned home. Powell was teaching at the Council Boys’ School, Hinckley, according to a Board of Education Certificate dated 1921. He moved to the Hinckley Technical College (now the North Warwickshire and Hinckley

College), where he taught textiles and became its first Principal in 1931, a post he held until 1953, when he retired. The College had been founded in 1891 to provide education relevant to the ‘trades of the town’ and its knitting courses were considered particularly important.

He was very active locally and had many interests. He ran the Hinckley Evening Institute, was a musical conductor with the Hinckley Amateur Operatic Society and Choir, and took Sunday School at the Borough Congregational Church, Hinckley. He was also a member of the Natural History Section of Leicester’s Literary & Philosophical Society, where he was a contemporary of the leading Leicestershire botanists of the period, F.A. Sowter and G. Bemrose.

He continued his botanical studies, collecting in the Hinckley area, and was reported to be very knowledgeable about the flora of the Ashby canal, Burbage Common and Wood. He published an article about ‘The Flora of Stoney Stanton, Sapcote and District’ which appeared in *The Hinckley Guardian and South Leicestershire Advertiser* in two parts, on 2nd and 16th November, 1923. It lists 261 species of flowering plant in systematic order “found in this quartz-diorite district...round Sapcote, Staunton, Croft and Enderby”: Locally notable species include: *Teesdalia nudicaulis* (Shepherd’s Cress), *Sagina nodosa* (Knotted Pearlwort), *Parnassia palustris* (Grass of Parnassus), *Botrychium lunaria* (Moonwort) and *Scleranthus annuus* (Annual Knawel), all of which are either extinct or extremely rare in Leicestershire nowadays (Jeeves, 2011), and also Spring Vetch (*Vicia lathyroides*), which is not in Jeeves’ 2011 checklist.

He died in 1954, shortly after his retirement, and his collection of 84 specimens from Leicestershire locations, the great majority from Burbage Wood and Common, was donated to Leicester City Museum Service in 1967 by his daughter, Mrs D. Mary Hodgkin. She remarked that “botany was one of his many hobbies and it was tough for his three children to keep up with him”. She remembers him showing her a Bird’s Nest Orchid (*Neottia nidus-avis*) in 1932. Powell recorded it in Burbage Wood in July 1910.

Future work

Herbaria are not just collections of plants. They are important repositories of social history and have many tales to tell. Collating material about botanists who were active collectors under extreme conditions during WW1 would make a valuable contribution to the centenary of the conflict in 2014. Given that many local herbaria and museums would need to be searched, a collaborative effort will be required, but would make both an inspirational and a valuable historical record of the activities of British botanists during WW1. The effect on staffing of national collections, and their fate, could also be investigated.

Acknowledgements:

I wish to thank Mrs Marilyn McClellan for her help investigating Powell’s early life.

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Table 1. Records of plants made by William Powell while on active service in France and Belgium, 1915-1918.

Year	Month	Species	Country	Region	Department/Province	Location/Commune	Habitat
1915	May	<i>Polygonatum multiflorum</i>	France	Nord Pas-de-Calais	Nord	Saint-Jans-Cappel ²	
1915	June	<i>Equisetum sylvaticum</i>	France	Nord Pas-de-Calais	Nord	Saint-Jans-Cappel ²	
1915	June	<i>Onobrychis sativa</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Le Souich	
1915	July, 3	<i>Lathyrus nissolia</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Foncqueville rs ²	
1915	August	<i>Centaurea cyanus</i>	Belgium	West Flanders	West Flanders	Wippenhoek	
1915	August	<i>Eupatorium cannabinum</i>	Belgium	West Flanders	West Flanders	Wippenhoek	
1915	August	<i>Orobanche major</i>	Belgium	West Flanders	West Flanders	Wippenhoek	
1915	August	<i>Silybum marianum</i>	Belgium	West Flanders	West Flanders	Wippenhoek	
1915	August	<i>Spirodela polyrhiza</i> ¹	Belgium	West Flanders	West Flanders	Wippenhoek	
1915	August	<i>Lathyrus sylvestris</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Couturelle	
1915	not given	<i>Aquilegia vulgaris</i>	Belgium	West Flanders	West Flanders	Poperinge ²	Cornfield and woodside
1915 ⁴	not given	<i>Linum usitatissimum</i>	Belgium	West Flanders	West Flanders	Wippenhoek	
1916	March	<i>Galanthus nivalis</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Villers-Châtel	Chateau
1916	May	<i>Primula elatior</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Villers-Châtel	
1916	May	<i>Cephalanthera damasonium</i> ¹	France			Forêt de Luchene ³	
1916	May	<i>Euphorbia amygdaloides</i>	France			Forêt de Luchene ³	
1916	May	<i>Orchis militaris</i>	France			Forêt de Luchene ³	
1916	June	<i>Geranium perenne</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Le Souich	
1916	June	<i>Agrostemma githago</i> ¹	France	Nord Pas-de-Calais	Pas-de-Calais	Le Souich	Field
1916	June	<i>Helianthemum vulgare</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Le Souich ²	Bank
1916	June	<i>Reseda lutea</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Le Souich ²	Bank
1916	July	<i>Onopordon acanthium</i>	France	Picardie	Somme	Doullens	

Year	Month	Species	Country	Region	Department/Province	Location/Commune	Habitat
1916	July, 30	<i>Kickxia elatine</i> ¹	France	Nord Pas-de-Calais	Pas-de-Calais	Couturelle	
1916	July, 30	<i>Kickxia spuria</i> ¹	France	Nord Pas-de-Calais	Pas-de-Calais	Couturelle	
1916	July	<i>Ophrys apifera</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Couturelle	
1916	August	<i>Cichorium intybus</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Couturelle	
1916	August	<i>Bupleurum rotundifolium</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Boulogne Camp	
1916	August	<i>Geranium pusillum</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Boulogne Camp	
1916	September	<i>Verbascum thapsus</i>	France	Picardie	Somme	Doullens	
1916	not given	<i>Galeopsis ladanum</i>	France	Nord Pas-de-Calais	Pas-de-Calais	Maisnil	
1915/ 1916 ⁵		<i>Adonis annua</i> ¹	France	Nord Pas-de-Calais	Pas-de-Calais	Couturelle	
1918 ⁶	June	<i>Ornithogallum pyrenaicum</i>	France	Picardie	Somme	Molliens-au-Bois	

¹ Name updated to current accepted nomenclature.

² Mis-spelt place name or location corrected.

³ Location uncertain, but could be Luchaux in the Somme Department, situated south east of Le Souich, which has several woods nearby today.

⁴ No date, but records from this location date from August 1915.

⁵ No date, but Couturelle records are from 1915/1916.

⁶ A specimen of this date is recorded as *Ornithogallum umbellatum*.

Table 2. Specimens of plants collected by William Powell while on active service in France, 1918.

Year	Month	Species	Country	Region	Department/Province	Location/Commune	Habitat	Museum Accession Number
1918	June	<i>Lathyrus aphaca</i>	France	Picardie	Somme	Molliens-au-Bois	Wood	466.1967
1918	June	<i>Ornithogallum umbellatum</i>	France	Picardie	Somme	Molliens-au-Bois	Wood	466.1967
1918	June	<i>Adonis annua</i> ¹	France	Picardie	Somme	Bougainville	Cornfield	466.1967.72a
1918	June	<i>Adonis annua</i> ¹	France	Picardie	Somme	Bougainville	Cornfield	466.1967.72b
1918	June	<i>Cephalanthera damasonium</i> ¹	France	Picardie	Somme	Bougainville	Wood	466.1967
1918	June	<i>Agrostemma githago</i> ¹	France	Picardie	Somme	Oissy	Cornfield	466.1967

¹ Name updated to current accepted nomenclature.

***Trifolium scabrum* (Rough Clover) new to v.c. 59 (S. Lancs.)**

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While guiding a botanical field trip on 10th June 2012 at Ainsdale-on-Sea, Merseyside, we spotted patches of a tiny white-flowered clover (*Trifolium*) on a sparsely vegetated area of grassland near the Ainsdale Discovery Centre (Grid Ref.: SD29841282). This was initially thought to be *T. striatum* (Knotted Clover), which occurs on road verges about 900m to the east (Smith & Lockwood, 2012). However, it was soon established that the plant was *T. scabrum* (Rough Clover), a species not previously recorded in v.c.59 (South Lancashire). A return visit was made the following day to record the extent of the population and list vascular associates.

T. scabrum is a native annual found on infertile, shallow, drought-prone soils over limestone, sand and gravel, usually near the sea. It occupies similar habitats to *T. striatum*, often growing with it. The plant's British distribution is mainly southern, but with scattered localities as far north as the Isle of Man and north-east Scotland, the nearest to Ainsdale being on the Wirral Peninsula (SJ28). Although coastal populations are largely stable, losses have occurred, especially from inland locations, and the species has a change index of -0.39 (Pearman, 2002).

Although there are no authenticated records for South Lancashire, Savidge *et al.* (1963) mentioned a specimen labelled *T. scabrum* in "herb. YKS" collected near Oldham by S. Hailstone. However, some doubt was expressed by W.G. Travis about the determination and: "It therefore seems desirable to have a more satisfactory record before accepting this species as occurring in South Lancashire."

