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Ophrys tenthredinifera (Sawfly Orchid) at Purbeck, (v.c.9) in April. Habitat (l) and close up of first flower (r). Both photos M.R. Chalk © 2014 (see p. 32)

Mary Briggs botanising in Slovenia, camera and umbrella at the ready (photo taken by the late Betty Goddard, supplied by Mary's daughter, Jenny Grech) (see p. 59).

Mary Briggs in Wengen, Switzerland, photo taken by Dr Arthur Hollman and reproduced with his permission

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Cover picture – : Close up of 2 flowers of *Ophrys tenthredinifera* (Sawfly Orchid) at Purbeck, (v.c.9). Photo M.R. Chalk © 2014 (see p. 32)

IMPORTANT NOTICES

From the President

IAN DENHOLM, *Dept. of Human and Environmental Sciences*, *University of Hertfordshire, Hatfield, Herts., AL10 9AB*; (i.denholm@herts.ac.uk)

The tail-end of the field season beckons, unless you are in the fortunate position of being able to switch attention to fungi and bryophytes! But at least this season got off to an exceptionally early start. Weather during winter and spring appears to have favoured many plant and animal taxa, altering and making their phenology very difficult to predict. I confess to a certain bias but, in my experience, it has been an exceptional year for orchids, with commoner species such as Bee, Pyramidal and Fragrant occurring in great abundance and at new localities.

Our team of field meetings organisers assembled another very tempting programme of events throughout England, Wales, Scotland and Ireland. I hope that everyone who attended one or more of these found them inspiring and informative. As always, we can re-live these adventures when field meeting reports are published in the next *Yearbook*. Due to competing commitments (*i.e.* work!), I could not attend as many as I had hoped, but the summer meeting, based at Birnam in Perthshire, was terrific. A stimulating indoor day of talks was followed by a wide choice of excursions to suit all tastes and abilities: many thanks to Jim McIntosh and colleagues in Scotland who worked hard to put this together and ensure its success.

A copy of the *Annual Review 2013* is enclosed with this issue of *BSBI News*. It summarises a busy and very successful year for BSBI and my thanks go to all who contributed to it and supervised its production. The Review has traditionally been circulated in April, but organisational changes (especially those to BSBI's financial year) account for the later distribution. In addition to informing our membership, the Review plays a valuable role in publicising the Society and its activities to a much wider audience of external individuals and organisations. We remain very keen to broaden its circulation, so if you have suggestions for additional recipients please forward these to Gwynn Ellis (contact details are at the back of *BSBI News*).

The Perthshire meeting in June also marked the conclusion of Lynne Farrell's five-year tenure as Hon. Gen. Sec. of the BSBI. Lynne has devoted a huge amount of her time to this role and has made fantastic contributions. I know that everyone joins me in heart-felt thanks for her commitment, enthusiasm and efficiency (see inside back cover). We are still seeking a successor to Lynne in a post that is now considerably less arduous, due to recently-appointed staff taking on a number of the tasks. Please see page 3 for further details of the HGS vacancy and consider volunteering for such an exciting and rewarding position at the heart of the BSBI's operations!

From the Treasurer

ANTONY TIMMINS, *154A Warley Hill, Warley, BRENTWOOD, Essex, CM14 5HF*; (antony.timmins@hotmail.co.uk)

2015 Membership Subscriptions

I last spoke about this topic in the 2012 Annual Review, where I mentioned that we had been trying to keep membership costs to an absolute minimum during the recession and as we got to grips with the changes which were needed to our structure and governance. We have therefore frozen subscriptions since 2009 during my entire time as Treasurer to the point where the subscriptions are now by and large completely absorbed in servicing the member-

ship and do not, as they used to do, contribute to the wider scientific work of the society.

In 2015 the reorganisation will be complete and we will be turning to working on serving our members better, making better use of your skills and improving how we communicate with you, and developing other new initiatives. We also have challenges coming up such as the new Atlas. We are therefore proposing to increase ordinary subscriptions by £5 (which seems a lot but is effectively the amount by which they would have gone up over the years since 2009, had we not frozen them).

The cost of membership per year would therefore be as follows in 2015:

- **Ordinary Membership – £30 / €38** in the UK and Ireland.
- **Family – £4 / €5** for each additional member at the correspondence address (but no separate mailings).
- **Junior – £12 / €15** up to the age of 21 or up to 25 if in full-time education.
- **Overseas – £32 / €40**.
- **Institutions – £12 / €15**.
- **Senior – £22 / €28** for members who have been with the Society for at least 10 years, are over 65 and not in full time employment.

You will already be familiar with our membership categories and lower costs for our junior and senior members, who we feel it is important to subsidise as much as possible. The changes in organisation at the Society that have taken place over the past year mean that technically membership subscription rates need no longer need be agreed at the AGM, but could be set by the trustees, as is the case for organisations like the National Trust. While that is the letter of law, at the end of the day we are incredibly reliant on you our members so we will include the item as hitherto in order to explain and consult with our members. At the end of the day while the trustees have the responsibility for balancing the books, the membership can sack the trustees, so while we think this is reasonable we'd be grateful for your views!

The income membership subscriptions bring to BSBI is only a relatively small proportion of the overall costs needed to keep the Society functioning but it is the cornerstone of our funding. Without the funding and time you give us we would not be able to achieve the external funding which is enabling us to advance the science of botany.

Finally, a huge thank you for your support to date and I hope that it will continue into 2015.

From the Head of Operations

JANE HOULDSWORTH, *16 Carlisle Street, Bromley Cross, Bolton, BL7 9JF*;
(Tel.: 07584 250 070; jane.houldsworth@bsbi.org)

New Honorary General Secretary sought

As Ian Denholm has mentioned, Lynne Farrell has done a sterling job as Honorary General Secretary (HGS) for the BSBI over recent years, but stepped down from the position in June this year. As yet a successor has not been found, but if you might be interested and would like to know more about the role (which is now much less time consuming than it used to be) please get in touch with me or Ian Denholm.

During this interim phase should you have any enquires that would usually be dealt with by the HGS please can I ask that you contact me in the first instance (contact details shown above)? Various tasks that the HGS would usually oversee are currently being shared between others and I will be able to point you in the right direction on a case-by-case basis.

Notes from the Editors

TREVOR JAMES (Receiving Editor), *56 Back Street, Ashwell, Baldock, Herts., SG7 5PE.* (Tel.: 01462 742684) (trevorjjames@btinternet.com)
GWYNN ELLIS (General Editor), *41 Marlborough Road, Roath, Cardiff, Wales, CF23 5BU* (Tel.: 02920 496042) (gwynn.ellis@bsbi.org)

Mary Briggs (1923-2104)
We were very sad to hear of the death of our former President and long standing Honorary General Secretary, Mary Briggs, I am sure that we all have fond memories of her and a short appreciation appears on p. 59 with photos on the inside front cover.

Congratulations to our Joint Welsh Officer, Polly Spencer-Vellacott on the birth of her son, Robin Philip, on Thursday 21st August, weighing 7lb 13oz. Mother and son are both doing well.

***Watsonia* online**
The Biodiversity Heritage Library have now digitised many *Watsonia* copies (http://www.biodiversitylibrary.org/bibliography/83809), though in a slightly different format from the ones on our BSBI archive site (http://archive.bsbi.org.uk/watsonia.html).

Contributions to *News*
Can we remind the general membership that we do want 'ordinary' articles from anyone who would like to submit something about material that interests them? However, we could also do with reminding people of the format preferred – WORD document, with minimal formatting, preferably in Times New Roman 10 pt., and without photos embedded in text, sent as JPEGs of at least 300kb, preferably more than 1Mb., with details of captions required and original photographer. More details can be found on the website at: http://www.bsbi.org.uk/BSBI_News_Instructions_2014.pdf

Reading the notices printed here about the demise of the paper *Scottish Naturalist* and its replacement with a solely electronic format, it might need us to state our continued commitment to publishing a paper journal, if at all possible. We believe a 'permanent' 'news' journal, attractive and of general interest to all members, at whatever level of expertise, is essential for the Society, when so much other 'communication' these days is essentially ephemeral and only accessible electronically to those that can make use of it.

Illustrated field guides
A PDF of Philip Oswald's review entitled *Illustrated field guides to the wild flowers of Great Britain and Ireland* published in *Taxon*, **63**: 467–471 in April 2014 has been kindly supplied by its Reviews and Notices Editor, Dr Rudolf Schmid, and is reproduced on the BSBI website by courtesy of the publishers, the International Association for Plant Taxonomy (IAPT): (http://www.bsbi.org.uk/Taxon_Field_guides_-Oswald-.pdf)

V.c boundaries
On the BSBI website there is a link to an excellent site which not only gives the v.c. of any postcode in Great Britain, but also altitude, grid reference (in several formats) and an interactive street map: (http://www.cucaera.co.uk/grp/?refs=TF184007&map=road&vcs=true&graticule=true&nsgrids=false&zoom=18&lat=52.5917818732102&lon=-0.25366794889061683)

Where are they now?
We are still trying to trace the current addresses of the following members:

Mr D.M. Keith-Lucas, Dept of Botany, The University, Whiteknights, Reading, RG6 2AS.
Mr I.O. Penberthy, 9 Cowper Close, Penarth, South Glamorgan, CF64 2SU.
Mr L. Magee, 4 Park Square, Parklands, Pool in Wharfedale, Otley, West Yorks, LS21 1LB.
Mr M.J. Skelton, Flat 4, 31 Hamilton Road, Bournmouth, BH1 4EQ.
Dr P.A. Wookey, School of Biological and Environmental Sciences, University of Stirling, Stirling, FK9 4LA.
Mr H. Wood, 8 Birkbeck Gardens, Nateby Road, Kirkby Steven, Cumbria, CA17 4TH.

NOTES

A volunteer survey of *Parnassia palustris* (Grass-of-Parnassus) on the Sefton Coast, Merseyside, v.c.59

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BEN DEED, *Merseyside BioBank, Estate Barn, Court Hey Park, Roby Road, Liverpool, L16 3NA*

Introduction

With its large white starry flowers in August and September, *Parnassia palustris* (Grass-of-Parnassus) is a beautiful and increasingly rare plant of base-rich flushes, mires, fens, machair and sand-dune slacks. Ellenberg indicator values show that this species is light-loving (L = 8), associated with constantly moist to wet soils (F = 8) that are weakly acid to basic (R = 7) and relatively infertile (N = 3), the plant being absent from saline sites (S = 0) (Hill *et al*., 2004). The plant has a circumpolar boreo-temperate distribution, being located mainly in more northerly parts of Britain. It has seriously declined in England, largely due to land drainage, having a change index of -0.84 (Gornall, 2002). In Lancashire, Greater Manchester and north Merseyside, *P. palustris* is listed as "endangered" by the Wildlife Trust, most of its inland populations being on the brink of extinction. However, it still occurs in some abundance in the Sefton Coast sand-dunes in north Merseyside, where it has been a well-known feature since the 19th century.

Thus, McNicholl (1883) wrote: 'There are localities among the sandhills beyond Birkdale where, in favourable seasons, so vast is the quantity of the *Parnassia* that the whiteness of the ground may be compared to that given by daisies to the sward.' An even earlier account comes from P. Whittle (1831): 'But we have another floral beauty to mention – it is the exquisite grass of Parnassus, with its innocent, modest and unassuming petal argent, beautifully pencilled with lutea (yellow); this pretty flower grows luxuriantly here.'

These descriptions still apply to many dune-slacks along the Sefton Coast, where the plant occurs as the coastal ecotype var. *condensata* (Travis & Wheldon, 1912), characterised by compact clumps with more tufted basal leaves, having lamina as long as or longer than the petioles and numerous short, stout flowering stems bearing larger flowers and capsules than the type form. There has been debate on whether these characters are retained in cultivation, but experiments by Gornall (1988) confirmed that they are and that taxonomic recognition is justified.

Despite its familiarity in Sefton, there is no detailed information on this species' distribution, numbers and habitat characteristics. These data are urgently needed to plan its future conservation, so it was decided to organise a coast-wide survey in August-September 2013. It was already known that *P. palustris* was almost entirely confined to slacks but, as about 300 individual slacks have been recorded and mapped in the Sefton dunes, this was not going to be an easy task.

Methods

Early in 2013, invitations to take part in the survey were circulated widely to volunteer groups in the region. About 50 potential volunteers responded, a total of 35 being involved directly in the survey. A survey protocol was drawn up outlining field-work methods, the main aim being to record the position (grid reference) of colonies, the number of flowering plants and the approximate area of habitat occupied. This information was supplemented by a number of habitat variables that were relatively straightforward to record, including slack type - wet or dry, based on the criteria of Ranwell (1972), evidence of grazing by Rabbits and/or livestock, human trampling and the presence of scrub. A small number of expert botanists was recruited to record representative

quadrats, using UK National Vegetation Classification (NVC) methodology (Rodwell, 2000) and to take surface soil samples for pH determination using a Lutron PH-212 soil pH meter buffered at pH4 and pH7. Mean sward height was also recorded in most of the quadrats. Best fits to NVC communities were determined using MAVIS or TABLEFIT programmes.

Formal permissions were obtained from the relevant land-owners and risk assessments carried out. Three training events were organised for volunteers in mid-August, these being attended by 33 participants.

Due to an extremely cold spring and high slack water-levels in 2013, *P. palustris* flowered later than usual, so the field survey did not begin until late August, continuing through most of September. The National Trust estate at Formby Point, golf courses and older duneland at Ainsdale and Birkdale were known from previous studies to support few if any *P. palustris* plants. These sites were therefore excluded from the survey.

Results

Distribution and numbers

A total of 214 sites, almost all within dune-slacks, was recorded during the survey, 113 (53%) being occupied by the target species. They were distributed from Hightown sand-dunes in the south to Queen's Jubilee Nature Trail in the north, a linear distance of about 15km. Plants were recorded in nine tetrads (SD20W, 20X, 20T, 20S, 21V, 21W, 31B, 31C and 31D) within three hectads (SD20, 21 and 31). Figs. 2a – e (see pp. 17-18) show the distribution of occupied and unoccupied sites from south to north. It is evident that, with some exceptions, slacks containing *P. palustris* are situated towards the western fringes of the dune system, *i.e.* in younger parts of the duneland.