At Ainsdale-on-Sea, *T. scabrum* was found in some quantity (locally frequent to locally abundant), mainly in four patches of grassland, totalling about 135m², on an area of almost level ground previously occupied by a caravan site. In places, hardcore is exposed on the surface and the site is subject to aerial deposi-

tion of blown sand from mobile and semi-fixed calcareous dunes immediately to the west. Light to moderate recreational trampling occurs and the whole site is mown annually in late summer by Sefton Council's Coast & Countryside Service.

The vegetation consists of short, open, sandy, Rabbit-grazed grassland dominated by *Festuca rubra* (Red Fescue), although with a high diversity of other typical fixed-dune species, including several winter-annuals. A total of 31 vascular associates was listed on 11th June 2012, the most abundant being *Festuca rubra*, *Lotus corniculatus* (Bird's-foot-trefoil) and *Trifolium dubium* (Lesser Trefoil) (Table 1, p. 52). Reference to keys in Rodwell (2000), suggests that the community probably accords with SD8: *Festuca rubra-Galium verum* fixed dune grassland, this being characteristic of calcareous fixed sands on dunes and coastal plains throughout the country where fairly dry, base-rich but nutrient-poor soils are found. *T. scabrum* is not stated to occur in this vegetation type but is listed for MC5: *Armeria maritima-Cerastium diffusum* maritime theophyte community and CG1: *Festuca ovina-Carlina vulgaris* grassland. The former is found on rocky cliffs, predominantly in the south, while the latter is associated with immature soils over hard limestone (Rodwell, 1992; 2000), neither of these resembling the vegetation at Ainsdale. However, the habitat conditions are similar to those said to be favoured by *T. scabrum* (e.g. Pearman, 2002; Stace 2010).

The plant's presence has been drawn to the attention of the site managers and it is clear that current land use and management is conducive to the conservation of this population.

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Table 1. Vascular associates of *Trifolium scabrum* at Ainsdale

r = rare; o = occasional; f = frequent; a = abundant; l = locally

Taxon	English name	Freq.	Taxon	English name	Freq.
<i>Achillea millefolium</i>	Yarrow	o	<i>Lolium perenne</i>	Perennial Rye-grass	r
<i>Agrostis capillaris</i>	Common Bent	f	<i>Lotus corniculatus</i>	Bird's-foot-trefoil	la
<i>Aira caryophyllaea</i>	Silver Hair-grass	o	<i>Oenothera</i> sp.	Evening-primrose	o
<i>Aira praecox</i>	Early Hair-grass	o	<i>Ononis repens</i>	Common Restharrow	r
<i>Bellis perennis</i>	Daisy	o	<i>Plantago coronopus</i>	Buck's-horn Plantain	o
<i>Bromus hordeaceus</i>	Soft Brome	r	<i>Plantago lanceolata</i>	Ribwort Plantain	f
<i>Carex arenaria</i>	Sand Sedge	o	<i>Poa humilis</i>	Spreading Meadow-grass	o
<i>Cerastium fontanum</i>	Common Mouse-ear	o	<i>Rubus caesius</i>	Dewberry	r
<i>Cerastium diffusum/semidecandrum</i>	Sea/ Little Mouse-ear	f	<i>Rumex crispus</i>	Curled Dock	r
<i>Crepis capillaris</i>	Smooth Hawk's-beard	o	<i>Senecio jacobaea</i>	Common Ragwort	o
<i>Dactylis glomerata</i>	Cock's-foot	r	<i>Taraxacum</i> agg.	Dandelion	o
<i>Erodium cicutarium</i>	Common Stork's-bill	r	<i>Trifolium arvense</i>	Hare's-foot Clover	o
<i>Festuca rubra</i>	Red Fescue	a	<i>Trifolium dubium</i>	Lesser Trefoil	a
<i>Geranium molle</i>	Dove's-foot Crane's-bill	r	<i>Trifolium repens</i>	White Clover	o
<i>Holcus lanatus</i>	Yorkshire-fog	r	<i>Vulpia fasciculata</i>	Dune Fescue	o
<i>Hypochaeris radicata</i>	Cat's-ear	o			

Observations on the decline of *Saxifraga hirculus* (Marsh Saxifrage) in the north Pennines

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Whilst working on the effects of excluding sheep grazing on different vegetation types on the Moor House National Nature Reserve in the northern Pennines, under the late Michael Rawes, I first became aware of the importance grazing and trampling plays in maintaining the diversity of species-rich, high-altitude flushes related to the M38 *Crataneuron commutatum* – *Carex nigra* spring community of the NVC (Rodwell, 1991), many of which support populations of the rare and internationally protected species *Saxifraga hirculus* (see Colour Section, Plate 1, photo 1). Different vegetation types were fenced in the late 1950s and early 1960s in order to study the effects of removing sheep grazing (Welch & Rawes, 1964; Rawes & Welch, 1969). These had grazed ‘control plots’ set-up alongside and both have been monitored by Centre for Ecology and Hydrology (CEH) staff up to the present day, and will be for the foreseeable future.

One of these exclosures (a small 3m square) was erected in the middle of ‘Johnny’s Flush’ up Moss Burn to the south-west of the Moor House Field Station. However, within three years of the fence being erected the flush vegetation which included *S. hirculus* was overwhelmed by tall herbs, the vigorous growth of mainly *Geum rivale* (Water Aven) and *Filipendula ulmaria* (Meadowsweet) resulting in the *S. hirculus* being shaded out and disappearing. Outside the exclosure the *S. hirculus* population remains unchanged. This situation was still the same when I visited the flush again in 2010. The extinction of *S. hirculus* in this exclosure was reported by Welch & Rawes (1964), who also noted the rapid build-up of litter and an 8% drop in species diversity over the first 10 years following the removal of grazing. This result alone clearly indicates how important both grazing and trampling are to the long term survival of *S. hirculus*.

Personal observations from other sites in the north Pennines have shown that *S. hirculus* can survive very high grazing pressures. Whilst recording for the *Flora of Cumbria* in the mid-1990s, a time when grazing levels were ridiculously high, I came across a heavily over-grazed tufa flush below the Bulman Hills, behind Cross Fell, that was almost completely devoid of vegetation. Here flowering shoots of *S. hirculus* were growing amongst tufa granules and little else. Since 2001, grazing levels have been substantially lowered on the fells and consequently the vegetation of this particular flush has recovered and *S. hirculus* has survived in good numbers.

In 1999 one of two twin flushes on Knock Ore Gill supporting populations of *S. hirculus* was fenced off. The following year, I assisted the late Peter Kelly with the monitoring of both populations (using point quadrats). Over the subsequent decade there has been a gradual increase in the height of the vegetation in the fenced flush, coinciding with a general decline in *S. hirculus* (see Colour Section, Plate 1, photo 3). As a consequence, in 2009, I mapped the extent of the *S. hirculus* flush community, repeating an earlier survey undertaken by Peter in 1997 before the fence was erected. The area of *S. hirculus* in the fenced flush had declined by almost 75%. It would probably have been nearer 100% if not for the parasitising effects of a patch of *Pedicularis palustris* (Marsh Lousewort), which seemed to be affecting the rest of the vegetation but not *S. hirculus*, but the grazed flush outside was unchanged since 1997. Unfortunately the best *S. hirculus* flush in the north Pennines on the southern slopes of Burnhope Seat was also fenced off around the same time, but according to a friend this now has an opening in the fence, although it would benefit from more grazing.

In 2001, when access restrictions due to the foot-and-mouth outbreak were removed from the high fells, I did some repeat point quadrats

on the Knock Ore Gill flush. Every morning the only 17 sheep left on the fells (they had missed being gathered the previous autumn and consequently the cull) would be grazing the unfenced flush and the other M38 flushes higher up the fell. Whilst I was working, the sheep would retire to a safe distance, only to return to the flushes once I departed. My personal observations suggest that sheep graze these flushes for the nutrient rich associates of *S. hirculus*, as they often pull up the shoots and flowering stems of *S. hirculus* but don't eat them. Whilst this behaviour will inevitably have an impact on reproductive performance it probably benefits the plant in keeping the sward open for the shorter vegetative basal shoots (see Colour Section, Plate 1, photo 2).

I remember on one occasion, whilst searching for *S. hirculus* flushes on the side of Meldon Fell with Rod Corner in 2003, one of us remarked that where a fair number of sheep are concentrated on a flush there's a good chance you will find *S. hirculus*. This has proved to be the case time and time again.

Because of my concerns over the decline of *S. hirculus*, I visited Great Shunner Fell in North-west Yorkshire (v.c. 65), where the late Derek Ratcliffe first found *S. hirculus* in the 1950s. I had been told that the whole site had not been grazed for a decade due to a change in management that had been introduced as part of a Black Grouse Recovery project. I visited the site for the first time in 2007 and was alarmed at the state of one small flush, where mosses and the leaves of *Saxifraga hypnoides* (Mossy Saxifrage) were 'shading-out' *S. hirculus* to such an extent that it was failing to produce any basal shoots. By the next year all the plants had gone, and just a few patches remained in shorter vegetation dominated by *Juncus* spp. on the south edge of the flush. In contrast, the larger flush appeared to be in quite good condition with plenty of basal shoots present.

I had assumed that these two flushes accounted for the entire population. However, whilst assisting Frances Graham and Janet Swain of the Yorkshire Dales National Park monitoring the flushes in 2008, we were

looking for three flushes, which had been recorded in the past. We did find one plant, which we assumed must be the last remnant of the third flush.

Jeremy Roberts then provided details of two further flushes just to the north, originating from surveys carried out firstly by Derek Ratcliffe in the 1950s, then Len Livermore in 1977, John Blakemore in 1982 and Peter Kelly in 1999. In 2011, these two flushes were relocated: one was dominated by *Carex rostrata* (Bottle Sedge), a similar community to populations in Sally Grain Head flush on Burnhope Moor, Durham; and the other supported both *Alopecurus magellanicus* (Alpine Foxtail) and *Epilobium ×fachinii* (a rare hybrid Willowherb), both of which were first recorded in 2007. However the litter levels in both flushes were very deep, ranging from 8-18 inches, and there was no sign of any *S. hirculus* despite a thorough search. In 1999 Peter Kelly had recorded tens of thousands of flower heads in the larger flush to the south. In 2008 Frances, Janet and myself only counted 2,933. These flushes urgently need grazing again before we lose the populations of *S. hirculus* altogether. Even the flush with *A. magellanicus* is giving cause for concern as, since 2007, the population has declined from 200 flowering heads to 20 or so in 2011. It was noted by Rod Corner that these plants had 4-5 nodes, not the three mentioned in the text books, and he wondered if this was an effect of the depth of litter encountered. A small stony flush on the other side of the same moor has almost lost a colony of *Juncus triglumis* (Three-flowered Rush) under the build up of vegetation, with only one plant left in 2010.

The fencing off of whole moors, primarily for Black Grouse management, possibly with a view to encouraging scrub and trees to colonise doesn't take into account a huge rise in the vole population. The un-grazed grassland exclosures on Moor House became veritable vole cities very quickly. It was noted that *Salix* sp. (willows) would germinate and grow to a height of 6-8 inches in a year in these exclosures, but the year after they would have disappeared. Whilst doing point quadrats in

these exclosures, it was noticed that beside vole burrows and runs there would be small caches of *Salix* stems neatly chopped into half inch sized pieces, obviously being used as a food source during the winter months.

There are other outcrops of the calcareous ‘marine band’ that tops the summit of Great Shunner Fell, including a small area near to Rogan’s Seat. I visited this area, hoping for similar flushes in 2011, but unfortunately this too had obviously been ungrazed for some time and the flushes were overgrown and ‘choked’ with litter, so, if *S. hirculus* was ever present, it has now probably gone.

Finally Rodwell (1991) mentions in the description of M38 (the flush community supporting *S. hirculus*) that although “the harsh climatic and edaphic conditions exert a strong influence on the structure and composition of the vegetation, heavy grazing plays a major part in maintaining the distinctive richness of the community, and it is this trampling and cropping by sheep and deer which is responsible for the most obvious floristic differences between this community and M37.”

Other reasons for the decline of *Saxifraga hirculus*

In 2005, Paul Maurice and myself visited Dufton Fell to look at a population of *Carex vaginata* (Sheathed Sedge) found by Rod Corner. En route we visited some flushes near Knock Coal Shop and found a previously unknown small flush with *Alopecurus magellanicus* and *S. hirculus*. The top 10 metres of this flush was intact but below this a moor grip had been dug diagonally across the flush, probably some time in the 1960s, draining the base-rich water away down the hill (see Colour Section, Plate 1, photo 4). Consequently the flush below this point had reverted to acid moorland (Roberts, 2004).

In 2009 I visited Baldersdale in an attempt to locate flushes from which *S. hirculus* had last been recorded in the late 1950s and early 1960s. After three days searching and with Dr. Margaret Bradshaw’s help, I eventually located the site of the Aygill Bogs flush. Although there was no *S. hirculus*, some of its

close associates were still present. Unfortunately a moor grip had been dug across the top of the flush, presumably altering the pH enough to cause the demise of *S. hirculus*. It would be interesting to block this grip and see if *S. hirculus* re-appears from the seed bank (or it perhaps could be re-introduced if nothing materialises?). Interestingly, I mentioned this to Jeremy Roberts, who had visited the site in the early 1960s and remembers the tractor/digger type machines used for moor gripping being on site. He didn’t find the *S. hirculus* on that day but he might not have been in quite the right place.

In 2011 I visited Hunder Rigg, an old site for *S. hirculus* on Cotherstone Moor. Again, I found suitable flushes at around the 300–400m contour, but moor gripping had interfered with them. Another visit to the area might prove to be more fruitful.

In conclusion it is highly relevant that a paper on biomass production on the last remaining fen with *S. hirculus* in Switzerland (Venterink & Vittoz., 2008) has found that conservation management of the site needs to prevent nitrogen enrichment and that the current grazing management on the fen is functioning well with above ground biomass very low and *S. hirculus* abundant.

Unless there is a change in future management of these flushes, which includes the re-introduction of a level of grazing and the accompanying trampling to maintain an open sward, I think the future of these *S. hirculus* populations is looking bleak. The other known and ‘grazed’ populations in the Pennines appear to be unchanged over the last 40+ years.

Acknowledgements:

I would like to thank Dr. Margaret Bradshaw for her memories of the Johnny’s Flush site at Moor House and the Aygill Bogs site in Baldersdale, Rod Corner for accompanying me on visits and both Rod and Kevin Walker for their input and help with this paper.

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John Ray and the discovery of *Eryngium campestre* (Field Eryngo) growing in Plymouth

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John Ray (1627–1705) was an English naturalist, sometimes referred to as the father of English natural history. On his travels 350 years ago, in 1662, he crossed the River Tamar from Cornwall and entered Stonehouse, Devon, now a part of Plymouth, but at that time a separate town.

One of his first botanical discoveries on arriving in Stonehouse was *Eryngium vulgare*, which we now call *Eryngium campestre* (Field Eryngo). Exactly 350 years later, on 7th July 2012, the Natural History Ramblers, a group belonging to Plymouth U3A (University of the Third Age) celebrated the anniversary by visiting the site at Western King Point.

Twelve books by John Ray can be read online at <http://www.scientificbooks.co.uk/>

Field Eryngo is still to be found growing at this beautiful limestone headland, popular with visitors for its fine views of Plymouth Sound and the mouth of the Tamar. It grows in small numbers at the edge of the cliffs and also at the edge of a flower-bed. On this occasion, no plants were found on the cliff edge but, led by Martin Probert, the group admired the flower-bed plants (see Colour Section, Plate 3), rejoicing that the rain, which was causing widespread flooding in the south-west of

England, had stopped the moment we arrived at the site, although it started up again as soon as we left. John Ray, in spirit, must have been watching over us!

Mr Ray's Itineraries: 293

Monday July the 7th, We went on to Plymouth, but by the Way diverted to Stanehouse, a little Town, not far from the Passage out of Cornwall. Thence we had a view of Mount Edgcumbe, a brave House, and well situate, belonging to Mr. Edgcumbe, a Gentleman of great Estate. On the Hill which you ascend, after you are come over the Passage to go to Plymouth, grows Eryngium vulgare in great Plenty, which I do not remember to have seen any where else in England.

from *Select remains of the learned John Ray*,
by William Derham, 1760.

***Baldellia ranunculoides* in the Kintyre Peninsula**

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In their article in *BSBI News* **120** (April, 2012) on Lesser Water–plantain on the Sefton Coast, Philip Smith and Patricia Lockwood note that “the plant has been declining for many years, especially in England ...” Both the 1976 edition of *The atlas of the British flora* and the *New atlas of the British and Irish flora*, published in 2002, would seem to bear this out, although in the latter publication the author of the species text, C.D. Preston, remarks that the species seems stable in the west of its range. Our extremely limited experience of it in Kintyre, where I live, gives some support to that comment.

Firstly, a word of explanation about the word Kintyre. This is the title given to v.c.101, which consists of Knapdale (the land area between the Crinan Canal to the north and West Loch Tarbert to the south) and the Kintyre Peninsula, that long arm of land stretching from the south shore of West Loch Tarbert down to the Mull of Kintyre at its southern extremity, a mere eleven miles from the north-east corner of Ireland. In this note I use Kintyre, as do all the inhabitants of the peninsular, to denote this peninsula alone, and not the whole area of v.c.101.

As a small group of very amateur botanists in Kintyre, our bible has been ‘*The flora of Kintyre*’, by M.H. Cunningham and A.G. Kenneth. Both authors have been dead a number of years; but their book, published in 1979, remains a thorough and, we believe, accurate portrayal of the botany of v.c.101 up to the time of the flora’s publication. In it, *Baldellia ranunculoides* (Lesser Water–plantain) is listed in these words: “recorded from Auchy Lochy (but probably now eliminated) ...”. Auchy Lochy (as it is spelt on O.S. maps) is a relatively small water body, about a mile NNE of Campbeltown, with a circumference of say a mile and a half. Up until the middle of the last century it was of no particular importance or use, domestic fresh water being supplied to Campbeltown from a much smaller loch on the outskirts of the town. But by 1949 this water

supply was proving inadequate to a modern population, so the nearby loch was pensioned off and Auchy Lochy was decided on as a replacement. For this purpose a dam was built at one end, and the water-level was raised – by how much I do not know, but presumably a number of feet. It was this event to which the flora’s use of the word ‘eliminated’ evidently refers: the authors simply assumed the marginal plants, including the *Baldellia*, had been drowned and were gone for good.