The total number of flowering plants counted was 46,320, the largest concentrations being at Cabin Hill National Nature Reserve (NNR) (6178 plants), parts of Ainsdale NNR (8528), Ainsdale LNR (4934) and Birkdale Sandhills LNR frontal dunes, west of the coastal road (7335). The greatest abundance of all was found in a relatively small area at the southern end of Birkdale Green Beach, together with the New Green Beach, where 12,435 plants were counted, this being 27% of the grand total (Table 1, p. 13).

Habitat

Almost all the sites supporting *P. palustris* were recorded as slacks, these being seasonally flooded hollows between the dunes. They are usually formed secondarily by wind-erosion or, less often, as swales between successive ridges (primary dune-slacks). In all cases, their plant assemblages and soil properties are strongly linked to a fluctuating water-table (Curreli *et al*., 2013).

Overall, 48,679m^2 (about 4.9ha) of slack habitat were recorded as occupied by *P. palustris* plants, though a few small colonies were not measured (Table 1). The largest extent was found in Ainsdale Sand Dunes NNR (35% of the total) followed by Birkdale Green Beach with 20%. Sites supporting plants were designated as follows: wet-slack 41%; dry-slack 42%; damp-slack 17% (the latter being intermediate between the two main types). However, recorders noted that, in wet-slack habitat, plants were often restricted to drier areas around the fringes of the slacks.

About 77% of sites showed some evidence of Rabbit-grazing, though this was mostly recorded as 'slight'. Only 39% of sites were subject to livestock-grazing (in winter only). Human trampling and/or disturbance were noted at 71% of sites, this often being reflected in the presence of informal footpaths through or round the edges of slacks. Several recorders noted the occurrence of plants in zones near the edges of paths where vegetation was partly suppressed.

Scrub invasion was noted at 88% of the occupied sites, with *Salix repens* (Creeping Willow) being predominant and recorded in 89 sites (90%). Other major scrub species listed were *Hippophae rhamnoides* (Sea Buckthorn) (38 sites), *Salix cinerea* (Grey Willow) (21) and *Betula* (birch) at 19 sites. *Crataegus monogyna* (Hawthorn) and *Alnus glutinosa (*Alder) were noted at only three and two sites respectively.

Soil pH

The results of surface-soil pH determinations are shown in Table 2, p. 13. Mean pH for seven sites ranged from 6.94 to 7.80, these relatively high values for waterlogged soils reflecting the presence of calcium, derived from intertidal mollusc shells in sand blown up from the beach (Smith, 2009). A Kruskal-Wallis test shows that median pH of the seven sites exhibit significant overall differences ($K = 19.13$; d.f. = 6; $P < 0.01$), largely due to a lower pH at Cabin Hill.

Classical studies by Salisbury (1925) demonstrated that soil pH on the Southport dunes, now the Sefton Coast, declines with distance from the shore due to leaching of calcium by rainfall. James (1993) stated that this reduction of pH over time also applies to slacks. Fig. 1 (p. 16) shows the relationship between mean soil pH at seven sites and approximate distance from mean high-water, the latter being measured using Google Earth. As expected, there is a statistically significant declining trend, with Cabin Hill, the furthest site from the sea, having the lowest mean pH ($r = -0.92$; $r^2 = 0.85$; $t = 5.3$; $p \leq 0.01$). Similar results were obtained during a study of Blunt-flowered Rush (*Juncus subnodulosus*) in Sefton Coast dune-slacks (Smith, 2014a).

Vegetation

Forty-seven 2 × 2m quadrats were recorded in representative habitat supporting *P. palustris*. These contained 92 vascular plant associates of the species (Table 3, p. 13), the most frequent, with 20 or more occurrences, being *Agrostis stolonifera* (Creeping Bent) (42 occurrences); *Carex arenaria* (Sand Sedge) (39); *Epipactis palustris* (Marsh Helleborine) (36); *Euphrasia nemorosa* (Common Eyebright) (42); *Festuca rubra* (Red Fescue) (46); *Holcus lanatus* (Yorkshire-fog) (33); *Juncus articulatus* (Jointed Rush) (22); *Leontodon saxatilis* (Lesser Hawkbit) (27); *Lotus corniculatus* (Common Bird's-foot-trefoil) (31); *Ranunculus repens* (Creeping Buttercup) (32); *Rubus caesius* (Dewberry) (28); *Salix repens* (40) and *Trifolium repens* (White Clover) (32).

The number of species in the 47 quadrats ranged from 12 to 29, with a mean and standard deviation of 19.2 ± 3.76. This relatively high species-richness is characteristic of many dune-slacks on the Sefton Coast (Smith, 2009). The slacks are also renowned for their rare plants, 13 (14%) of those listed being either regionally or nationally notable (Table 3). Interestingly, only four associated species (4%) are non-native, in contrast with the sand-dune flora as a whole, which has about 37% alien vascular plants (Smith, 2014b).

Analysis of quadrat samples gave accordance with three NVC slack communities (Rodwell, 2000), namely SD16: *Salix repens-Holcus lanatus* dune-slack, SD14: *Salix repens-Campylium stellatum* dune-slack and SD13: *Sagina nodosa-Bryum pseudotriquetrum* dune-slack (Table 4. p. 16). Found at Ravenmeols, Ainsdale LNR and the Sands Lake area of Birkdale LNR, SD16 is characteristic of older, drier calcareous slacks that rarely flood to any great extent and are often subject to grazing, in this case by Rabbits. The *Agrostis stolonifera* sub-community: SD16d (sample 2 at Ainsdale) is associated with rather wetter conditions, while the *Rubus caesius* sub-community: SD16b at two Ravenmeols slacks suggests a slightly drier habitat. SD13 and SD14 communities are found in young to moderately aged slacks, subject to periodic brief and shallow submergence by base-rich ground-water. Examples were recorded at the Green Beach, New Green Beach and nearby young primary slacks.

Unexpectedly, Cabin Hill samples came closest to SD8d: *Festuca rubra-Galium verum* fixed-dune, *Bellis perennis-Ranunculus acris* sub-community. This is a species-rich grassland type of calcareous fixed-dunes. Although often associated with relatively dry conditions, the *Bellis* sub-community can extend to damper ground, especially when *Agrostis stolonifera* is present, as in this case (Rodwell, 2000).

It should be noted that the levels of fit to known NVC communities in five cases are poor to very poor, while six groups of samples at Ravenmeols, the Sands Lake area and Ainsdale LNR (2) produced fair to good matches (Table 4).

Sward heights

Average sward heights measured in 26 NVC quadrats ranged from 10 to 35cm. Ainsdale LNR had the lowest mean sward height (12cm), while Birkdale Green Beach (south) contributed the highest (30cm), the other sites showing small differences (15-22cm).

Discussion

The use of a large team of volunteers enabled better coverage than would have been possible with a small number of professionals, who would have required more than one field season. However, a disadvantage was the varied abilities of the participants, some being experienced field surveyors and others relative novices, though the training events helped to bridge the gap.

Because it was necessary to simplify techniques as much as possible, most of the habitat characters recorded were qualitative rather than quantitative and could not be used to investigate differences between occupied and unoccupied sites, other than in the most general terms. Despite these limitations, some useful insights were gained, especially from the more detailed quadrat-based studies.

Bearing in mind its nationally declining status, a *P. palustris* population of over 46,000 in nearly 5ha of slack habitat is likely to be one of the largest and densest in Britain, though there seem to be no comparable data in accessible literature. This species is considered endangered in northern France, Luxembourg, Belgium and the Netherlands (Bonnin *et al*., 2002), so the Sefton Coast may be internationally important for the plant. However, had the survey taken place a year or two earlier, the total count might have been much greater. Thus, in 2012, there was a spectacular flowering of *P. palustris*, estimated to consist of over 10,000 plants, in the Devil's Hole blow-out at Ravenmeols (Smith & Lockwood, 2013). This was reduced to 1125 plants in the survey year, due, it is thought, to the exceptionally deep and prolonged flooding of the site the previous winter and spring. This record high water-table also affected other slacks on the coast, apparently causing mortality of the target species.

Recent population changes have also been noted at Cabin Hill NNR, which hosted tens of thousands of plants from 2005 to 2008, followed by a marked decline to just over 6000 during the current survey (PHS pers. obs.). Two factors may be responsible for this decline: firstly, the almost complete disappearance of Rabbits, apparently caused by disease, resulting in overgrowth of coarser vegetation; secondly, a series of drought years before the floods of 2012/13 (Smith, 2012).

The target species was found in only about 4.9ha of slack area. This is a small proportion of the potentially available habitat, the Sefton Coast having over 114ha of slacks and freshwater wetland, amounting to 33% of the dune-slack resource in England (Edmondson, 2010; Radley, 1994). One factor apparently limiting *P. palustris* distribution and abundance is site age, this species seeming to favour younger slacks. Thus, the Devil's Hole began to be colonised by vegetation in 2003, Grass-of-Parnassus being first seen in 2009. By 2012, it was abundant within a diverse community of 88 vascular taxa (Smith & Lockwood, 2013). Similarly, annual surveys of Birkdale Green Beach did not find *P. palustris* until 2004 in vegetation that was only about four years old. Each year since then, the plant has become more numerous (PHS pers. obs.). This area now supports its strongest population on the coast, with over 7600 plants. Immediately to the south, vegetation on the "New Green Beach" originated in 2005, *P. palustris* being first identified in 2009. This population has also increased annually, reaching about 4800 plants in 2013. Similarly, Google Earth shows that the young primary slacks immediately east of the New Green Beach developed vegetation after 2000, over 4500 *P. palustris* plants being counted during the present survey.

The dry-slacks west of Sands Lake are somewhat older, having formed by wind-erosion in the mid-1970s during a period of low water-table coupled with heavy recreational pressure (Smith, 2006). In recent years, volunteers have kept these slacks relatively scrub-free by cutting and pulling young *Hippophae rhamnoides*, while localised Rabbit-grazing

and human trampling have maintained short swards occupied by about 5100 *P. palustris* plants in 2013.

Younger slacks often support SD13 and SD14 vegetation (Table 4), both communities being species-rich and associated with relatively shallow, short-lived flooding by base-rich ground-water (Rodwell, 2000). Older slacks at Ainsdale and Birkdale are usually densely colonised by tall *Salix repens* and accord with SD16. Although some of these slacks hold populations of *P. palustris*, many do not, especially those towards the rear of the dune system, where leaching has reduced the calcium content of the soil. A surprising exception is slack 143 in the north-eastern part of Ainsdale NNR. Although this slack is about 1km inland, it retains an open, species-rich plant community, including over 1000 plants of *P. palustris*. This may be due, in part, to disturbance in 1974, when a large blow-out was re-profiled and re-vegetated to prevent sand-blow onto the nearby coastal road. Furthermore, the slack has been subject to localised heavy Rabbit-grazing and rigorous scrub-control by site managers.

With over 5000 plants, the largest concentration of *P. palustris* in Ainsdale NNR is at slacks 15 and 16, within the so-called dune restoration area. Here, conifer woodland and scrub were removed in the mid-1990s, followed by extensive winter sheep-grazing. Rabbits have also continued to thrive in this area. Disturbance during dune restoration, together with year-round grazing pressure in these large dry-slacks, seems to have maintained suitable conditions for *P. palustris* together with another nationally declining species, *Gentianella campestris* (Field Gentian) (Smith & Lockwood, 2011).

Older slacks are evidently susceptible to scrub invasion. In addition to the ubiquitous *Salix repens*, the present survey noted many examples of this, especially involving *Hippophae rhamnoides*, *Salix cinerea* and *Betula* spp. *P. palustris* seems to be intolerant of competition from coarse vegetation and scrub, this hypothesis being supported by its relative absence from heavily scrub-colonised slacks and its frequent occurrence on the edges of footpaths where taller plants are suppressed.

Although an Ellenberg reaction value of 7 suggests that *P. palustris* can cope with mildly acid soils, Roem & Berendse (2000) found that this species tended to occur on soils with pH values of 7 or higher, as in the more westerly slacks on the Sefton Coast. Similarly, the plant has the relatively low Ellenberg N value of 3, indicating adaptation to infertile conditions (Hill *et al*., 2004). Millington *et al*. (2010) showed that Sefton dune soils generally have relatively low nitrogen levels but with a tendency for an increase in the older parts of the system. This, in turn, may be linked to the presence of woody vegetation, especially *Hippophae rhamnoides*, which is a nitrogen fixer and has a high frequency of occurrence in older Sefton Coast slacks. In studies on the East Frisian Islands, Germany, Isermann *et al*. (2007) found that dune soils supporting *H. rhamnoides* had higher values of both organic matter and nitrogen and that increasing scrub cover resulted in gradual carbon and nutrient enrichment of the soil. Shrub expansion initially caused an increase in species-richness but this rapidly declined as scrub development continued, the trend being linked to a loss of species with high conservation value.

The above findings also have a historical context. It is known that many of the large slacks at Birkdale and Ainsdale were formed by wind erosion during the 19th century, when the dunes were particularly unstable. These slacks would soon have supported species-rich pioneer communities, maintained by livestock grazing, which was prevalent at the time, and also by Rabbits kept in managed warrens (Smith, 2009). The resulting abundance of *P. palustris* was noted in vernacular literature (*e.g*. Whittle, 1831; McNicholl, 1883). A little later, Salisbury (1925) described *P. palustris* as "common" in a slack near the shore that he estimated to be between 14 and 25 years old. This species was accompanied by a range of typical open community plants.