Fast-forward now to 2006. On a day in early August that year, our group, accompanied as it happened on that occasion by both Jim McIntosh and our vice-county recorder Pat Batty, were walking round Auchy Lochy near the dam, and came across a flower we beginners did not recognise. It was in a stony, rocky part of the foreshore, several yards from the water’s edge; and it was *Baldellia ranunculoides*. We had also, on this occasion, found an orchid, *Spiranthes romanzoffiana* (Irish Lady’s-tresses), a rarity on the mainland of Scotland, so have returned each year since to see how these two special plants were doing. Perhaps unsurprisingly, neither was to be found, until last year when both the orchid and the *Baldellia* re-appeared, the latter in almost exactly the same place as we had originally found it. So the pessimism of the flora’s authors was evidently misplaced; and we look forward to seeing in the next edition of the *New atlas*, the ‘pre-1970’ symbol for this species replaced by one denoting its current existence in our peninsula.

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ALIENS

Invasive alien – *Pentaglottis sempervirens* (Green Alkanet)

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I have been astonished by the sudden rampant spread of this species, which forms smothering carpets of large plants. I decided to spray this year, using SBK brushwood killer. Initial effects seem promising.

In West Suffolk I have often observed this plant growing in small numbers in gardens or where thrown out. There have been two plants near my garden for many years, and five years ago it started spreading in the garden and a neighbour's, outrivalling its nuisance relative *Omphalodes verna* (Blue-eyed-Mary). This year it unexpectedly appeared in quantity throughout my neighbouring wood, which

prompted me to spray immediately. Another wood in the area has an acre or more already dominated.

The plant has very deep roots which are resistant to pulling. It grows here in oak leaf-mould on light soil, particularly along paths, competing well against nettles. Pretty in small quantity, en masse the floppy foliage and stalks look unsightly.

I wonder if other people also feel this extreme rate of spread seems likely to continue, and whether anyone else is contemplating emergency action?

Plymouth has more than Pear Trees

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Anyone approaching Plymouth by rail from "up-country" will have travelled alongside the tidal estuary of the River Plym as the train nears Plymouth station. An embankment was built in the early nineteenth century, which now carries the main road into the city centre as well as the main London to Penzance railway line. The area has a mild and sheltered climate due to the maritime influence and is the home of some interesting plants. For instance, *Scrophularia scorodonia* (Balm-leaved Figwort) is a frequent plant that grows in the disturbed ground alongside the main Embankment Road and *Vitis vinifera* (Grapevine) has managed to establish itself in one place. The delightful plant *Linaria supina* (Prostrate Toadflax) grows happily on the railway ballast in the area and has been known here for many years (see Colour Section, Plate 3).

In the last few years, an area of reclaimed grassland alongside the estuary has been declared a County Wildlife Site and is the home to *Ophrys apifera* (Bee Orchid), a rare plant in Plymouth. There is a good description

of the area on the Internet at <http://tinyurl.com/bs9ff4c>

New discoveries are still being made. Two years ago, the hawkweed *Hieracium vagum*, determined by David McCosh, was found in rough herbage close to the estuary and a branch railway line (see Colour Section, Plate 4). It was growing a long way from any other *H. vagum*, as can be seen from the BSBI distribution map (http://www.bsbi.org.uk/atlas/map_page.php?spid=3235.0)

The latest addition to the list of plants growing by the estuary was made in June, 2012, when *Digitalis lanata* (Grecian Foxglove) was found in rough ground not far from the *H. vagum* site. The foxglove was in full flower, with five flowering spikes, and made an impressive sight (see Front Cover). How it arrived here is a mystery. It might just have arrived naturally, although it could have been planted. Again, the BSBI distribution map shows very few records for this plant, with all the other records coming from south-east England.

Contemplating your Navelwort

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While having a day experiencing the sights of Petworth in West Sussex, v.c.13, in May 2011, I had a look at the town's wall flora. Petworth is well supplied with old walls and on one of them, in an alley leading up to Rosemary Lane, was an unfamiliar member of the Boraginaceae. It had virtually finished flowering at that time but in April 2012 another visit found it in fine form (see Colour Section, Plate 4). The clump was about 20cms across and rhizomatous. The basal leaves were about 15cms long, two-thirds of which was a channelled petiole. The blade was elliptical and acuminate with a rounded base and was covered on both surfaces with very fine, antrorsely-appressed hairs. Leaves on the flowering stems were narrower, 10-15mm long and sessile. The inflorescences were

10-15 flowered. The flowers were of the forget-me-not type, bright blue and 9-10mm across in terminal cymes. It resembled *Omphalodes verna* (Blue-eyed-Mary), and, using Stace 3, keyed out to the genus but clearly wasn't the species. The *RHS dictionary of gardening*, that extremely useful publication for non-horticultural garden-escape spotters, lists seven species of *Omphalodes*, and the plant on the wall matched the description of *O. cappadocica* (Navelwort). It also looked just like the photos of the plant on Google Images. Compared with a plant of *O. verna*, which just happens to be growing in my garden, the following differences were apparent, although I must emphasise that the differences are based on only one example, in April, of each species:

<i>O. cappadocica</i>	<i>O. verna</i>
3 pairs of prominent secondary veins originating in the proximal half of the leaf midrib. More distal secondary veins rather obscure.	7-8 pairs of secondary veins, more or less evenly spaced along midrib and gradually decreasing in prominence.
	
Blade length/width ratio 2:1.	Blade length/width ratio 4:3.
Petiole of basal leaves twice length of blade.	Petiole more or less equal to blade.
Leaves with very fine, dense hairs (separated by less than a hair's length).	Leaves much more sparsely hairy (separated by several hairs' length, except on the veins).
Rhizomatous.	Stoloniferous.

The origin of the plant is unknown. It was on the public side of a six-foot garden wall, about a foot from the top, with no source discernible

nearby. *O. cappadocica* is native to woodland in Turkey and used in these islands as ground cover. The wall habitat is atypical, so the

dimensions and proportions described above may also be atypical. It seems to be self-sown but if anyone who knows Petworth can shed any light on its origin, I would be pleased to hear from them.

I would like to thank Eric Clement for confirming the identification and Mike Shaw, the v.c.13 Recorder, for helpful comments on this note. Mike also tells me that this may be the first ‘wild’ occurrence of the species.

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REQUESTS

Kew’s Millennium Seed Bank: completing coverage of the UK flora

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Kew’s Millennium Seed Bank, (MSB) located at Wakehurst Place in West Sussex, holds the largest and most diverse collection of wild-origin seeds in the world. More than 50,000 seed collections from over 31,000 species are stored at low temperature and can be kept alive under these conditions for decades or even centuries to come. For more information, go to: <http://www.kew.org/science-conservation/save-seed-prosper/millennium-seed-bank/index.htm>

The project commenced with a major effort to collect and conserve the UK’s own native flora. With the help of many organisations and individuals, including the BSBI, more than 90% of our native plants are represented in the Seed Bank collections, with many of our threatened species conserved.

We now plan to strengthen the conservation value and usability of the UK collections held at the MSB. The collections will be a vital resource for research and restoration of native plant communities through Kew’s innovative UK Native Seed Hub and other conservation initiatives.

We continue our endeavour to collect and maintain seed samples from at least one population of each of the bankable UK native species. Below is a list of species which are likely to be storable and not yet represented in the collections at the MSB. These are there-

fore a priority for collection from UK populations. If you are able to help by harvesting seed from any of these species, or if you know of any suitable populations and are able to monitor seed development in the coming season, please let me know using the contact details above. With your help we are gradually reducing the list. We have received collections from seven species on the list so far this year; and have offers to collect several more as the seeds mature.

I have enclosed in brackets the species that rarely, or never, produce seeds in the UK.

Some species will never be collected, either because to do so would compromise their survival in the wild, or because their seeds do not survive the banking process, and these have been removed from the list.

In addition to the above, we also wish to strengthen our existing collections for which we have low seed numbers. Please contact me if you wish to see a copy of this list.

In response to the growing national demand for seed to support restoration, we also aim to hold multiple samples of as many native species as possible from across their U.K. range. If you have the opportunity to make collections from any locally abundant species in connection with your other fieldwork, please let me know.

We will provide collecting equipment (for seed and associated vouchers), a freepost facility and a comprehensive collection protocol for your guidance.

<i>Alchemilla glomerulans</i>	<i>Epipactis sancta</i>	<i>Polycarpon tetraphyllum</i>
<i>Alchemilla wichurae</i>	<i>Exaculum pusillum</i>	<i>Populus tremula</i>
<i>Allium ampeloprasum</i>	<i>Festuca arenaria</i>	<i>Potamogeton alpinus</i>
<i>Allium oleraceum</i>	<i>Festuca armoricana</i>	<i>Potamogeton epiphydrus</i>
<i>Allium vineale</i>	<i>Festuca huonii</i>	<i>Potamogeton rutilus</i>
<i>Alopecurus magellanicus</i>	<i>Festuca lemanii</i>	<i>Potamogeton trichoides</i>
<i>Anacamptis laxiflora</i>	<i>Gymnadenia borealis</i>	<i>Pulmonaria obscura</i>
<i>Arenaria leptoclados</i>	<i>Gymnadenia densiflora</i>	<i>Pyrola rotundifolia</i>
<i>Armeria arenaria</i>	<i>Hedera hibernica</i>	<i>Ranunculus fluitans</i>
<i>Atriplex longipes</i>	<i>Helleborus viridis</i>	<i>Ranunculus paludosus</i>
<i>Brachypodium rupestre</i>	<i>Hydrocharis morsus-ranae</i>	<i>Rosa obtusifolia</i>
<i>Callitriche hermaphroditica</i>	<i>Juncus capitatus</i>	<i>Ruppia cirrhosa</i>
<i>Callitriche palustris</i>	<i>Littorella uniflora</i>	<i>Salicornia emerici</i>
<i>Callitriche platycarpa</i>	<i>Lotus subbiflorus</i>	<i>Salicornia fragilis</i>
<i>Carex chordorrhiza</i>	<i>Maianthemum bifolium</i>	<i>Salicornia ramosissima</i>
<i>Carex montana</i>	[<i>Melampyrum sylvaticum</i>]	<i>Salix phylicifolia</i>
<i>Carex pauciflora</i>	<i>Milium vernale</i>	<i>Saxifraga cernua</i>
<i>Carex recta</i>	<i>Myosotis sicula</i>	<i>Saxifraga spatularis</i>
<i>Carex salina</i>	<i>Myosotis stolonifera</i>	<i>Serapias parviflora</i>
<i>Ceratophyllum demersum</i>	<i>Myosotis sylvatica</i>	<i>Spiranthes romanzoffiana</i>
<i>Ceratophyllum submersum</i>	<i>Najas flexilis</i>	<i>Spirodela polyrhiza</i>
<i>Chenopodium chenopodioides</i>	<i>Neotinea maculata</i>	<i>Stratiotes aloides</i>
<i>Cicerbita alpina</i>	<i>Neottia cordata</i>	<i>Trichophorum germanicum</i>
<i>Cirsium eriophorum</i>	<i>Orthilia secunda</i>	<i>Utricularia australis</i>
<i>Crassula aquatica</i>	<i>Persicaria amphibia</i>	[<i>Utricularia bremii</i>]
[<i>Crepis praemorsa</i>]	[<i>Persicaria vivipara</i>]	[<i>Utricularia intermedia</i>]
<i>Cyperus longus</i>	<i>Phyllodoce caerulea</i>	[<i>Utricularia ochroleuca</i>]
<i>Dactylorhiza ebudensis</i>	<i>Poa alpina</i>	<i>Utricularia stygia</i>
<i>Dactylorhiza incarnata</i>	<i>Poa bulbosa</i>	<i>Vaccinium microcarpum</i>
<i>Diapensia lapponica</i>	<i>Poa flexuosa</i>	[<i>Wolffia arrhiza</i>]
<i>Elytrigia campestris</i>	<i>Poa infirma</i>	

Juncus bulbosus

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Juncus bulbosus (Bulbous Rush) is split into two subspecies: ssp. *kochii* and ssp. *bulbosus* (Stace, 2010). In order to look at some other characters and define these two further, I would be interested in receiving fruiting specimens from anywhere in the U.K. This may help to establish more about their distribution as well. Continued effort in recording such

taxa is useful. I am willing to look at herbarium specimens, which can be returned (postage paid). A longer-term study looking at herbarium material may reveal something about their distribution.

Reference:

STACE, C.A. (2010). *New flora of the British Isles*. 3rd edition. CUP, Cambridge.

Wanted: Rusty Slender Hare’s-Ear

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Unfortunately I have only recently realised that the BSBI selected *Bupleurum tenuissimum* (Slender Hare’s-ear) as a target for its threatened plant survey this year. This umbellifer is also of great interest from a fungal conservation point of view, specifically for the rare rust fungus *Puccinia bupleuri* that obligately depends on it. Although a number of rusts were red-listed for the first time in 2006 and a selection achieved Section 41 listing in 2007 (as indeed did the host plant), somehow *P. bupleuri* slipped through the net and its British conservation status has never been assessed. Nevertheless, before I started my ‘spare time’ searches in 2010, this fungus had but a single known post-1960 site in Britain, suggesting red-listing might be appropriate. This collection, with a voucher preserved in Kew, was made by B. Wurzell at Leigh-on-Sea (TQ88), South Essex (v.c.8) in 1997. The area of coastline bordering the Thames estuary and stretching northwards to South Suffolk had been historically productive, with seven other sites recorded between 1864 and 1946. The only other known British record dates from the early nineteenth century (Worthing, Sussex) and was found on a specimen of *Bupleurum* in Herb. K. My own recent searches of host populations along the south coast have been disappointingly unsuccessful, but I was finally rewarded on 6th Aug 2011 with a sighting of a

second extant population at Allhallows-on-Sea (Kent), a site currently in the news in connection with artists’ impressions of potential new airports for London. The accompanying photograph (see inside front cover) shows what to look out for: tiny scattered rust pustules (sori) erupting from host leaves and releasing clusters of red-brown granular spores. Although a few patches of affected plants were seen at Allhallows, flowering was not inhibited and the vast majority of the population was rust-free. Presence of the rust therefore, would not seem to constitute a threat to the plant. In early August I was delighted to hear that T. Abrehart has found a third post-1960 population of *P. bupleuri* in one of the historical hectads, TM22, N. Essex v.c.19.

If any BSBI *Bupleurum* enthusiasts think they might have found more of its rust associate, it would be enormously helpful if you could collect a few leaves and send to me for checking (hopefully to put into K). There are very few rust specialists hunting for such things in England and who better to find the often well-camouflaged host plant than those already familiar with searching in its favoured habitats. Anybody finding candidate rust pustules (no other rust is known on this plant) is encouraged to photograph them if possible, take GPS readings and contact me (details above). Good hunting!

OFFERS

The flowering plants and ferns of Angus

BARBARA HOGARTH, 12, Moyness Park Drive, Blairgowrie, Perthshire, PH10 6LX

A botanical audit of the vice-county, based on fieldwork between 1981 and 2011, with a note on factors leading to change, a brief tour of the habitats (20 pp.), and systematic species accounts with distribution by 10km squares.

Pp xxviii + 158. Spiral bound A4. £15 per copy plus £5 for postage and packing (cheques payable to B. Hogarth).

Only available from the address above.

Flora of North Lancashire

The *Flora of North Lancashire* by Eric Greenwood was published in March 2012 by Carnegie Publishing Ltd. for the Lancashire Wildlife Trust (see inside rear cover).

The book was launched at the Trust's Brockholes Nature Reserve near Preston on 23rd March. It is 50 years since the BSBI published its first *Atlas of the British Flora*, which inspired the initiation of work for the present publication. It is also 50 years since the Lanca-

shire Wildlife Trust was founded. On a beautiful March day some 70 guests enjoyed a buffet lunch and launch at the Trust's innovative floating village centre at the reserve.

Copies of the *Flora* can be obtained from Carnegie Publishing Ltd.

(www.carnegiepublishing.com; Tel.: 01524 84011), from Summerfield Books or any bookshop.

Two Teesdale items available

MARGARET E. BRADSHAW, *Eggleston, Barnard Castle, DL12 0AU*

The following are available for interested members:

1) A leaflet with photographs of 21 members of the 'Teesdale Assemblage of Rare Flowering Plants' is available. For a copy please send two second-class stamps and a self-addressed, stamped envelope 9 × 4.5 ins. to Dr Margaret E. Bradshaw, Eggleston, Barnard Castle, DL12 0AU.

2) Another paper by Frank Horsman on 'The earliest botanists in Teesdale' has been published in the *Teesdale Record Society Journal*, 3rd Series, 19: 25-35 (2011). Copies of the journal can be obtained from Dr W.F. Heyes, High Dyke, Middleton-in-Teesdale, Barnard Castle, for £5.50 including postage and packing.

NOTICES

Dates for your diaries:

Coast and fens of Anglesey, Tuesday 11th – Friday 14th June, 2013

2013 Annual General Meeting, 9.30a.m., Wednesday 12th June

The Bulkeley Hotel, Beaumaris, Anglesey, LL58 8AW

In celebration of the 200th anniversary of the publication of *Welsh Botany* in 1813, the first Welsh county flora. We have reserved the Bulkeley Hotel in the attractive town of Beaumaris, on the edge of the Menai Strait, with views over the water to Snowdonia beyond.

The plan is to assemble on Tuesday afternoon (exhibits, Summerfield Books *etc.*), with introductory talks after dinner.