Conservation

It is hoped that the data collected during this survey will act as a baseline for assessing population changes in the future and judging the success of conservation measures. Most of the populations of *P. palustris* on the Sefton Coast are on land statutorily protected by Site of Special Scientific Interest and *Natura 2000* designations. The plant's presence is not given as a reason for notification, although it is mentioned in the SSSI description. Almost all localities for the target species also lie within National or Local Nature Reserves with appropriate management plans. The present study suggests that habitat management favouring *P. palustris* will include maintaining the hydrology of sites and preventing the over-maturation and coarsening of swards, including scrub invasion. Well-established vegetation management techniques already practiced on the dunes, such as scrub-clearance, slack-mowing, turf-stripping and the introduction of livestock-grazing are likely to be beneficial. In addition, light recreational trampling and Rabbit-grazing appear to help maintain open swards and reduce the dominance of *Salix repens*. Unfortunately, Rabbit populations in many parts of the dune system are currently low, probably due to myxomatosis, though some areas, including the open dunes in Ainsdale NNR, still support significant numbers. Mowing and livestock-grazing may be helpful in maintaining short swards favoured by Rabbits as, once coarser vegetation becomes established, Rabbits tend to be excluded (Drees & Olff, 2001).

The need for such management partly relates to increasing concerns over eutrophication linked to aerial deposition of nitrogen from industrial and agricultural sources, this having roughly doubled in Europe over the past 30-40 years (Jones *et al*., 2004). These authors demonstrated a negative relationship between N inputs and plant species-richness in mobile and fixed dunes, though the trends were less clear in dune-slacks. Grazing may help to mitigate these impacts. Thus, in a 36-year study on Ainsdale NNR, Millett & Edmondson (2013) showed that grazing by Rabbits and sheep reduced the cover of woody plants, while increasing both grass and herb cover and species diversity. However, although it retarded succession in a valuable way, grazing did not entirely prevent this process taking place, leading the authors to suggest that re-establishment of disturbance to create new slack habitat, followed by grazing, may be a more successful strategy. Similarly, Plassmann *et al*. (2009) showed by experimentation that duneland grazing helped to keep competitive grasses in check and maintain species-rich swards but did not mitigate all the negative effects of N-deposition.

Studies of *P. palustris* suggest that isolated populations are susceptible to lowered genetic diversity, which may adversely affect viability. The plant is mainly out-crossing and strongly dependent on insect pollinators, especially hoverflies (Diptera: Syrphidae), for maximum seed-set, the small, light seeds being dispersed by water or wind (Bossuyt, 2007). According to Bonnin *et al*. (2002), poor seed dispersal restricts colonisation to sites a few hundred metres apart, making successful dispersal unlikely if such areas are separated by several km. Fortunately, Sefton Coast slacks with *P. palustris* are sufficiently close at present to permit easy colonisation of new habitat, but this could change if maturation of existing sites makes them less suitable for the plant.

In the longer term, climate change could also adversely impact slack habitats. Thus, based on hydrological studies at Ainsdale NNR, Clarke & Sanitwong Na Ayutthaya (2010) created a conceptual water-balance model into which were incorporated climate predictions from the UK Climate Impact Programme. The model suggests that, by the end of the century, water-table levels may fall by as much as 1.5m, though annual variability will remain high. This could mean that slacks remain dry for extended periods, putting at risk species like *P. palustris* that depend on seasonally humid or flooded slack basins.

The present survey shows that Grass-of-Parnassus is most abundant in younger slacks that have open, species-rich plant communities in relatively short swards and on calcareous soils. As elsewhere in Northwest Europe, the Sefton dunes have become much more stable in recent

decades, with overgrowth of grasses and scrub, a great reduction in exposed bare sand and a consequent low rate of slack formation (Houston, 2008; Smith, 2009). Exceptions include the Birkdale Green Beach area and the Devil's Hole blow-out at Ravenmeols, where large populations of *P. palustris* have appeared recently. Following successful projects in the Netherlands and Denmark, there is now increasing interest in using heavy machinery to re-mobilise and rejuvenate overgrown coastal dunes in Britain. Resulting sand mobility could then produce blow-outs and new secondary dune-slack habitats. Such management, currently underway on some Welsh dune systems (Howe *et al*., 2012), would help to mitigate the adverse effects of climate change and create new habitat for *P. palustris*.

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This survey would not have been possible without the active participation of the following volunteers in addition to the authors: Barbara Allen, Joe Barnes, Claire Boardman, Susan Bowden, Adam Britt, Mike Brown, Margaret Connor, Chris Dallimore, Mary Dean, Sally Edmondson, Daniel Finnegan, David Flynn, Peter Gateley, Peter Gawthorne, David Hardaker, Howard Harris, Rod Hill, John Houston, David Hull, Joyce & David Jarvis, Bob & Norma Jude, Rosalind King, Patricia Lockwood, Dave Mallaburn, Ann Paulett, Gail Quarterly-Bishop, Richard & Valerie Walker, Amy Weir, Brian Wilby, Fleur Wilson. We are extremely grateful to them for their unstinting efforts. Coastal landowners who gave permission for the survey include Sefton Council, the Reserve Forces & Cadet Association for the North West of England & the Isle of Man and Natural England. Catherine Highfield and Richard Burkmar kindly assisted with statistical analysis of NVC quadrats and pH data respectively. Natural England (Ainsdale) provided relevant documents and issued permits for work in the NNRs. Sefton Council's Coast & Countryside Service organised facilities for training exercises at the Ainsdale Discovery Centre.

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Table 1. Numbers of plants and habitat area of *P. palustris* in major land holdings

Area	No. of plants	% of total	Area of habitat (m^2)	% of total
Hightown dunes	1	0	0	0
Altcar Rifle Range	203	0.4	44	0.1
Cabin Hill NNR	6178	13.3	3441	7.1
Ravenmeols LNR (including Devil's Hole)	2196	4.7	3439	7.1
Lifeboat Road dunes	0	0	0	0
Ainsdale Sand Dunes NNR	8528	18.4	17055	35
Ainsdale Sandhills LNR	4934	10.7	4215	8.7
Birkdale Sandhills LNR frontal dunes	11,845	25.6	9885	19.6
Birkdale Green Beach & New Green Beach	12,435	26.8	10600	20.3
Total	46,320		48,679	

Table 2. Summary of soil pH data

Area	Grid Reference	No. of samples	Mean pH	Standard Deviation
Cabin Hill	SD283053	5	6.94	0.23
Ravenmeols	SD274060	4	7.7	0.08
Ainsdale LNR	SD296124	1	7.7	0
Sands Lake area (Birkdale LNR)	SD300130	5	7.52	0.15
New Green Beach	SD301136	5	7.72	0.08
Birkdale Green Beach (south)	SD302139	5	7.8	0.32
Birkdale primary slacks (slack 47f)	SD302136	5	7.74	0.15

Table 3. Vascular associates of *P. palustris* in NVC quadrats
Occ. = occurrence in 47 quadrats; * = non-native; Stat. = Conservation status; NS = Nationally Scarce; VU = Vulnerable; SCI = Species of Conservation Importance in North West England

Taxon	English name	Occ.	Stat.	Taxon	English name	Occ.	Stat.
Achillea millefolium	Yarrow	1		*Juncus inflexus*	Hard Rush	1	
Agrostis stolonifera	Creeping Bent	42		*Lathyrus pratensis*	Meadow Vetchling	3	
Aira praecox	Early Hair-grass	8		*Leontodon saxatilis*	Lesser Hawkbit	27	
Ammophila arenaria	Marram	3		*Linum catharticum*	Fairy Flax	4	
*Angelica archangelica**	Garden Angelica	1		*Lotus corniculatus*	Common Bird's-foot-trefoil	31	

Taxon	English name	Occ.	Stat.	Taxon	English name	Occ.	Stat.
Anthoxanthum odoratum	Sweet Vernal-grass	2		*Luzula campestris*	Field Wood-rush	4	
Anthyllis vulneraria	Kidney-vetch	17		*Mentha aquatica*	Water Mint	14	
*Asparagus officinalis**	Garden Asparagus	3		*Odontites vernus*	Red Bartsia	5	
Betula sp.	Birch	4		*Oenanthe lachenalii*	Parsley Water-dropwort	1	SCI
Blackstonia perfoliata	Yellow-wort	12		*Ononis repens*	Common Restharrow	13	
Bolboschoenus maritimus	Sea Club-rush	1		*Parentucellia viscosa*	Yellow Bartsia	1	SCI
Campanula rotundifolia	Harebell	2		*Pastinaca sativa*	Wild Parsnip	3	
Carex arenaria	Sand Sedge	39		*Phragmites australis*	Common Reed	4	
Carex flacca	Glaucous Sedge	31		*Plantago coronopus*	Buck's-horn Plantain	1	
Carex hirta	Hairy Sedge	5		*Plantago lanceolatus*	Ribwort Plantain	10	
Carex nigra	Common Sedge	2		*Plantago major*	Greater Plantain	2	
Carex oederi	Small-fruited Yellow-sedge	5	SCI	*Poa pratensis*	Smooth Meadow-grass	7	
Carlina vulgaris	Carline Thistle	2		*Polygala vulgaris*	Common Milkwort	5	
Centaurium erythraea	Common Centaury	6		*Polypodium vulgare*	Common Polypody	2	
Centaurium littorale	Seaside Centaury	1	NS, SCI	*Potentilla anserina*	Silverweed	3	
Centaurium pulchellum	Lesser Centaury	6	SCI	*Prunella vulgaris*	Selfheal	19	
Cerastium fontanum	Common Mouse-ear	18		*Pyrola rotundifolia*	Round-leaved Wintergreen	3	NS, SCI
Cirsium arvense	Creeping Thistle	5		*Ranunculus acris*	Meadow Buttercup	4	
Crepis capillaris	Smooth Hawk's-beard	8		*Ranunculus flammula*	Lesser Spearwort	3	
Dactylorhiza incarnata	Early Marsh-orchid	5	SCI	*Ranunculus repens*	Creeping Buttercup	32	
Eleocharis quinqueflora	Few-flowered Spike-rush	2	SCI	*Rhinanthus minor*	Yellow-rattle	4	
Elytrigia repens	Common Couch	1		*Rubus caesius*	Dewberry	28	

Taxon	English name	Occ.	Stat.	Taxon	English name	Occ.	Stat.
Epilobium obscurum	Short-fruited Willowherb	1		*Rumex crispus*	Curled Dock	2	
Epilobium parviflorum	Hoary Willowherb	2		*Sagina nodosa*	Knotted Pearlwort	13	
Epipactis palustris	Marsh Helleborine	36	SCI	*Salix caprea*	Goat Willow	1	
Equisetum arvense	Field Horsetail	10		*Salix cinerea*	Grey Willow	7	
Equisetum variegatum	Variegated Horsetail	4	SCI	*Salix repens*	Creeping Willow	40	
Erigeron acris	Blue Fleabane	4		*Scorzoneroides autumnalis*	Autumn Hawkbit	7	
Euphrasia nemorosa	Common Eyebright	42		*Senecio jacobaea*	Common Ragwort	4	
Festuca rubra	Red Fescue	46		*Sonchus arvensis*	Perennial Sowthistle	5	
Galium verum	Lady's Bedstraw	1		*Sonchus asper*	Prickly Sowthistle	1	
Gentianella campestris	Field Gentian	1	VU, SCI	*Taraxacum agg.*	Dandelion	5	
Glaux maritima	Sea Milkwort	4		*Trifolium campestre*	Hop Trefoil	1	
Hieracium sp.	Hawkweed	1		*Trifolium dubium*	Lesser Trefoil	4	
Hieracium umbellatum	Umbellate Hawkweed	2		*Trifolium fragiferum*	Strawberry Clover	2	SCI
*Hippophae rhamnoides**	Sea Buckthorn	7		*Trifolium hybridum**	Alsike Clover	2	
Holcus lanatus	Yorkshire-fog	33		*Trifolium pratense*	Red Clover	1	
Hydrocotyle vulgaris	Marsh Pennywort	11		*Trifolium repens*	White Clover	32	
Hypochaeris radicata	Cat's-ear	15		*Tussilago farfara*	Colt's-foot	2	
Juncus articulatus	Jointed Rush	22		*Vicia cracca*	Tufted Vetch	7	
Juncus bufonius	Toad Rush	7		*Vulpia fasciculata*	Dune Fescue	1	NS, SCI

Table 4. Analysis of NVC quadrats

Site	No. of samples	NVC	Community	Sub-community	% fit	Match
Cabin Hill	5	SD8d	*Festuca rubra-Galium verum* fixed dune	*Bellis perennis-Ranunculus acris*	52	Poor
Ravenmeols LNR sl. 7	5	SD16b	*Salix repens-Holcus lanatus* dune-slack	*Rubus caesius*	64	Fair
Ravenmeols LNR sl. 7a	5	SD16	*Salix repens-Holcus lanatus* dune-slack		63	Fair
Ravenmeols LNR sl. 4	5	SD16b	*Salix repens-Holcus lanatus* dune-slack	*Rubus caesius*	63	Fair
Ravenmeols LNR sl. 3	5	SD16	*Salix repens-Holcus lanatus* dune-slack		65	Fair
Ainsdale LNR (1)	1	SD16	*Salix repens-Holcus lanatus* dune-slack		49	Very poor
Ainsdale LNR (2)	1	SD16d	*Salix repens-Holcus lanatus* dune-slack	*Agrostis stolonifera*	81	Good
Sands Lake area	5	SD16b	*Salix repens-Holcus lanatus* dune-slack	*Rubus caesius*	63	Fair
New Green Beach	5	SD13b	*Sagina nodosa-Bryum pseudotriquetrum* dune-slack	*Holcus lanatus-Festuca rubra*	42	Very poor
Birkdale Green Beach (south)	5	SD14	*Salix repens-Campylium stellatum* dune-slack		42	Very poor
Birkdale primary slacks	5	SD13b	*Sagina nodosa-Bryum pseudotriquetrum* dune-slack	*Holcus lanatus-Festuca rubra*	53	Poor