After the AGM on Wednesday morning, we will travel by coach to either Cors Goch or Cors Erddreiniog, two of the internationally important fen National Nature Reserves. Both

reserves have sections of boardwalk into the fen and a range of other habitats, including heath, limestone grassland and open water.

On Thursday, we plan a full day excursion by coach to either Aberffraw Dunes or Newborough Warren, extensive sand dune systems with fine dune slacks; then onto either Penrhosfeilw Common or South Stack, coastal cliffs and heath with South Stack Fleawort and Spotted Rockrose.

We disperse after breakfast on Friday, or members are very welcome to stay for the Welsh AGM on Friday morning, followed by a choice of excursions, probably Cwm Idwal

or Treborth Botanic Garden and the shore of the Menai Strait; followed on Saturday with a visit to the classic limestone of the Great Orme, Llandudno.

We expect the hotel price to be about £60 per person, per night, for dinner, bed and breakfast, with a small discount for those staying three nights or longer, to include the Welsh meeting. There will be a supplement of £10

per night for single occupancy and a conference fee, currently thought to be about £20 for coach hire and other incidentals.

A full programme and booking form will be posted on the website in due course and sent out with *BSBI News* 122 in early 2013. Meanwhile, further details, offers of exhibits *etc.* can be obtained from Ian Bonner at the address inside the rear cover.

The 51st Welsh A.G.M. and Conference
Friday 14th June – Saturday 15th June 2013
The Bulkeley Hotel, Beaumaris, Anglesey, LL58 8AW
Organiser: Delyth Williams

The 51st Welsh AGM will be based in The Bulkeley Hotel in the attractive town of Beaumaris, on the edge of the Menai Strait, with views over the water to Snowdonia beyond.

This year the Conference element has been shortened and dovetailed into the end of the 2013 National AGM, which is to be held at the same venue (see above).

The National AGM disperses after breakfast on Friday 14th or members are very welcome to stay on for the Welsh AGM, which will be at 09.30. This will be followed by a choice of excursions, probably to Cwm Idwal or Treborth Botanic Garden and the shore of the Menai Strait. On Friday night there will be an evening lecture, followed on Saturday with a visit to the

classic limestone of the Great Orme, Llandudno. Departure thereafter.

The hotel price is expected to be about £60 per person, per night, for dinner, bed and breakfast, with a small discount for those staying three nights or longer, to include the national meeting. There will be a supplement of £10 per night for single occupancy and a small conference fee.

A full programme and ONE booking form for BOTH AGMs will be posted on the website in due course and sent out with *BSBI News* 122 in early 2013 and the *Welsh Bulletin* in December/January.

Any queries to Delyth: delyth@siriolbryn.co.uk

NEWS OF MEMBERS

The Presidents' Award, 2011

JOHN SWINDELLS, 10 Vivian Road, Bow, London, E3 5RF; (john.swindells3@sky.com)

Sir Ghillean Prance, President of the Wild Flower Society, and Ian Bonner, BSBI President, have agreed that the Presidents' Award for 2011 should be given to Chris Boon for his *Flora of Bedfordshire*. The two Presidents comment that "in a bumper year for splendid county floras the Bedfordshire Flora just wins. It is an excellent work".

This annual award acknowledges "the most useful contribution to the understanding of the

flowering plants and ferns of the British Isles through a book, major paper, discovery or outstanding exhibit" in a calendar year. The award is presented at a main meeting of each society in alternate years. This year it is the turn of the Wild Flower Society and Chris Boon has accepted the invitation to receive his award at their AGM in Ainsdale, Lancashire this September.

On becoming an honorary member of the BSBI

JANE CROFT, *Stow Longa, Huntingdon, Cambs., PE28 0TL*; (stowlonga@btinternet.com)

It was with great pleasure that I heard I was to be nominated for honorary membership of the Society.

At the Annual General Meeting in Reading in May, Dr Rod Corner and myself were nominated, and an outline of our contribution towards the work of the Society was read out to the members present. We were both then duly elected honorary members.

Although Rod was not able to be present at the meeting, he had the foresight to prepare a short reply of thanks, which was read out to the assembled members, but at the time I was too over-awed to stand up and say a few words!

I would now like to take the opportunity to record my gratitude to the Society. It has been hugely satisfying to contribute to the many aspects of botanical recording undertaken by the BSBI over the years, and particularly to be involved with the publication of the *New atlas of the British & Irish flora*. Latterly, my ten years working as Field Secretary gave me the

opportunity to meet, spend time and share knowledge with so many active members in the field and to visit many previously unknown botanical sites. My geographical knowledge improved enormously!

Further afield, visits to several of our offshore islands provided a chance to botanise with some of the Society's more distant recorders. Exciting excursions even further afield, to Cyprus, the Czech Republic, Transylvania, Portugal, France, Estonia, Sicily, Spain and the Balearic Islands was a great way to liaise with many very knowledgeable botanists who were so generous with their time and expertise.

I wish the society every success in all its future recording schemes and new ventures and hope that with increased publicity we will attract many new, young and energetic members to ensure the continuity of our excellent society.

OBITUARY NOTES

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

Since the publication of *BSBI News* 120, 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 S A Evans, 8 Manley Grove, Ilkley, West Yorks, LS29 8QJ. He joined the BSBI in 1994.

Mr S Hayward, 6 Gilbert Court, Brownsfield Road, Thatcham, Berks, RG18 2AG. He joined the BSBI in 2011.

Dr R M Henson, 9 Harlow Manor Park, Harrogate, North Yorkshire, HG2 0EG. He joined the BSBI in 1981.

Mr H Mottram, Quhytewollen Farm House, Lockerbie, Dumfriesshire, DG11 2NE. He joined the BSBI in 1995.

Mrs J M Newton, 1 Grasshills, Aldbourne, Marlborough, Wilts, SN8 2EH. She joined the BSBI in 1985.

Mr M J O'Sullivan, 20 St James Gardens, Killorglin, Co. Kerry, Ireland. He joined the BSBI in 2003.

Miss E J Rich, Jesmond Dene, Five Ashes, Mayfield, East Sussex, TN20 6JG. She joined the BSBI in 1972.

Mr E R Spooner, 2 River Row, Blowinghouse, Redruth, Cornwall, TR15 3AT. He joined the BSBI in 1983.

Mr P Wormell, 'Hallival', Letterwalton, Ledaig, Connel, Argyll, PA37 1SA. He joined the BSBI in 1979. An obituary will appear in the next *Yearbook*

PUBLICITY & OUTREACH

“BSBI? Why haven’t I heard of you before?”

LOUISE MARSH, BSBI Publicity & Outreach: six month pilot project; (publicity@bsbi.org.uk)

Recently, some of us have been finding wry amusement replaced by frustration, when mention of BSBI is still met with blank stares and comments of “But I’ve never heard of you”, even from those keen on natural history, including members of local Wildlife Trusts and national bodies such as Plantlife.

So, as 2012 is the year in which the Society celebrates the 50th anniversary of publication of our ground-breaking *Atlas of the British flora*, this seemed an opportune moment to seek a modest budget to start promoting BSBI to a wider audience. Ian Denholm, Chair of Meetings Committee, and I proposed this to BSBI Council back in March, and it was agreed to set up a six month Publicity & Outreach pilot project. Council authorised me to lead this initiative, as I have a background in publicity and PR but also, as one of the founders of a very active local BSBI group (v.c.55) which attracts members from across the East Midlands to its local field meetings, I knew that many regional members would be delighted at the chance to tell everyone about the Society’s scientific achievements and how much fun it is botanising together in the field, with people at all skill levels sharing ID tips. I’m convinced that the enthusiasm and expertise of such “Ordinary members” – what a misnomer! – is the best possible advertisement for the Society, and I hope the evidence of this pilot project will support my hypothesis.

To test the waters, Ian Denholm, Sally Peacock (v.c.56) and I accepted an invitation to Big Nature Day at the Natural History Museum in May. We exhibited copies of both Atlases, and spent around £40 on two posters and some interpretation cards showing contrasting plant distributions and their relationship to geography, topography, soil type and climate. Our vases of wildflowers, grouped by family or by habitat, contained carefully selected specimens for ID demonstrations, with species targeted at beginners:

- *Ranunculus bulbosus*, *R. acris* and *R. repens*: only two of these are “groovy”.
- Leaves of *Fragaria vesca* vs. *Potentilla sterilis*: one points out free fruit to come but the other might leave you depressed/disappointed.
- The Importance of Knowing your Umbellifers: fresh specimens of culinary herbs and common “weeds” (some edible), with herbarium sheets of *Conium maculatum*, *Oenanthe* spp. and *Meum athamanticum*, BSBI Handbook number 2 and the odd reference to Socrates!

We also plugged the BSBI website remorselessly all day, and the following day website traffic was up by 28% on the previous Monday: co-incident or correlation?

With an ever-improving stand, and the help of five enthusiastic local volunteers, we were able to exhibit free of charge for five days as part of the “Highly Commended” CEH/BRC stand at Gardener’s World Live at the NEC in Birmingham in June. We told several hundred people about the Society, thousands more walked past our stand and, again, we noted a small surge in web traffic and subscription numbers just after the event.