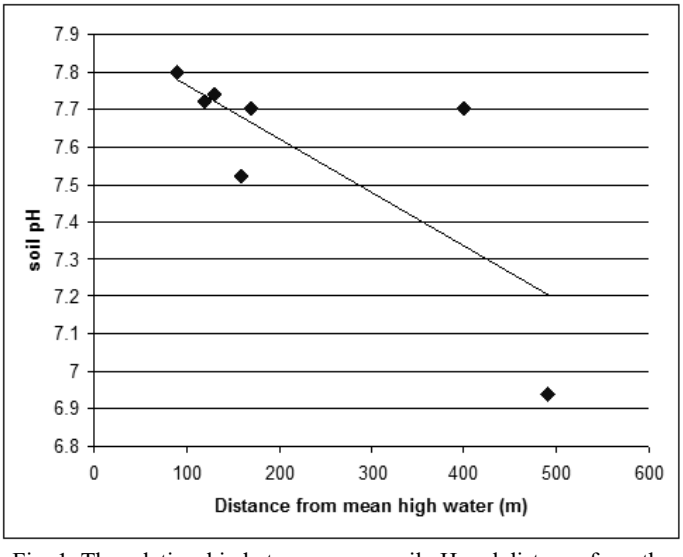

Fig. 1. The relationship between mean soil pH and distance from the sea at *Parnassia* sites

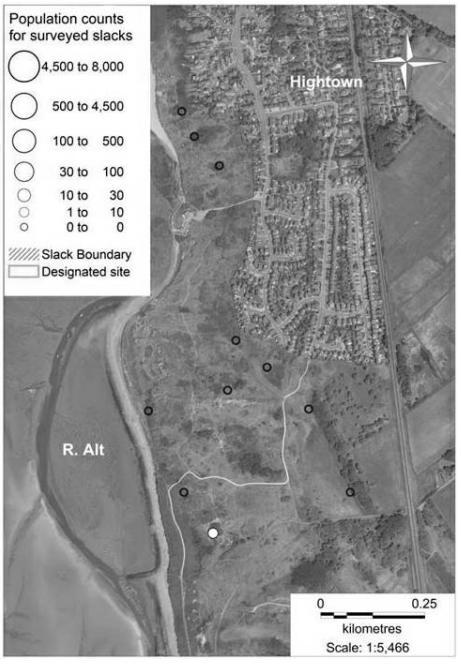

Fig. 2a. Distribution of *P. palustris* at Hightown sand-dunes

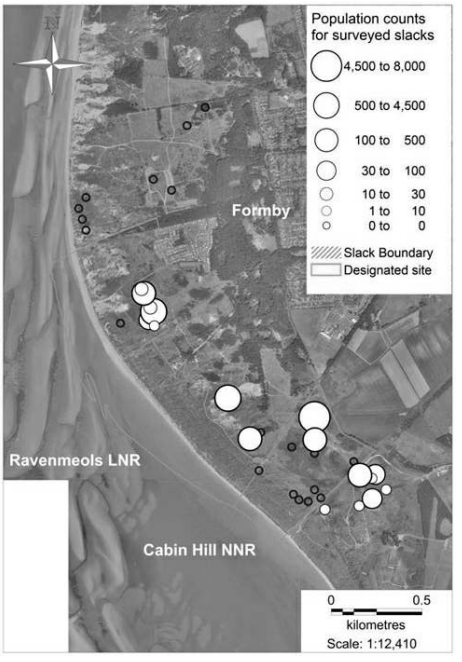

Fig. 2b. Distribution of *P. palustris* at Altcar Rifle Range, Cabin Hill, Ravenmeols & Lifeboat Road

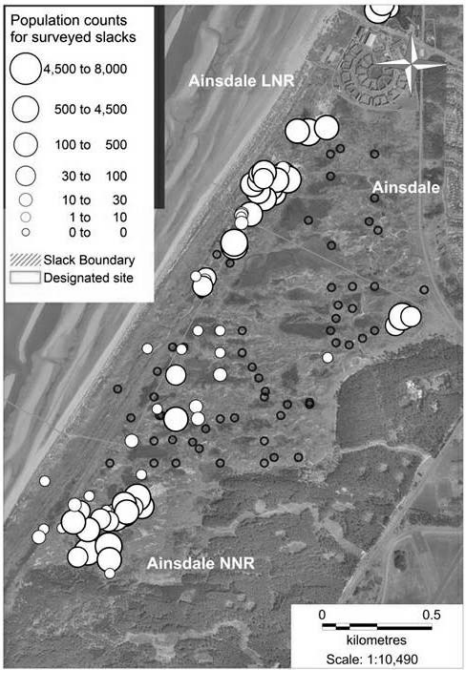

Fig. 2c. Distribution of *P. palustris* at Ainsdale Sand Dunes NNR and Ainsdale Sandhills LNR

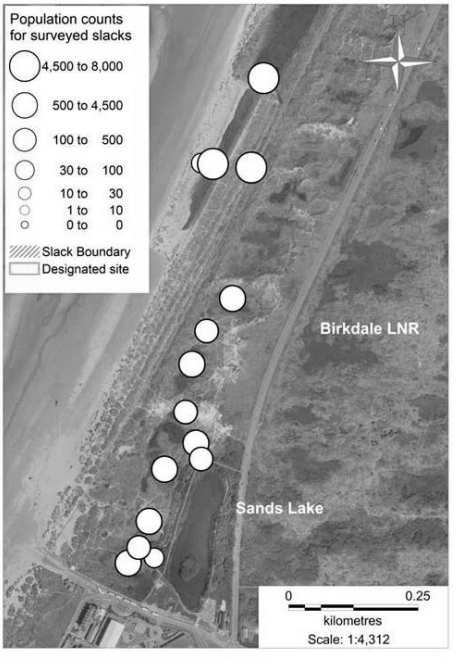

Fig. 2d. Distribution of *P. palustris* at Birkdale Sandhills LNR (south)

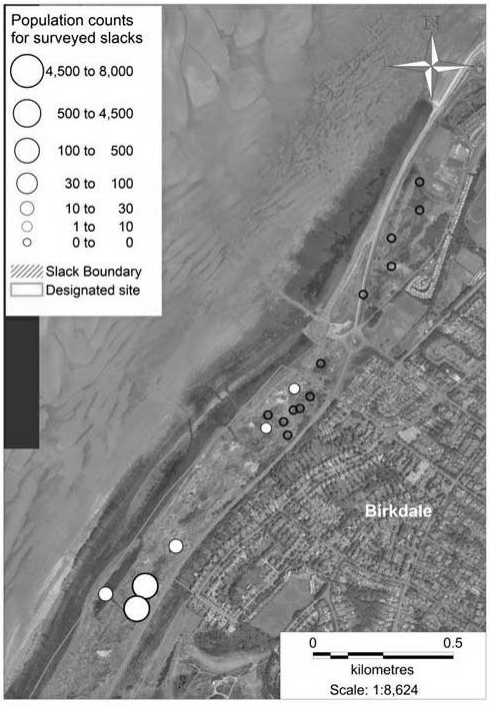

Fig. 2e. Distribution of *P. palustris* at Birkdale Sandhills LNR (north) & Queen's Jubilee Nature Trail

Stereoscopic photography of flowers

COLIN METHERELL, *Hertford, Herts*.

On a Hardy Orchid Society field trip some years ago, I was taken to a site in the Buckinghamshire Chilterns (v.c.24) to see a rare variety of *Epipactis purpurata* (Violet Helleborine): var. *rosea* (see photos). The plant is extraordinary, as it does not contain any chlorophyll. Its stem and leaves are entirely pink and the flowers are white, with a hint of pink. It is believed that the orchid obtains its nutrients entirely from a fungus in the soil, but it is not understood why the fungus should be so obliging, nor if there is any advantage to the fungus. One suggestion is that the fungus has evolved such that it 'knows' that it will eventually receive the benefit of a food supply when the orchid dies.

I always take stereoscopic photographs. A pair of images is taken from a few millimetres apart (for close ups) or about 60mm apart for subjects from two metres or more away. It helps to have a digital stereo camera, such as a Fuji W3, which displays the images directly in 3D on the viewer of the camera, without using glasses. However, with a bit of practice, good results can be obtained using a camera with a bit missing, having only one lens, and taking sequential images from slightly different positions. For viewing side-by-side, images in 3D on a PC or prints, a simple viewer can be used to direct the right eye to the right image and the left eye to the left images and then the brain puts the images into a single 3D image. It is just like seeing the real orchid again (see Colour Section, Plate 4). If the pairs of images are printed with an overall width of 130mm or less, many people can free-view them in 3D without the use of a viewer. In this case you de-focus your eyes so that they view with their axes parallel. 3D picture frames are available and so are computers with glasses-free 3D screens. 3D is fantastic for viewing all flowers. For more information see:

www.stereoscopicsociety.org.uk.

A fourth English site for *Betula nana* (Dwarf Birch)

BILL BURLTON, *8 Westlands, Bellingham, NE48 2DW*;
JOHN RICHARDS, *High Trees, South Park, Hexham, NE46 1BT*;
(hightreesgarden@btinternet.com);
GORDON SIMPSON, *2 Coniston Avenue, West Auckland, DL14 9LL*

One of us (GS) has been employed by the Forestry Commission for more than 20 years to undertake biological recording, primarily in the vast Kielder and Wark Forests of west Northumberland. In this time he has surveyed all the relevant forest compartments by walking every forest road, ride and break. The purpose is to identify important and sensitive wildlife so that these can be protected during potentially damaging timber thinning and extraction. This herculean task was nearly complete on 6th June 2014, when he and Malcolm Gallimore came across a new site for *Betula nana* (Dwarf Birch) in a power-line ride at 280m altitude in the central Wark Forest (see back cover).

In Britain, this circum-arctic dwarf shrub is largely restricted to land above 600m altitude in the Scottish Highlands, and in Scotland it is unknown further south. It was first discovered in England in 1965, when a small and unhealthy plant was discovered in Durham on Widdybank Fell. Remarkably, this survives today. In 1973, a substantial but rather inaccessible population was discovered on Emblehope Moor, South Northumberland, at 420 m. A third site was found in 1998 in north-east Cumberland at only 220 m altitude, in the Spadeadam military area, which has highly restricted access.

The Wark Forest site is therefore the second record for v.c.67. It lies 12km east of the Spadeadam site, and about 30km south of the Emblehope site. It comprises about 11 clearly separate bushes. Most are at least one metre in diameter, and several have satellites or outliers which are probably of vegetative origin. All appear to be in excellent health. The colony stretches from NY75146.72163 to NY75167. 72170, an area of about 25 × 5m. The power-line ride is about 30m wide. The site is roughly level, above a gradual slope to the west, and comprises good quality blanket mire. *Vaccinium oxycoccos* (Cranberry) and *Eriophorum vaginatum* (Hare's-tail Cotton-grass) are abundant and *Andromeda polifolia* (Bog-rosemary), *Sphagnum magellanicum, S. girgensohnii* and *Dryopteris carthusiana* (Narrow Buckler-fern) occur within 30m. There is also a Large Heath butterfly population.

Within the colony the following species occur:

Vascular plants:
Molinia caerulea (Purple Moor-grass) (D)
Vaccinium oxycoccos (Cranberry) (A)
Eriophorum vaginatum (Hare's-tail Cotton-grass) (A)
Calluna vulgaris (Heather) (F)
Erica tetralix (Cross-leaved Heath) (F)
Deschampsia flexuosa (Wavy Hair-grass) (F)
Picea sitchensis (Sitka Spruce) (seedlings) (O)
Vaccinium myrtillus (Bilberry) (O)
Galium uliginosum (Fen Bedstraw) (O)
Betula nana (Dwarf Birch) (O)
Potentilla erecta (Upright Tormentil) (R)
Drosera rotundifolia (Round-leaved Sundew) (R)
Dryopteris carthusiana (Narrow Buckler-fern) (R)

Mosses:
Calliergon cuspidatum (D)
Sphagnum capillifolium (A)
Polytrichum commune (F)
Sphagnum girgensohnii (O)
Sphagnum magellanicum (O)
Rhytidiadelphus squarrosus (O)
Polytrichum strictum (R)
Hypnum jutlandicum (R)

There is free access to the site, but vehicular access is restricted at Hopealone, 2km to the west. There are no immediate threats to the site, although volunteer Sitka Spruce seedlings will need to be removed if they continue to grow.

Seeing double: a true *Geum urbanum flore pleno*?

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Geum urbanum L. (Wood Avens, Herb Bennet, Colewort and St. Benedict's Herb) is a very common and familiar woodland herb found throughout the British Isles, excepting the far north of Scotland, including the Shetland, Orkney, and Outer Hebrides islands and the western seaboard of Ireland (all areas of poor woodland cover) (Fig. 1 below).

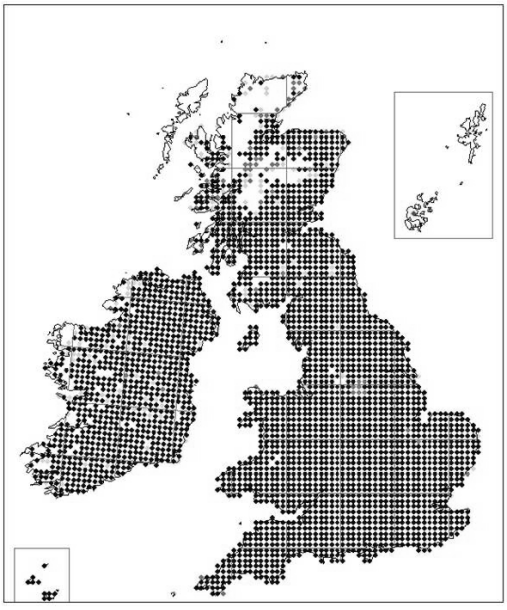

Fig. 1. Distribution of *Geum urbanum* in the British Isles. © *Online atlas of the British & Irish flora*.

Its wider distribution includes an area from southern Norway to north Africa, from Ireland to the Himalayas (Taylor, 1997) and in North America (Carr, 2006), south-western Australia, including Tasmania (*Atlas of Living Australia*, 2014). Its simple floral structure of simple cymes, green calyx, with five yellow petals from 4-7mm in length, varying in shape from obovate to oblong, makes it easily recognisable. Taylor (1997) makes no mention of the number of petals, seemingly assuming we know the number, and that it is fixed. Blamey & Grey-Wilson (1989) defines the Rosaceae flowers as 'often 5-parted', and the genus *Geum* flowers as '5-parted usually'.

Here we have one of the problems of botanical recording: we become so familiar with a plant that we record its presence without observing it at a deeper level. This was brought home to me when walking through Mullaghmean Forest in Co. West Meath (v.c.H23) (53°44'42.70"N 7°16'34.54"W). I was recording the particular mix of flora in the forest as I had done at other times of year. However, this was my first time to do so in June and drifts of *G. urbanum* line the track (the 'yellow trail') at a number of places. In recalling being present in a familiar place but at a new time, I decided to look a bit closer, and lo! - I started to see double *G. urbanum* (see Colour Section, Plate 4) in drifts mixed with drifts of 'normal' *G. urbanum*. We may be familiar with six or even seven-petalled *G. urbanum*, as they appear in photographs of both botanists and photographers alike, sometimes even in *The Times* (and still referencing the five petalled form) (May, 2011) and other places where the recorder appears oblivious to the variation in the number of petals (Table 1 p. 21). The variability in petal number is not mentioned in most floras, but the Mullaghmean specimens go beyond a mere extra petal, since they are a full doubling of the corolla, and so the question is, is this a true *flore pleno* form? The extra-petalled form in question occurs in homogeneous drifts near 'normal' *G. urbanum* in its own homogeneous drifts, therefore insect disruption seems unlikely. Genetics will have to yield the answer, as it may be a hybrid with a garden variety, which are known to exist. The Mid-Atlantic Plant Research Center (maprc.blogspot.ie) has crossed *Geum urbanum* × *Geum* 'Flames of Passion' to produce a large multi-petalled yellow flower. However, the hybrid exhibits a new shape of petal and is fully actinomorphic. *G. urbanum* is also known to hybridise with the other native

Table 1. Records of six and seven petalled *Geum urbanum* from the internet

Recorder	URL	Location	No. of petals	Date of observation or publication
Graham Vincent	https://www.flickr.com/photos/grahamvincent/7281162696/	no location given	seven-petalled	27/5/2012
Pat Lenihan	http://dnfc.net	Knocksink Woods (Ireland)	seven-petalled	10/5/2014
Floraterre	http://floraterre.e-monsite.com/pages/content/fleurs-svg/fleurs-g/geum-urbanum.html	A wood (France)	six-petalled	not dated
Anemone Projectors	http://flickr.com/photo/58414938@N00/5745506809	on a roadside near Aston, Herts (UK)	six-petalled	17/5/2011
Gerald D. Carr	http://www.botany.hawaii.edu/faculty/carr/ofp/geu_urb.htm	Grassy knoll at SE intersection of W Hills Rd. and N 19th St., Philomath, Benton, Co., Oregon (USA)	six-petalled	12/6/2006
Jörn Germer	http://virboga.de	Gangkofen, Bavaria (Germany)	six-petalled	1/6/2008
Philippe Hornus	http://treknature.com	Prades-le-Lez, Languedoc-Roussillon (France)	six-petalled	17/5/2009
Derwent May	http://www.thetimes.co.uk/tto/life/courtsocial/article3052306.ece	no location given	six-petalled	7/62011

species of *Geum*, namely *G. rivale* (Water Avens), to produce *G.* ×*intermedium* Ehrh. (Blamey & Grey-Wilson, 1989), a single flowered hybrid with the floral structure of *G. rivale* and the colour of *G. urbanum*. It is noteworthy that *G. chiloense* hybrids do have a double corolla of a yellow colour, but the petals are much larger than in *G. urbanum*. Although Taylor (1997) states that *G. urbanum* has 'few if any taxonomic variants', it may have a greater variability than known heretofore. Further work is under way to determine if the specimens 'breed true' in offspring produced.

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Tilia cordata (Small-leaved Lime) in Surrey, v.c.17.

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As we have a lot more *Tilia cordata* in v.c.17 than in Kent (v.cc.15 and 16), I thought it might be of interest if I expanded on the information given in *BSBI News*,123 (April 2013). The Surrey populations can be divided into three main groups: those planted relatively recently, those planted in the 19th century and those in ancient woodland or sites derived from ancient woodland. Of this latter group, whilst the bulk of the trees occur in the Low Weald, on Weald Clay, there is a significant number of sites north of the chalk on Tertiary deposits.

Of the known planted trees, those from the 20th century need not concern us. However, there are at least two known groups of trees that may have been planted about 1880. These have grown into magnificent specimens. One is on Forestry Commission land at Ranmore, near Dorking, and perhaps was planted by Lord Lovelace of Horsley Towers, who was a keen forester. The other group is in a small part of what was then a private estate of Norbury Park near Mickleham. The interest of this group, which may have once numbered about 30, is that they have given rise to self-sown offspring. A recent count gives a figure of 26, with the largest having a girth of 1.57m. As seedlings and young trees, they were fortunate to have survived any depredations by small mammals to which they are prone. The trees are in a cluster between 50 – 100m away from and downwind of the parent trees. Thus, whilst the winged bract does aid dispersal, the seed is not carried far. Some of these young trees are themselves fruiting, so it will be interesting to observe if they are able to produce surviving offspring.

I have looked carefully at the records held on our database and hence available on BSBI's Big/Distribution Database, plus those held by Surrey Biodiversity Information Centre. Sadly, I accept the comment that some of the records lack even essential detail. In spite of this, it has been possible to assign many of the records to broad habitat types or to their position within a wood. Table 1 (p. 23) shows the number of records for semi-natural ancient woodland plus two commons in v.c.17. There are some additional records that cannot as yet be accurately assigned to any particular category.

The results show that a significant proportion of *T. cordata* trees occur in woods, or woodland relics, where there are no ghylls. This does not necessarily detract from the hypothesis, discussed in the earlier article, that the ghylls acted as refugia, as these sites could have acted as local source material for the planting of young Limes elsewhere in the Weald. Where the trees are on a wood-bank, it seems likely that they were planted there. The concept of ghylls as refugia does not, though, explain the presence of coppiced trees in woods away from the Weald. There are several trees on London Clay to the west of Epsom and a cluster of records to the south-east of Croydon. These, and those on the other

Tertiary deposits, have equal validity with those in the Weald. What would be interesting would be to see how much genetic diversity there is in the Surrey plants of *T. cordata*. A high diversity would suggest the populations are native, whereas if all the trees in a wood are genetically the same, this would suggest they were originally planted from the same stock.

The author's comments about recording and sparsity of records is interesting. It is highly likely that there are more populations of these trees to be recorded in Surrey. With the numbers of trees in each population being quite small, finding them is almost akin to looking for the proverbial 'needle in a haystack'. Surrey is a well-wooded county. The newly-discovered trees in Kent were found during the revision of the Ancient Woodland Inventory of the High Weald. A similar survey for *A revision of the Ancient Woodland Inventory for Surrey*, 2011, yielded four new sites. These are in addition to those found for the original *Surrey Inventory of Ancient Woodlands* published in 1988. Unfortunately, neither *Inventory* covers the whole of v.c17. Thus the ancient woods in the London area, such as those near Croydon, have been excluded. However, the bulk of our records have been made between these two surveys. This was in part due to the enthusiasm of a small group of recorders who were interested in *T. cordata.* It is also a matter of chance whether one comes across these trees or not. Unless woods and hedges are systematically searched, it is sometimes a matter of where one parks one's car, which is how I found two new groups of roadside trees. Access for the ordinary recorder is definitely another factor, which can limit the number of records. I have found six new sites whilst surveying on private farmland. However, it is still surprising that there are not more of these trees, as they did once have a commercial use. Once established, they can survive for very many years. Some will no doubt have been lost to woodland clearance. However, the question does still remain as to why the actual numbers of trees is quite small.

Table 1: Number of populations for semi-natural ancient woodland plus two commons in v.c.17

Type of site	Approximate number of populations
Weald Clay, edge of wood without a ghyll or in hedge which perhaps represents a woodland relic	26
Weald Clay, in ghyll	15
Weald Clay, wood edge, of ghyll woodland but not in ghyll	6
Tertiary deposits (mix of clay, sands & gravels)	3
London Clay	3
Clay-with-flints	3
Tunbridge Wells Sandstone, woods with ghylls	3
Atherfield Clay, ghyll woodland	1

Stellaria neglecta (Greater Chickweed) on the Isle of Bute (v.c.100)

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Only a handful of Scottish records for *Stellaria neglecta* (Greater Chickweed) have been published in recent years. The *New atlas* (2002) shows a very thin scatter of widely-dispersed records and small clusters in two disjunct localities, Berwickshire (v.c.81) and Argyll/Kintyre (v.c.c.98/101).

In his *Berwickshire rare plant register* (2004, 2011), Michael Braithwaite calls the species 'Vulnerable and close to extinction in the v.c.'. He mentions three sites, one extinct and two with small populations. These appear to represent the northern edge of an isolated cluster in v.c.68 (North Northumberland), represented by nearly 50 records in the BSBI Distributional Database (DDb). Less precise information has been published on the Argyll/Kintyre sites, but according to the DDb there are records from three localities in the south-west of v.c.98 (Main Argyll) and from nine hectads in v.c.101 (Kintyre and Knapdale) since 1950. In the *Flora of Kintyre* (1979), Cunningham and Kenneth quoted only four hectads, with the comment 'scattered records in Kintyre and Knapdale'. Only one of the DDb records is post-1987, and only it is localised to tetrad precision. This was made in 2012 by David Batty (joint recorder for v.c.101), who told me 'It was growing just inside a band of scrub along the coast in a shady and damp site' and that he has not seen it anywhere else.

In my own v.c. (100, Clyde Islands) there is one record from Arran, an unlocalised hectad record from the south-west of the island (NR92) by Robert Mackechnie in 1956. I have not yet had an opportunity to visit possible sites at the right season, but I believe it might be re-found if an adequate search were undertaken.

In view of the records from nearby Kintyre, I began a few years ago to look out for the species on Bute, and first found it in late April 2010, in a small wooded gully running up from the shore into farmland. The plant remains in flower for about a month, and I found it in several other nearby sites before the end of May that year. In subsequent years I have looked for it in other localities around the island, and have now seen it in a total of 15 monads, all on or near the west coast of Bute (see map p. 25). No doubt further sites remain to be discovered. The population is strongly centred on one area about 3km in extent, in which most patches of suitable habitat are dominated in the field layer by this species. These habitats include stream banks, alder woods on alluvium, hazel woods in gullies and mixed broad-leaf woodlands on the raised beach cliffs. North and south of this area colonies are smaller and sparser, and habitats also include shady spots among tumbled boulders and block scree. In streamside habitats where the plant is more or less dominant, its most abundant companions are *Cardamine amara* (Large Bitter-cress), *Chrysosplenium oppositifolium* (Opposite-leaved Golden-saxifrage), *Ficaria verna* (Lesser Celandine) and *Carex remota* (Remote Sedge). In better drained habitats on steeper slopes, where it can remain quite abundant, it is often accompanied by *Stellaria holostea* (Greater Stitchwort), *Adoxa moschatellina* (Moschatel) and *Circaea* × *intermedia* (Upland Enchanter's-nightshade).

These recently-discovered Bute populations are by far the largest known in Scotland, but the reasons for this oddly disjunct distribution remain obscure. More assiduous searching, especially near the western seaboard, in moist and moderately base- and nutrient-rich coastal woodlands between late April and early June might disclose other unsuspected centres of population. It is certainly worthwhile to look twice at any chickweed flowering in a woodland habitat in springtime. *S. neglecta* resembles *S. media* (Common Chickweed) vegetatively, though the jizz is distinctive once known (but not to be relied on!). Consistent presence of ten stamens, easily seen with a hand-lens, is diagnostic against *S. media*. The two larger-flowered species, *S. nemorum*

(Wood Stitchwort) and *Myosoton aquaticum* (Water Chickweed) also have ten stamens, although the latter has five styles and both have stems hairy all round, in contrast to the line of hairs on *neglecta* and *media*.

By way of addendum, I note that Keith Watson, in his recent *Flora of Renfrewshire*, mentions a field record for *S. neglecta* from Inverkip (NS2071) made by Basil Ribbons in 1973, but with no specimen for verification. This appears to be the only record from the lowlands of west-central Scotland, and I would suggest that my recent discoveries on Bute make its veracity much more credible.

Acknowledgements:
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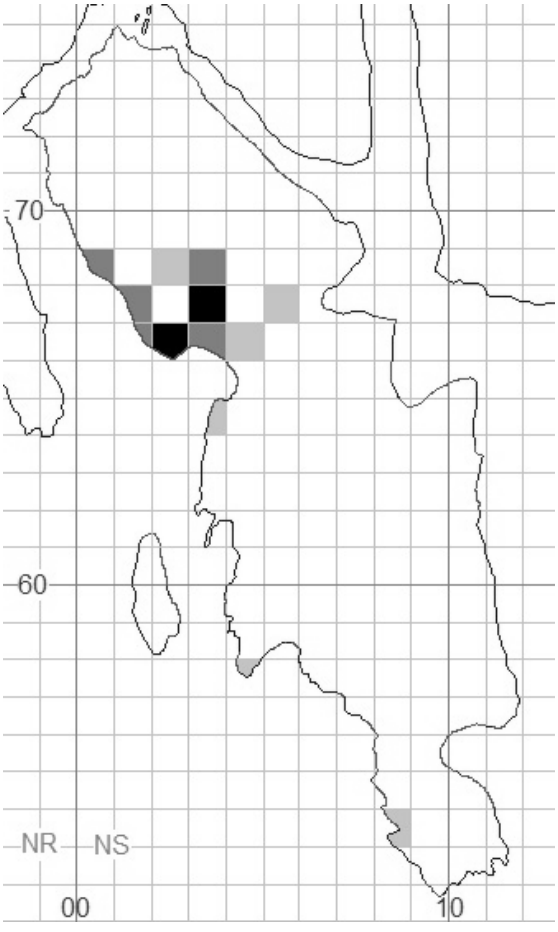

Distribution and abundance of *Stellaria neglecta* (Greater Chickweed) on the Island of Bute, as currently known.

Berwickshire's scarce plants: spatial scale in the study of decline

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Introduction

A project to repeat-record the vice-county of Berwickshire hectad by hectad (10×10km grid squares) was completed in 2013, surveying on a sample basis at monad scale (1×1km grid squares), repeating a similar survey in the period 1987-1999. Using revised methodology and a larger sample, the preliminary result of a previous paper (Braithwaite, 2010) demonstrating that individual populations of species that are rare or scarce in Berwickshire are being lost at an alarming rate is confirmed and refined to an average rate of about 14% a decade.