By the time of Birdfair at Rutland Water in August we had hit our stride, with an eye-catching display (see inside back cover and back cover) and an Outreach Team which now included Head of the Plant Unit, Kevin Walker, and Hon. Gen. Sec., Lynne Farrell. They each spent a day on the stand and have offered valuable support to the pilot project. However, once again we could not have exhibited without the help of eight members from the v.c.55 group, from those who covered during tea-breaks to Rachel Benskin (Leicester University Botanic Garden) who spent a total of 23 hours either on the stand or growing on/collecting and assembling all the plant material. We also benefited from the presence of Meetings Secretary John Bailey, and of Clive Stace, who delivered a tie-in talk on “Berries for Birds” to a packed lecture

theatre: a pdf of this is available via the BSBI website.

To commemorate the *Atlas* anniversary, we launched a special discount offer on new membership subscriptions, which has since been thrown open to all potential new members (see website (www.bsbi.org.uk)). Twenty-one people tried to take advantage of this during Birdfair alone, but sadly problems with the wi-fi connection thwarted some subscription attempts on the first day. However, we noted that nearly a third of the 330+ visitors to the stand asked specifically about BSBI field meetings in their vice-counties and local opportunities for part-time training in plant ID. It was noticeably easier to engage people’s interest in the Society if there was a local BSBI group offering field meetings and/or training nearby, but folk from parts of the country with little local group activity as yet were harder to convince of the benefits of membership: further evidence of the value of active local groups in enthusing newcomers, as well as in mentoring future generations of botanists.

We had some nice but inexpensive BSBI T-shirts made up for volunteers putting in at least one full day on a promotional stand, so a T-shirt and fulsome thanks for all their hard work and enthusiasm go to all those mentioned above and to the other volunteers drawn from the list: Russell Parry, Diane Mattley, Angela Wheatcroft, Rowan Roenisch and Geoffrey Hall (all v.c.55), Alyson Freeman (v.c.32) and Oliver Pescott (v.c.63). John and Monika Walton (recorders for v.c.38) put in a day between them, so they are having one T-shirt to fight over! Teabreak & set-up volunteers also included Paul

Stevens, Steve Woodward (both v.c.55) and Neil Crossman (v.c.31): huge thanks but no T-shirt yet, sorry.

Thanks also to June Saddington (v.c.55), who has been photographing the stall for us at events and posting the results on the BSBI Facebook page; and for advice, support and help with design of the exhibition materials, thanks go to Paul Smith and Polly Spencer-Vellacott (Wales), Jim McIntosh, Ruth McGuire and particularly Claudia Ferguson-Smyth (all BSBI Scotland), who made this a national, as well as regional, effort by BSBI. Finally, without Ian Denholm’s vision and guidance, none of this would have happened, but this is starting to sound like an Oscar acceptance speech: my apologies!

This six month pilot project also involves developing a longer-term strategy for promoting the Society, publicising its achievements, and attracting and engaging new members, and there’s still time if you would like to offer suggestions or get involved with the discussions: please email me at the address above. It would be really helpful to hear as many opinions on this as possible. The exhibition materials may also be made available – electronically or otherwise – for members who would like to use them for an event promoting the Society. So, if your v.c. is having a local Bioblitz or other Citizen Science/Nature Conservation event, just email me and say what you would like to use, and when, and I can put together a bookings list showing demand for next year, when I hope even more members will be jostling for the opportunity to promote the Society to a public that seems very keen to know more about us.

RECORDERS AND RECORDING

Panel of Referees and Specialists

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

Luke Bristow is stepping down as Referee for *Aphanes* and Desmond Meikle is retiring as Referee for *Salix*; we hope to have replacements for these in due course. Hugh Dawson is also retiring as referee for aquatic plants, and Richard Lansdown is taking over from him. If

you wish to send fresh material please email him beforehand.

His address is: 45 The Bridle, Stroud, Glos. GL5 4SQ; rlansdown@ardeola.demon.co.uk.

Ralph Forbes, referee for European alpine plants, has a new email address: forbes.ralph@gmail.com.

We have received a number of helpful replies to our plea to potential referees in the January

issue of *BSBI News*. To those who are awaiting suggestions from our end, please bear with us – we have not forgotten you but need further discussion in Records Committee about the best way forward.

Panel of Vice-county Recorders

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

New recorders and changes:

V.c.35. Monmouthshire: Stephanie Tyler and Elsa Wood are to be joint recorders; correspondence to Dr Tyler at Yew Tree Cottage, Lone Lane, Penallt, Mons, NP25 4AJ. Trevor Evans steps down after 40 years with my sincere thanks to him for all his work and successes.

Changes of address:

V.c.64 Mid-West Yorks: D. Broughton has moved to 1 Margate, Woodlesford, Leeds, LS26 8PB

Notes from the Plant Unit

KEVIN WALKER (Head of Research and Development), *97 Dragon Parade, Harrogate, North Yorkshire HG1 5DG*; kevinwalker@bsbi.org.uk

Staffing issues

Since I last reported, the Plant Unit has witnessed a number of staff changes. Following interviews in May, we appointed Dr Maria Long as the BSBI's first Irish Officer. Maria will be working for us for two days a week, starting on 1st October. She will be based in Dublin, where the National Botanic Garden (Glasnevin) have kindly offered her office space. This is an exciting development for botany in Ireland. Maria brings a lot of relevant experience to the post and we are confident that she will make a big contribution to Irish botany. Her contact details will be posted on the BSBI website as soon as they are confirmed. In early September, Jim McIntosh returns after his year as the resident botanist on Tristan de Cunha. By all accounts Jim has had a great time, although recording on such a rugged island has been challenging and he is keen to get back to the relative 'flatness' of Scotland. I would like to thank Angus Hannah, who ably stepped in whilst Jim was away. In Wales, our congratulations go to Polly Spencer-Vellacott, who has secured another three-year contract from CCW and is also pregnant. We wish Polly all the best for

the birth and welcome Paul Green, who has agreed to stand in for Polly whilst she is away. Paul is due to start in November and is likely to be based at the National Museum of Wales in Cardiff.

A new Red List for England

One of the main drawbacks of the GB Red List published in 2005 is that it does not adequately assess threat at the national (country level). This led to the publication of a *Vascular Plant Red List for Wales* by Trevor Dines in 2008. England has now followed suit, with plans to produce a country-level Red List assessment using the same (or a similar) methodology. Natural England is funding us to produce this and we have just appointed Dr Peter Stroh (ex Anglia Ruskin University) to complete this important work.

Threatened Plants Project (TPP)

This summer is the last official year of this project, but we hope to use next summer to 'fill in' gaps where we feel survey coverage is incomplete. This will probably be organised around a series of targeted field meetings, where small teams concentrate on specific areas of species. We are also making progress

on the analyses of the project so far. Bob Ellis has now done analyses for a handful of species and these will be written up by a small team of authors for the *New Journal of Botany*. I have also produced an introductory paper which describes the survey aims and methodology, and hopefully this will be published early next year, with an account for *Astragalus danicus*. There is no doubting that the survey has been a great success. Thanks to the hard work of vice-county recorders and their teams, we have managed to amass a wealth of information on some of our most threatened species. In addition, the method (and recording form) has now been adopted by a number of organisations for their own threatened plant surveys. Most recently some of the data are also being used to develop a ‘threatened species’ indicator, which will be used to test the Government commitments to biodiversity conservation as we approach 2020. I intend to write a much fuller update for the project, which will be sent to all those who have contributed later in the year.

A new plant surveillance scheme

This summer we have been piloting a new plant surveillance scheme, which is intended to complement our excellent *Local Change* method. We are working closely with Plantlife and the Centre for Ecology and Hydrology on this, as well as around 30 volunteers who have agreed to test the method and provide feedback. The pilot will continue next summer and we plan to launch the scheme, funding permitting, in 2014 or 2015.

Distribution Database (DDb)

Those of you who use the DDb will have noticed some important recent changes, most notably improvements to the querying, mapping, and export facilities. For example, it is now possible to see whether records fall inside designated areas such as Sites of Special Scientific Interest. Maps can also now display records within date-classes. Access is restricted to vice-county recorders, their local teams and trusted partners (*e.g.* academics, conservationists, *etc.*). If you are one of these

and have not yet registered then please go to <http://bsbidb.org.uk/createuser.php>.

Mapping the British and Irish flora, 1962-2012

No doubt you will have heard that 2012 marks the fiftieth anniversary of the publication of the first atlas of the British flora in 1962. To mark this event we have produced a booklet: *50 years of mapping the British and Irish flora 1962-2012*, which we intend to distribute to delegates at the September Edinburgh conference. The booklet shows how mapping has changed over the last half century, with examples of mapping national distributions, developments in mapping at finer scales, and the aids we now use to help interpret maps. The booklet will be of general interest to all botanists, and so we hope to sell it at a very modest price via Summerfield Books.