This article is an extract from a longer paper that is available from the author by email. It was not accepted for publication in *New Journal of Botany*, partly because its content overlapped that of the previous paper too much. It includes comparisons with other studies.

Methods

One module of the recording plan was to re-find as many as possible of the populations of scarce species (species that are rare or scarce in Berwickshire, as defined in Braithwaite (2004)) and to search for others, recording fine-scale detail of the populations found. A species list was also compiled for each site of botanical interest. This work led to the publication of a *Berwickshire BSBI botanical site register 2013* (Braithwaite, 2013).

Sites have been defined as far as possible by coherent management units. Most are considerably smaller than 1km^2. Many sites fit within a single 'floating' 1km square (not bounded by fixed grid lines) but the more linear sites may be 2km or so long. Large blocks of similar habitat have been subdivided into two or more sites. A plant population that extends into two such subdivisions has been treated as two populations, so 'population' and 'site' have the same definition.

Many populations searched for have not been re-found and much thought has been given to whether they have been lost or merely overlooked, so that this could be taken account of in analysis by scoring the probability of populations having been overlooked.

A first stage, refined from the method used in Braithwaite (2010), has been to eliminate those species that are casual (such as coastal species only intermittently present on beaches) or critical (and thus inconsistently recorded in Berwickshire) and then to focus on species that are 'site-faithful', at least in the fragmented habitats of Berwickshire over a 16 year period, so that colonisation can be ignored as immaterial (this 'site-faithful' concept would not hold at finer scales, such as 100m or 10m, as many of the populations do fluctuate at fine scales). 448 populations of 122 scarce species selected from those listed in the *Berwickshire vice-county rare plant register* (Braithwaite, 2004) as meeting the 'site-faithful' criterion have been re-surveyed and the results are analysed. A few populations of otherwise 'site-faithful' species were discarded as being known introductions or suspected casuals. All populations of a further 23 native scarce species were discarded as 'mobile', with material colonisation in the period (often of man-made habitats such as forestry roads). All the archaeophytes were discarded for similar reasons.

The second stage, a review of potential population losses to separate the real losses from populations overlooked, has been unashamedly subjective, though the review has been approached as systematically as possible. The method is unchanged from that used in Braithwaite (2010), but is repeated here. A scoring system has been used to limit the impact of subjective judgement: 1 for a re-find, 0 for clear evidence of loss and ¾, ½ and ¼ for cases where it was considered more or less likely that a population had been overlooked. There is the further problem that

the plants in a population cannot be assumed to be distributed within a site just as they were sixteen years or so previously. Not only may numbers vary from year to year in response to the weather but the habitat gaps they exploit may close in some places and open in others. This is a particular problem for species which exploit mud beside ponds, lochs, burns and rivers, such as *Rumex conglomeratus* (Clustered Dock) and *R. maritimus* (Golden Dock). Even if a 1km stretch of such a habitat has been thoroughly searched at a suitable season without success, it has often been inappropriate to score less than ½, recognising some probability that the species will reappear in future. Often it has been all too obvious that the habitat has changed and that the failure to refind a population represents a real loss, with score 0.

Survey results

Analysis of the repeat survey (Table 1) demonstrates an average loss of populations of scarce species of a disastrous 21% over the 16 year period between surveys or 14% per decade (previous estimate 16%, Braithwaite (2010)), which is equivalent to half the populations being lost in 46 years. Losses in SSSIs are compared with those in the wider countryside. While losses of populations in SSSIs have been very substantial they are only about half as severe as those in the rest of the countryside.

Table 1: Losses of populations of scarce species by conservation status

Status	Spp.	Populns	Losses	%Loss/ decade	0.95 Conf.	Half-life years
SSSIs	82	156	20.75	9	± 3	77
Other	98	292	74	17	± 3	37
All	122	448	94.75	14	± 2	46

As all the sites have been rated for their botanical interest in the *Berwickshire site register*, it is instructive to analyse them by those ratings (Table 2). The classification used was a subjective one, related to species-richness and the continuity of natural vegetation types, as follows: 5, habitat outstanding; 4, habitat excellent; 3, habitat fine; 2, habitat good; 1, habitat moderately good; 0, habitat fragmentary. Table 2 suggests a neat progression, with the most severe losses in the most fragmented habitats.

Table 2: Losses of populations of scarce species by site rating

Site rating	Sites	Hectares	Spp.	Cumul. spp.	Populns	Losses	%Loss/ decade	0.95% Conf.	Half-life years
5	10	395	30	30	36	4.75	9	± 6	77
4	13	477	46	61	65	8.75	9	± 5	76
3	43	1,545	63	93	103	15.5	10	± 4	67
2	86	3,637	66	112	109	22	13	± 4	49
1	97	3,209	42	117	66	20	20	± 6	30
0	0	0	46	122	69	23.75	23	± 7	26
Total	249	9,263	122	122	448	94.75	14	± 2	46

Causes of losses

An advantage of working with discrete populations is that the causes of losses can often be deduced with reasonable confidence. Excluding the losses for which the causes are unknown (20% of the total), 32% of the remaining losses have been due to physical disturbance (mostly agricultural or forestry operations but also muirburn), 35% to eutrophication, 16% to under-grazing (or the exclusion of cattle from water), 16% to natural causes (mostly vegetation succession in wetlands, accelerated by earlier drainage nearby) and just 1% to competition by invasive species (native *Rubus* (Bramble) and neophyte *Centranthus* (Red Valerian)). Habitat fragmentation lies behind many of these immediate causes. Storm damage on coastal beaches is identified (under natural causes) as the likely reason for the loss of a few populations. This suggests that there is a case for treating all species of coastal beaches as mobile.

The positive effects of climate change are observable in Berwickshire in the recent spread of some ferns such as *Polystichum setiferum* (Soft Shield-fern, a scarce species excluded from the analysis as mobile) but any negative effects are not separable in the field from other factors, and losses from any such effects are likely to have been classified under eutrophication.

My perspective of the key issues in the continuing sad decline of the species-diversity in the botanical sites of Berwickshire may be summarised as follows:

1. Many sites are small and vulnerable to what happens nearby, especially with regard to eutrophication. We inherit this habitat fragmentation from the past.
2. Little species-rich grassland is favourably managed. Some is fenced off, allowing coarse grasses and scrub to take over. Some suffers from fertiliser application.
3. The notable aquatic flora of the River Tweed is not respected, causing species that were formerly frequent to become scarce. The fishing interests, with few exceptions, do not exercise restraint in their weed-cutting.
4. Herb-rich moorland burn-sides are too often not spared the cycle of muirburn.
5. The policy of excluding cattle from water-sides has been taken too far.
6. Well-intentioned new ponds are too often dug at the cost of valuable wetland and conservation tree planting carried out at the cost of valuable grassland.

Axiophytes and more widespread native species

This article analyses losses of scarce plants. Nevertheless it is instructive to consider, however roughly, what the results imply for the losses of more widespread species.

Excluding critical species, hybrids and subspecies, the native species present in Berwickshire may be divided into three main groups, the scarce species discussed above, axiophytes and more widespread species. The axiophytes are a group of 132 species considered to be indicators of natural habitats and thought to be present in no more than 15% of Berwickshire monads.

As noted above, the Berwickshire surveys were carried out at monad scale but did not include any systematic resurvey of monads. In these circumstances it is not possible to carry out a statistical analysis of the results with a view to obtaining an estimate of the average rate of decline at monad scale of axiophytes or more widespread native species. Instead a crude exercise has been carried out by viewing the distribution maps of the axiophytes and judging losses subjectively using field experience and knowledge of whether individual monads had been re-surveyed or not. It was at once evident that there has been a wide variation in fortune between species at monad scale, with some species in decline and many with no observable change. A very few species show gains, often related to the colonisation of man-made habitat, such as forestry roads. The results of this review (Table 3, p. 29) offer no more than order-of-magnitude estimates but emphasise the need for survey at scales finer than 1km if declines in axiophytes and yet more widespread species are to be evaluated. For these more widespread species there are too many populations per monad for the losses

of a few populations to lead to significant change at monad scale, even if their fine-scale losses were to have been at rates comparable with scarce species. This has been confirmed by crude modelling, where the coarse-scale losses for these more widespread species were found not to be very sensitive to the underlying fine-scale rate of loss.

Table 3: Berwickshire losses at coarse spatial scales by species group

Species group	% Net loss/decade	
	Monads	Hectads
Site-faithful scarce species	14	11
Axiophytes	2½	1
Other native species	1	½

Conclusion

It is hoped that these Berwickshire studies will help to point the way to similar or complementary studies in other areas.

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Scarce grass protected by a traffic cone

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In May 2014, while strolling along the shingle track to one of the bird hides on the north side of the Dungeness RSPB reserve, I noticed a fine cluster of *Polypogon monspeliensis* (Annual Beard-grass) poking out of the top of a large red and white Highways Dept. traffic cone (see Colour Section, Plate 3). The grass had been forced to flower out of the top of the plastic traffic cone and although there was a series of other typical traffic cones lined up along the side of the track, this was the only one to have vegetation making it out of the top. The reason the cones were temporarily placed there some time over the winter was to discourage contractors' vehicles from leaving the track, with staff unaware of any scarce plants growing nearby.

Working on National Nature Reserves (NNRs) for over 20 years, this bizarre sight of a scarce grass surviving in a Rabbit dominated shingle landscape, by growing inside a traffic cone made me smile. I then started thinking – this is not a bad solution to medium-sized plant conservation, a little bit harsh on the aesthetics, but you can protect the plant from Rabbit grazing. It also shows where the plant is to the botanist or to members of the public. You are less likely to trip over a traffic cone in the countryside than a knee high, wire orchid cage and, with Health and Safety Assessments, it ticks the boxes, as you have put a cone down to mark the spot. However, it is essential to have a hole in the top of the cone for the plant to sprout out of, and that Rabbits are your nibbling problem and not livestock or deer.

Beware - plants might end up being slightly taller than in the typical height range, due to the internal cone environment – the Dungeness plants that had been forced out I measured at 1m 40cm, a good 40cm higher than anything I could find in the literature to hand.

However, thinking further, I am not sure this new, in-your-face method of UK plant protection is going to catch on.....

A thank you to contributors to the BSBI Atlas

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Recently, a group of ecologists including myself used the *New atlas* (Preston *et al.*, 2002a) in a scientific paper published in *Functional Ecology* (Hodgson *et al*., 2014). Thank you! The BSBI atlases are the society's crowning glory and when I visit ecologists in other countries I often give a copy as a thank-you gift. This has always been much appreciated. There is always much interest in comparing the distribution and abundance of species in different countries. Moreover, the gesture appeals to my partially Yorkshire sensibilities: the *New atlas* looks like a very expensive publication, but it isn't!

Our objectives

Agri-environment schemes that support wildlife-friendly farming practices aim to counterbalance impacts of intensive agriculture on biodiversity in the countryside. Using England as an example, we attempted to quantify the effectiveness of these schemes, not, in the traditional way, by identifying 'winners' and 'losers', but by examining the impact of key processes that determine the species composition of the countryside. The paper itself is similar in many respects to Preston *et al.* (2002b). Also, it is, discouragingly, a little statistically complex, but for anyone interested a summary is included below.

What we did

We compared three independent numerical measures for the English countryside: the farmer's viewpoint (agricultural productivity, as identified by governmental agricultural statistics), the nature conservationist's (using distribution atlases of plant and butterfly species) and the ecologist's (using published ecological characteristics of individual plant species to quantify their tolerance to changes in environmental variables such as soil fertility and frequency of management).

What we found

We showed that despite the implementation of agri-environment schemes and other conservation measures, diversity of native English plants remains strongly negatively correlated with agricultural intensity, as assessed from governmental agricultural statistics: heavily farmed English counties are disproportionately poor in species. Moreover, this lower biodiversity in the most intensively-farmed parts of England results from two separate processes. On farmland itself, the exclusion of slow-growing species of infertile soils, intolerant of 'active' management processes designed to boost crop yields (*e.g.* fertiliser additions and herbicide application to eliminate competition by weeds) was most complete in intensively farmed landscapes. However, much floristic diversity probably now resides (at least within arable regions) in unmanaged (or infrequently-managed) habitats outside the 'working agricultural landscape' (field margins, old quarries, track and roadsides) and here, associated with an increase in plant height, more 'passive' processes are at work. In these unmanaged parts of intensively farmed regions, tall species have prospered at the expense of shorter ones. Moreover, these continuing changes, both 'active' and 'passive', are not confined to plants. The butterflies considered most at risk of extinction feed, both as larvae and as adults, on slow- and low-growing food plants.

What happens next?

With goodwill on all sides analyses of this type can help improve conservation policies. Issues raised by the paper include:

The importance of understanding the ecological processes operating in the English countryside.

Although our results are not surprising, they illustrate that there is an abundance of data already in the public domain that explain in terms of ecological processes why nature

conservation is not working as well as we would like. Conservation policies tend to target end points, *i.e.* numbers of species and amount of habitat, rather than the ecosystem processes that gave rise to them. Failure to meet targets can identify that there is a problem but not necessarily its exact mechanistic origin. We have shown that in broad terms what is good for plants is also good for butterflies. Perhaps by looking directly at ecosystem processes themselves and implementing countrywide policies to reduce 'nature-unfriendly' land management, the difficult job of conserving rare and endangered species can be made just that little bit easier, and more successful.

Integrating different conservation schemes.
It is always crucial to ask where threatened and other less common species grow. However, the extent to which uncommon species occur within agriculturally-managed as opposed to unmanaged parts of the English countryside is not routinely recorded (and there is no national database with this information!) Thus, successive national agri-environment schemes have been set up without this question being answered, and perhaps even without it being asked. On agriculturally-managed land, agri-environment schemes may play an important role in restricting biodiversity loss but these will not impact upon roadsides, railway banks and waste land, where targeted initiatives such as Plantlife's 'Back from the Brink' may be important. At present governmental conservation initiatives for the two different types of habitat are separate. We argue that an integration of policies for conserving biodiversity both within and outside farmland would provide many benefits. For example, the countryside could routinely be made more 'butterfly-friendly' by additionally maintaining the quality of food resources in non-farmed parts of the landscape, *e.g.* stream banks and roadside verges, hedgerows and green lanes (Dennis, 2010). 'Unimproved' pasture, a target habitat for many agri-environment schemes, is a particularly important source of larval food plants. It is generally, however, a less adequate source of the often taller nectar-rich flowers utilised by adult butterflies. Grazing and mowing abandoned land, even at low intensities and only every few years, can greatly reduce biodiversity loss (Rudmann-Maurer *et al.*, 2008). Thus, the sympathetic management of nearby marginal habitats to promote the survival and flowering of nectar-producing species has the potential to dramatically increase the population size and diversity of butterflies present in the English countryside (Jonason *et al*., 2012).

Adding to our knowledge base.
To date we have not studied birds, another group with good distributional and habitat information. This is because of difficulties in relating bird habitat to habitat features of plants and butterflies. We can, with help, do this and can assess the extent to which vulnerability to land use change in birds parallels that for plants and butterflies. Management of the countryside for all of wildlife would be better as a result. Equally, other topics (*e.g.* alien invasions) could be studied. For example, in a preliminary analysis we found that the biodiversity of neophytes (plant species introduced after 1500 AD) correlates with population density rather than with agricultural statistics. This is perhaps because many neophytes are horticultural escapees.

The opportunities for analysing *New atlas* and related data are endless! Thank you again.

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The Sawfly Orchid (*Ophrys tenthredinifera*) on the Dorset coast: a first for the British Isles?

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In April this year, I was on the first of three botanising trips to Dorset coastal areas, primarily looking at populations of *Ophrys sphegodes* (Early Spider-orchid), which we have done for at least twenty years. I have a keen interest in within-species variation, which includes pelorism and mutation, and the increase or decrease of flowering populations in England. My wife and I were examining plants in the same area not too far apart. I was looking at a peloric example, one of four that day, when my wife called me over to look at an orchid she had not seen before. I identified it as *Ophrys tenthredinifera* (Sawfly Orchid), which was growing amongst the Early Spider Orchids (see front cover and inside front cover). A brief description follows:

The orchid plant was short, with one flower fully open and reflexed; 8cm tall, later, with two flowers out, 10cm tall, robust; bracts coloured as sepals, pink to dark lilac; sepals with slight green mid-veining; flowers large and colourful; lip 13mm × 12mm, quadrangular, shoulders square, broad, with square basal swellings rounded and pronounced, distal sides slightly recurved; hairs of central lip reddish-brown, dense not extensive; broad sub-marginal band of bright yellow hairs, dense and bristling, with the tuft of hairs above the appendage straight, light yellowish to reddish, very prominent; appendage larger; stigmatic cavity light blackish to olive brown.

This is an orchid of the Mediterranean, usually found on basic soils, in dry, grassy fields and on banks, in the open or amongst bushes or woodland edges from lowlands to hills. The habitat here was very suitable. If this orchid had been planted it was many years ago. With the difficulty of bringing plant stock from abroad and planting, it would probably have resulted in the plant aborting, due to it not being in partnership with its symbiotic fungus. Seed could have been obtained and growing medium used, or seed placed some time in the past. If that was the case, it was put where it would not be easily seen. The surrounding vegetation is of native species, and so it could be a possible occurrence of wind-blown seed dispersal from a population in Europe. The Sawfly Orchid's range includes central and northern Portugal, northern and eastern Spain, south and coastal areas of France, Italy and Greece. Climatic change has been affecting our weather systems for many years. There are increases in high pressure systems, with seasonal winds blowing from neighbouring countries. Orchid seeds, pollen, bryophytes and fungus spores are carried in wind currents and are transported at stratospheric levels all over the northern hemisphere, introducing new species to the British Isles annually.

I contacted the BSBI recorder for Dorset, Robin Walls and we arranged to meet the following week. He has seen the plant and we discussed its appearance on the Purbeck coast at length. He was also of the opinion that it was not planted here. However, the orchid's mode of arrival to the British Isles will remain uncertain.

Acknowledgements:
Thanks to my wife, Lauraine, for seeing it before I did! (The training is paying off!). My thanks also to BSBI Recorder for Dorset, Robin Walls.

A fifteenth century poem on garden plants: reinterpretation of its botanical names

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Introduction

A manuscript poem on gardening attributed to 'Ion Gardener' (John Gardener) has been preserved in the library of Trinity College, Cambridge. In 1894 the Hon. Alicia, Lady Amherst published a communication to the Society of Antiquaries in which she identified most of the plants mentioned in the poem, citing their modern English and scientific names, and John Harvey contributed a more modern appraisal (Harvey, 1985), correcting some of her earlier suppositions. This paper aims to summarise these identifications in the light of more recent studies. It provides a glimpse of the botanical content of late 15th century gardens, which were quite rich in plants we regard as native wild species. These gardens also harboured cultivated plants with well-known medicinal properties as well as species now regarded as archaeophytes (plants which are thought to have been introduced at an early date, usually pre-1500, but which have escaped and now form a component of unmanaged vegetation).

The authors

'Mayster' Ion Gardener cannot be identified with certainty, but Lady Amherst suggests that he might have been active around 1440 to 1450, based on a linguistic analysis of his vocabulary and grammar. Dating the poem is complicated by the fact that it has been transcribed by a later scribe in a style which approaches standard English, whereas the original author is believed to have composed it in a Kentish dialect (Amherst, 1894). One candidate is a 'John Gardener' who received a bequest of money together with 'a riding gown with hood' from a priest named Nicholas Sturgeon, whose will was dated 1454 and who is buried in St. Paul's Cathedral, but there is no clear evidence that he was the author. Lady Amherst quotes from annotations to a book published in Mainz, Germany (3rd edition) in 1484 by Peter Schoeffer and later in Louvain, Belgium by Jan Veldener. Its author is unrecorded. These notes are not reproduced here but can be seen in Lady Amherst's original article, published in *Archaeologia*, **54**, with the encouragement of Percy Newberry and of her father Lord Amherst, himself a Fellow of the Society of Antiquaries. He presented her paper on 9th March 1895. It was her first publication. An offprint of the article, now in the author's possession, was further annotated with a few corrections by Lady Amherst (signing herself Alicia Rockley) and was inscribed in 1941, probably to William T. Stearn, who was then serving as Librarian in the Royal Horticultural Society's Lindley Library. The career of Lady Amherst is well described in Sue Minter's biography (Minter, 2010). Lady Amherst is perhaps best known for her magisterial *A history of gardening in England* (1896) and was one of the earliest writers to embrace garden history as a scholarly pursuit.

The poem

The poem consists of 198 lines, four to a stanza. It has been subdivided by a later hand into eight sections of variable size: *The Feate of Gardeninge*; *Of graftyng of Treys*; *Of Cuttyng and Settyng of Vynys*; *Of Settyng and Sowyng of Sedys*; *Of sowing and Settyng of Wurtys*; *Of the Kynde of Perselye*; *Of other maner Herbys*; and *Of the Kynde of Saferowne*. The writer was practical rather than romantic. According to Lady Amherst 'the poem is a series of most sensible and reasonable instructions for growing fruits, herbs, and flowers, and his work is singularly free from the superstitious beliefs in astrology, and the extravagant fancies and experiments in grafting and rearing plants, especially fruit trees, so prevalent in the writings of this period'.

The plants

These are listed in the alphabetical order set out in Lady Amherst's glossary, with original spellings in bold, but with only a modern rendering of the vernacular name and a modern scientific name (with a synonym in brackets, if the 1894 account differed from Harvey's interpretation). British plant names follow Stace (2010). Each name is cross-referenced to the line of the poem in which it is mentioned.

Adderstong. Adder's-tongue *Ophioglossum vulgatum* (or *Arum maculatum?*). It is hard to determine which is a less improbable garden subject. *Ophioglossum*, a fern-ally, is rarely mentioned in cultivation, and it is not listed as being stocked by any UK nursery in the RHS Plant Finder database. *Arum italicum* is more commonly cultivated than *A. maculatum*, with over 50 suppliers for the former and only one for the latter (plus one from 2004, who no longer offers it). [170]

Affodyll. Daffodil *Narcissus pseudonarcissus*. Perhaps an archaeophyte, despite its presence in abundance in certain semi-natural habitats. Treated as native by Stace (2010). [178]

Auans. Wood Avens *Geum urbanum*. [162]

Appyl, **Appul**. Crab Apple *Malus sylvestris*. [15, 17, 21]

Asche tre. Ash *Fraxinus excelsior.* Not cultivated as such, but employed as stakes for seedlings 'forkys y made of asche-tre'. [84]

Betony. Betony *Betonica officinalis*. [166]

Borage. Borage *Borago officinalis*. [162]

Bryswort. 'Bruisewort', Comfrey, probably *Symphytum officinale*. Various species of comfrey have been cultivated, and tend to hybridise. [172]

Bugull. Bugle *Ajuga reptans*. [169]

Bygull. 'Bigold', Corn Marigold *Glebionis* [*Chrysanthemum*] *segetum*, according to Miller (1884). [170]

Calamynte. Calamint *Clinopodium grandiflorum*? Or possibly *Clinopodium calamintha* (Lesser Calamint). The true identity of 'Calamint' cannot be established with certainty in the absence of material evidence. [162]

Camemyl. Chamomile *Chamaemelum nobile* [*Anthemis nobilis*]. [171]

Carsyndylls. A problematic hybrid of two name elements, 'Cars' (cress) and 'dyllys' (Whitsun Lily, Pheasant's Eye Daffodil *Narcissus poeticus*). [175]

Centory. 'Centaury', Common Knapweed *Centaurea nigra sensu lato*. There is also a possibility that this refers to *Centaurea scabiosa* (Greater Knapweed), a showier species, which was also garden-worthy. Lady Amherst also suggests *Centaurium erythraea* (Common Centaury), but this is an unlikely choice of garden plant. [170]

Clarey. Clary *Salvia sclarea.* [11, 160]

Comfery. Comfrey *Symphytum officinale* or *Symphytum* sp. [165]

Coryawnder. Coriander *Coriandrum sativum*. [180]

Cowslyppe. Cowslip *Primula veris.* [174]

Dytawnder. 'Dittander' or Dittany *Origanum dictamnus*, or perhaps *Ballota acetabulosa* or *Lepidium latifolium.* [159]

Egri moyne. Agrimony *Agrimonia eupatoria* or perhaps *A. procera* (Fragrant Agrimony). [169]

Elysauwder. Alexanders *Smyrnium olusatrum*. A classic archaeophyte, which was formerly used as a spice and for medicinal purposes. [172]

Feldwort. 'Felwort', Autumn Gentian *Gentianella amarella* [*Gentiana amarella*]. [176]

Flos campi. Ragged Robin *Silene* [*Lychnis*] *flos-cuculi.* [177]

Foxglove (**Whyte**). (White) Foxglove *Digitalis purpurea.* [179].

Fynel. Fennel *Foeniculum vulgare*. [163]

Garlek(e). Garlic *Allium sativum.* [10, 71]

Gladyn. 'Gladdon', Stinking Iris *Iris foetidissima*. Amherst also suggests *Iris pseudacorus*, citing Britton & Holland (p. 207). [167]

Gromel. Common Gromwell *Lithospermum officinale*. [166]

Grouwdyswyly. Groundsel *Senecio vulgaris*. As Lady Amherst conceded, it is an unlikely garden subject and was perhaps being grown for its medicinal properties. Turner spells it Groundiswil, and there are many alternative spellings in the early literature. [172]

Scolymus hispanicus (Golden Thistle) photos taken at Clapham Common (v.c.17). Habit (above), inflorescence (l), leaves (r). All photos G. Hounsome © 2014 (see p. 44)

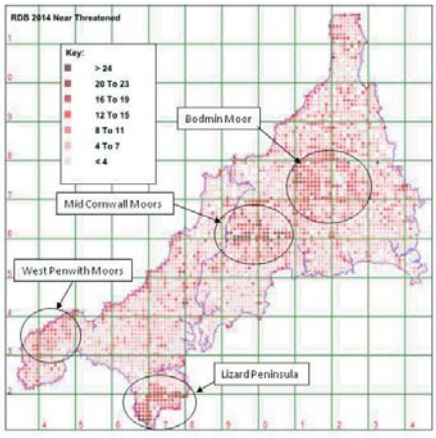
Cuscuta campestris on *Aster* sp., Saline, Fife & Kinross, v.c.85. Photo R. Smith © 2013 (see p. 42)

Geranium traversii Bexhill sea-front, v.c.14. Photo R. Wells © 2011 (see p. 41)

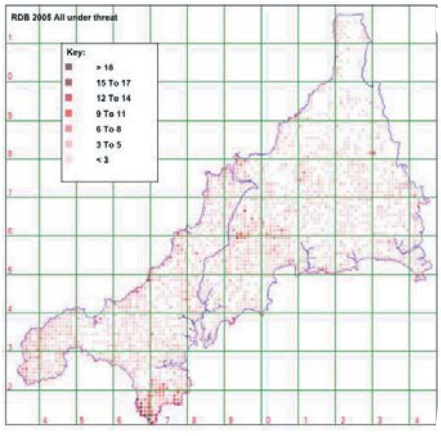
Two great cakes! Celebration of 50 years of the Irish Regional Branch of BSBI. (Note that the talented Paul Green made the one on the right – is there no end to his skill-set?!) In the photo are (l-r): Chair of CFI Gerry Sharkey, Director of the National Botanic Gardens Matthew Jebb, and vice-county recorders Sylvia Reynolds and Paul Green. Photo N. Sharkey © 2014 (see p. 63)

Joanne Denyer leading the grass ID workshop in the herbarium of the National Botanic Gardens during the Irish BSBI Members' Conference on Sat 29th March. Photo: M. Long © 2014 (see p. 63)