Raising our profile

Having paid staff has inevitably raised our profile both within the conservation sector and in the mind of the general public (hopefully our forthcoming name change will not affect this). This has included coverage in the national press and/or increasing involvement in TV and radio productions. In 2012 this has included:

- My contribution to Radio 4’s ‘Living World’ episode on Pasqueflower.
- Polly’s appearance on Radio Wales’ ‘Science Gossip’ episode on citizen science.
- BSBI involvement in the forthcoming Channel 4 series on British plants (see below).
- BSBI involvement in the BBC 2’s excellent series on plants earlier this year (‘How to grow a planet’).

We have also attended ‘nature’ events, including Gardener’s World Live at the National Exhibition Centre, the Big Nature Day at the Natural History Museum and most recently the Birdfair at Rutland Water. These are all helping to raise the profile of the BSBI and show that Plantlife are not the only charity to join if you are interested in the British and Irish flora (see p. 66).

New Channel 4 series: *Wild things*

By the time you read this, you will have probably watched the first episode of the excellent new Channel 4 series on British plants: *Wild things*. From its conception, the idea of the series was to 'spotlight' the maps the BSBI produces and use these to help tell interesting stories about our flora. There are quite a few obvious examples, such as Danish Scurvy-

grass spreading along our roads, but also some really arcane stuff, which I'm amazed they got past the C4 producers! The BSBI has been heavily involved in the production of this series (we even had a few members short-listed to help present it), as well as the book that will accompany the series, so please watch it and enjoy your six episodes of fame.

From the Scottish Officer – JIM MCINTOSH

c/o Royal Botanic Garden, 20A Inverleith Row, Edinburgh, EH3 5LR;
(Tel: 0131 2482894 or 0791 7152580; j.mcintosh@rbge.ac.uk)

The BSBI Scottish Officer Returns!

I have returned to the BSBI Scottish Officer role, after my year's sabbatical surveying the flora of Tristan da Cunha, reputedly the world's most remote inhabited island. It was the most *amazing* adventure of my life and even more of an adventure than I thought it would be! If you'd like to hear about it and see some of my photographs, come to the BSBI Scottish Annual Meeting, where I am giving the main talk. It is on 3rd November at

Battleby, Redgortan, Perth this year – see the enclosed flyer.

Meanwhile, Angus Hannah has done a splendid job in my absence. But I have got a whole year to catch up on. So, we started with a handover meeting immediately after I returned to post on the 10th September. I am very excited to be back and am looking forward to seeing everyone again. I will be based at the Royal Botanic Garden, Edinburgh again, but am aiming to get out and about even more than previously.

From the acting Scottish Officer – ANGUS HANNAH

Glenmore, Rothesay, Isle of Bute, PA20 0QU;
(Tel.: 01700 503879; butesedge@yahoo.co.uk)

Site Condition Monitoring

This season saw the start of a new cycle of Site Condition Monitoring. Six sites were allocated to BSBI, of which three had never previously been monitored, and Iain Macdonald (our new SNH contact) spent some time tracking down such records as existed for them in SNH files. Surveys of the other three have been completed, and reports are being prepared.

Threatened Plant Project

This is the last year of this project, and those VCRs with nominated species in their area have been busily surveying. Please remember to send in your completed forms to Kevin Walker as soon as possible.

Dandelions

In April News, I stated erroneously that Richard Pankhurst's computerised key could not be used on modern Windows systems, because it runs in DOS. I have since learned that it is a simple matter to download DOSBOX, which creates a DOS shell within Windows and allows the programme to run perfectly. Meanwhile, Richard is to be congratulated on the newly described *T. pankhurstianum*, which has been well publicised in the media.

Field Meetings

12 field meetings were held in Scotland during the season, including two week long meetings, on the island of Coll (v.c.103) and in Kirkcudbrightshire (v.c.73), and four days were specifically dedicated to education and training, as

well as a weekend workshop on Alchemillas. Many thanks to all the leaders and helpers involved. I attended most of these meetings, greatly enjoyed them and learned a great deal.

Another busy programme is being put together for next year. Details will be published in the Yearbook, but advance notice can be given here of a week in Islay (June 8-15, 3 places remaining, contact me) and a

week on a boat around Lewis (July 13-19, contact Paul Smith).

Signing off

By the time you read this, Jim will have returned to his post and I will have handed back my Scottish Officer duties. Thanks to everyone for helping make my time in the job as interesting and enjoyable as it has been.

Diary for 2012

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

10 Oct.	Records Committee, London	23 Nov.	Flora of Cold Regions, British Antarctic Survey, Cambridge
11 Oct.	Publications Committee, London	24 Nov.	Special General Meeting & Annual Exhibition Meeting
16 Oct.	Training & Education Committee		British Antarctic Survey, Cambridge
17 Oct.	Executive Committee, Linnean Society, London		
20 Oct.	Welsh Committee, Aberystwyth	2013	
31 Oct.	Council, Linnean Society, London (note changed date)	11-14 June	Coast and fens of Anglesey, Beaumaris
3 Nov.	Scottish Annual Meeting & AGM, Battleby, Perth	13 June	Annual General Meeting, Beaumaris, Anglesey

**CONTRIBUTIONS INTENDED FOR *BSBI NEWS* 122
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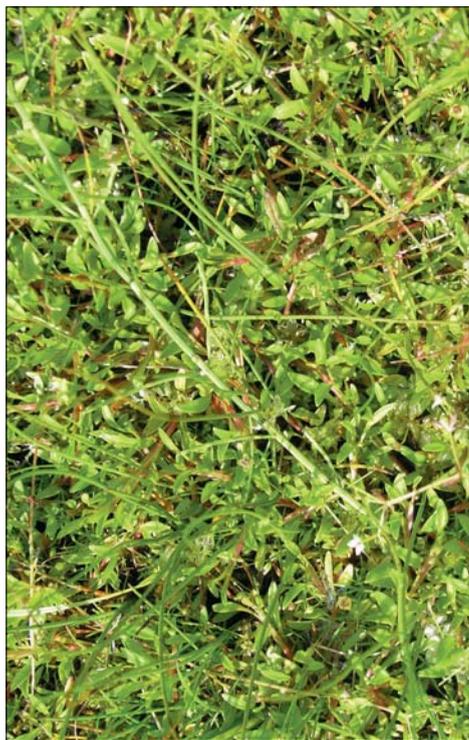
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1. *Saxifraga hirculus*, close-up of flower, at a newly discovered site at the head of Arkengarthdale, N.W. Yorkshire, 2012.



2. *Saxifraga hirculus* shoots in open grazed habitat.



3. Knock Ore Gill enclosure in Spring 2006, with cushions of *Saxifraga hypnoides* (Mossy Saxifrage) and *Geum rivale* (Water Avens) and litter build up showing in bottom right corner.



4. *Saxifraga hirculus* flush at Knock Coal Shop showing moor grip cutting through it.

All photos taken in north Pennines © L. Robinson (see p. 53)



1. Peloric-2 mutant Bee Orchid.
Photo P. Smith © 2007



2. Mutant Bee Orchid.
Photo S. Brown © 2012



3. Mutant Bee Orchid.
Photo Y. Couch © 2012

All *Ophrys apifera*, near Aveley (v.c.18) (see p. 45)



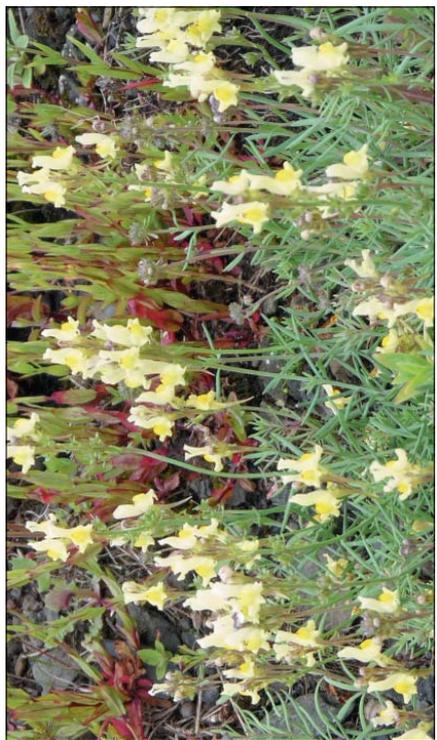
Sorbus devoniensis – trunk detail, Heligan,
Cornwall. Photo D. Cann © 2011 (see p. 41)



Sorbus devoniensis – fruit detail, Umberleigh,
N. Devon. Photo D. Cann © 2009 (see p. 41)



Viola riviniana at woodland edge, Shipley (v.c.64).
Photo M. Wilcox © 2011 (see p. 21)



Linaria supina growing on little used railway track by the Plym estuary, Plymouth. Photo © P. Pullen 2012 (see p. 58)



Viola reichenbachiana at edge of river bank, Baildon (v.c.64).
Photo B.A. Tregale © 2012 (see p. 21)



Eryngium campestre (Field Eryngo) discovered by John Ray 7th July 1662 at Western King, Plymouth. Photo 350th anniversary 7th July 2012 © M. Probert (see p. 56)



Omphalodes cappadocica on wall with detail of flowers, Petworth (v.c.13).
Photo G. Housome © 2012 (see p. 59)



Hieracium vagum, waste ground by R. Plym near Plymouth with detail of inflorescence.
Photos P. Pullen © 2010 (see p. 58)