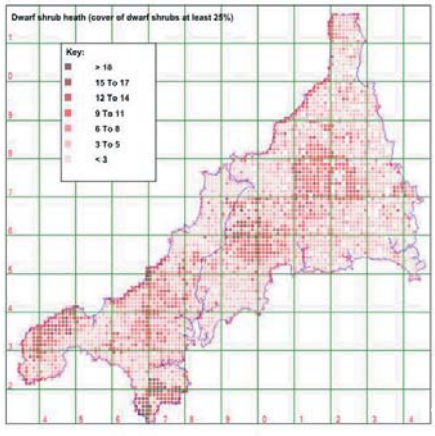
Map 5: hotspot distribution of 2014 Red List Near Threatened plants



Map 6: hotspot distribution of 2005 Red List all 4 IUCN categories



Map 7: hotspot distribution of Ellenberg Dwarf shrub heath (cover of dwarf shrubs at least 25%)



See p. 6 for an explanation of the maps

Polypogon monspeliensis on shingle track, Dungeness RSPB reserve, v.c.15. Photo O. Leyshon © 2014 (see p. 29)

Leersia oryzoides (Cut-grass), by Harvard Pond, Petersham, Massachusetts, USA; habitat (above) and detail (below). Photos S. Smart © 2010 (see p. 45)

Geum urbanum flore pleno, 1st June 2014,
Mullaghmean Forest, v.c.H23
Photo T.J.J. McCloughlin © 2014 (see p. 20)

Fumaria purpurea (Purple Ramping-fumitory),
Great Orme (v.c.49)
Photo W McCarthy © 2014 (see p. 62)

Epipactis purpurea var. *rosea*, Bucks. (v.c.24), whole plant above and detail of flower below – stereoscopic photo pair © Colin Metherell (see p. 18)

Haseltre. Hazel *Corylus avellana*. Not mentioned as being cultivated, but 'a wyth of hasletre rynde' (Hazel bark) is recommended for binding the parts of a graft together. [43]

Haw-thorn. Hawthorn *Crataegus monogyna*. [20]

Henbane. Henbane *Hyoscyamus niger*. [171]

Herbe Ion. St. John's Wort *Hypericum* sp. Miller lists around 70 species under this name. [164]

Herbe Robert. Herb Robert *Geranium robertianum*. [164]

Herbe Water. Lady Amherst equates this with Herb Walter, but does not offer an identification. John Ash gives 'Watergermander' as the name of a herb, perhaps *Veronica chamaedrys,* but the PagansWorld web site (www.pagansworld.org) offers a more plausible suggestion: Woodruff *Galium odoratum* [*Asperula odorata*], which would have been grown for its perfume when dried. [164]

Hertystonge. Hart's Tongue *Asplenium* [*Phyllitis*] *scolopendrium.* [165]

Holyhocke. Hollyhock, possibly *Alcea rosea* but could be any number of other Malvaceous plants. [180]

Honysoke. Honeysuckle *Lonicera periclymenum*. [169]

Horehownd. Horehound, more likely the Black Horehound *Ballota nigra*, an archaeophyte, than the native White Horehound *Marrubium vulgare*. [177]

Horsel. Elecampane *Inula helenium*. An archaeophyte. [170]

Hyndesall. 'Hind-heal', Wood Sage *Teucrium scorodonia.* [166]

Langbefe. 'Ox-tongue', perhaps *Anchusa officinalis* (Alkanet). The name alludes to the rough leaves, resembling the surface of an ox's tongue, and could apply to several plants with bristly indumentum. [176]

Lauyndull. Garden Lavander *Lavandula angustifolia* [*Lavandula vera*]. [173]

Leke. Leek *Allium porrum*. Classed by Stace as 'introduced – survivor', as its powers of spontaneous propagation are weak. [9]

Letows. Garden Lettuce *Lactuca sativa*. [162]

Lyly. Lily, *Lilium* sp. (possibly *Lilium candidum*). [174]

Lyuerwort. 'Liverwort', Liverleaf *Anemone hepatica*. [168]

Merege. 'March', Wild Celery *Apium graveolens* [*Apium graveoleus*]. [173]

Moderwort. Motherwort *Leonurus cardiaca*. [175]

Mouseer. Mouse-ear Hawkweed *Pilosella* sp. [169]

Myntys. Mint *Mentha* sp. [161]

Nepte. 'Cat-nip', Cat-mint *Nepeta cataria*. An archaeophyte. [177]

Oculus Christi. 'Vervain' or Wild Clary *Salvia verbenaca* [*Salvia verbanaca*]. [178]

Orage. Garden Orache *Atriplex hortensis*. [160]

Orpy. Orpine *Sedum telephium*. [177]

Ownyns, **Oynet**. Onion *Allium cepa*. [10, 72, 74]

Parrow. (see Yarrow).

Pelyter. Eastern Pellitory *Parietaria officinalis*. [159]

Percell(y). Garden Parsley *Petroselinum crispum*. [11, 127, 143]

Pere. Pear *Pyrus communis*. [15, 19, 21]

Peruynke. Periwinkle *Vinca major* or *V. minor*. [174]

Primrole. Primrose *Primula vulgaris*. [178]

Polypody. Polypody *Polypodium vulgare* (*sensu lato*). [165]

Pympernold. 'Pimpernel', Burnet-saxifrage *Pimpinella saxifraga* (or another umbellifer). [179]

Pyony. Garden Paeony *Paeonia officinalis.* Omitted from Amherst's listing. [180]

Radysche. Garden Radish *Raphanus sativus*. [173]

Redeuay. 'Red Ray', Perennial Rye-grass *Lolium perenne*. In her *History of gardening* (1896), Lady Amherst cites this identification without qualification, although in her earlier paper (1894) she states 'cannot identify'. Still, a rather unexciting grass for adorning a 15th century garden. [178]

Rewe. Rue *Ruta graveolens*. [159]

Rose, **Rose Ryde**. (Red) Rose *Rosa* sp. [179]

Rybwort. Ribwort Plantain *Plantago lanceolata*. [163]

Saferowne. Saffron *Crocus sativus* or *C. vernus* [*C. purpureus*]. As Harvey points out, the poem's seasonal references indicate

a spring-flowering species of crocus rather than the late summer-flowering 'true saffron'. Early floristic lists for Yorkshire, such as those of James Bolton, record '*C. purpureus*' growing in quantity near Halifax, but *C. sativus* may have been favoured in Kent. Perhaps, on the evidence of this list, an archaeophyte rather than a more recent introduction. [185, 187]

Sage. Sage *Salvia officinalis*. [11, 159]

Sanycle. Sanicle *Sanicula europaea*. [173]

Sauerey. Summer Savory *Satureja hortensis.* [161]

Scabyas. Scabious *Scabiosa* sp., most likely Sweet Scabious *Scabiosa atropurpurea.* [167]

Seueny. 'Senive' or 'Seneve' (French), Black Mustard *Brassica* [*Sinapis*] *nigra*. [173]

Sowthrynwode. Southernwood *Artemisia* [*Artemesia*] *abrotanum.* [163]

Sperewort. 'Spearwort', probably Greater Spearwort *Ranunculus lingua*. [167]

Spynage. Spinach *Spinacia oleracea*. [161]

Strowberys. Wild Strawberry *Fragaria vesca*. [175]

Stychewort. Greater Stitchwort *Stellaria holostea*. [171]

Tansay. Feverfew *Tanacetum parthenium*. Used as a medicinal herb. [176]

Totesayne. Tutsan *Hypericum androsaemum*. Possibly an archaeophyte? [176]

Tuncarse. Garden Cress *Lepidium sativum*. The 'tun' element of the name may be derived from the Dutch 'tuin' for garden. [161]

Tyme. Garden Thyme *Thymus vulgaris*. [160]

Valeryan. Valerian, probably *Valeriana* sp. or *Centranthus ruber*, though the name is widely applied. [167]

Verueyn. Vervain *Verbena officinalis*. [168]

Violet. Violet *Viola* sp., possibly *V. odorata*. [174]

Vynys, **Vyne tre**. Grape-vine *Vitis vinifera*. [49, 55]

Walwort. 'Wall-wort', Navelwort *Umbilicus rupestris*. [164]

Warmot. Wormwood *Artemisia absinthium*. [163]

Waterlyly. Water-lily *Nymphaea alba* or *Nuphar lutea*. [168]

Weybrede. Greater Plantain *Plantago major*. [172]

Woderofe. 'Woodruff' *Asperula* sp. [166]

Wodesour. Wood Sorrel *Oxalis acetosella*. [168]

Wurtys, **Wortys**. Cabbage *Brassica oleracea* or similar. [9, 99, 101, 116, 123, 133]

Wyldtesyl. Teasel *Dipsacus fullonum*. It is unusual to refer to it as 'wild teasel', and this raises the possibility that another species was being used as a natural 'comb'. [171]

Yarrow [as 'Parrow']. Yarrow *Achillea millefolium*. [165]

Ysope. Hyssop *Hyssopus officinalis*. [160]

Conclusion

It is notable how many of these non-native species have since become naturalised. So few records survive of plants grown in 15th century gardens, despite the best efforts of John Harvey (an expert on medieval architecture as well as on garden history) to unearth them, that John Gardener deserves our gratitude for preserving in a poetic record the range of wild and garden plants with which he was familiar.

Acknowledgements:
My thanks to Trevor James, for suggesting improvements to this article.

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John Stephenson and his herbaria

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In late 1965 the Sheffield City Museum (now Museums Sheffield) accepted the donation of an herbarium. Although contemporary documentation is lacking, it is almost certain that it came from Wilfred Robinson Barker (1883-1966), a palaeobiologist who, in 1963, had given to the museum his extensive geology and fossil collections. Due to a lack of resources and other priorities, the herbarium received only a superficial examination at that time, but, with the availability of volunteer assistance, it has now been possible to catalogue the collection.

The identity of the botanist who had formed the herbarium was the subject of much speculation at the time. Most of the collectors are referred to on the sheets solely by initials, the most frequent being 'JS', 'L' and 'L.& C.L.' which in themselves were of little help. However, on a few sheets the name John Smith appears and this, together with the numerous London area specimens, gave rise to a preliminary association with John Smith of Kew. The use, however, of uncut proof sheets of a book '*De humani generis varietatibus'* (Edinburgh, 1817) as covers, whose author was a Dr John Stephenson, suggested an alternative identification, and the subsequent availability of census records showing that his housekeeper for more than 20 years had been a Mrs Lowday with her daughter Charlotte Lowday, as well as the naming of someone who collected for the herbarium as the executor of his Will, effectively sealed the matter; although the existence of a second naturalist and medical practitioner called John Stephenson, who was active about the time the herbarium was being formed, was a source of confusion until his death in a shipwreck in 1835 was traced.

From the census returns we know that John Stephenson was born near Greta Bridge, North Yorkshire, in about 1790 and his obituary in *The Lancet* (in itself something of an honour, as this was granted to only the most prominent members of the medical profession) adds that he died at his home in Holloway on 28th April 1864. He graduated M.D. from Edinburgh University in 1817, the book that the proof sheets mentioned above came from being his doctoral thesis. He was the joint author with James Morss Churchill (who also provided specimens for the herbarium) of a standard textbook of the day: *Medical botany* (4 volumes, London, 1827 – 1831) and sole author of another standard text *Medical zoology and mineralogy* (London, 1832). He was recommended for election to the Linnean Society in March 1829 by no fewer than nine fellows of the society.

We are fortunate that Stephenson was remembered and described by James Fernandez Clarke (1812 – 1875), one time editor of *The Lancet*, in his *Autobiographical recollections of the medical profession* (London, 1874). His account is well worth repeating (at this point in the narrative Clarke is apprenticed to a physician whose practice had failed, and he has had to look for another master):

'…I was forthwith given a letter of introduction to Dr John Stephenson, then in practice, or rather professing to practise, in High Street, St Giles, or as it was more euphemistically styled, "Bloomsbury".

> Here in a little open shop, retailing pennyworths, and prescribing eighteen penny mixture, lived one of the most remarkable men of the time. He was the senior editor of "Stephenson and Churchill's Medical Botany", was a profound naturalist, an eminent scholar… He was a man of very eccentric habits and a bachelor. He spent most of his time in Coombe Wood [between Wimbledon and Kingston], Hampstead, or some of the woods within a few miles of London, collecting botanical or entomological specimens. He never rode anywhere, never spent a shilling in carriage hire, and was most abstemious. His habit

> was to breakfast about eight which he always did in his shirt sleeves, to save his coat. Except in winter time, he was without his coat in the evenings. He would leave home about eleven, returning at four or five with his specimens, and would spend some time in arranging them, placing the grubs in flower pots etc. He would devote part of the evening to reading, or writing his works, and usually ended the day with a long spell upon the violin.
>
> He took but two meals a day, and these consisting of the plainest food. Our conversations were not very lively. We seldom met but at meal times, and at dinner one source of his astonishment, if not his annoyance was that I required bread in addition to potatoes and other vegetables. He was a handsome, fair man, upwards of six feet in height, strongly built and straight as a dart. He had no views or sympathies beyond the sciences he cultivated, and was quite indifferent to the outer world, whether political or social. He lived to a great age, and died only a few years since. My continuance with him was for only a few months. During that time I was entrusted with taking to the artist who illustrated "*Medical Botany*" specimens of plants and flowers, and giving him instructions respecting them. My leisure time, which was far too great, was taken up with reading, writing, and studying the numerous specimens of my master...'.

The obituary in *The Lancet* adds '…being possessed of a private fortune, Dr Stephenson did not engage in the anxieties of medical practice, but devoted himself to the study of the several departments of natural science… Botanical and scientific excursions, the cultivation of his garden, reading &c., were the chief occupations of his life.'

Stephenson's herbarium at Museums Sheffield is of British vascular plants, arranged in natural orders, originally in 155 parts and kept in a series of at least 12 wooden box-files, of which seven remain. Each part consists of a number of sheets, 22 inches by 17¼ inches, folded in half and bound within covers to form books of up to 24 pages. Each part has a summary of its intended contents either written on the cover or on a sheet attached to the cover. The pages are numbered in pencil and the majority have one or many specimens – some have none. Notes of the collecting locality, date and collector are written neatly in ink, either on the sheets, or on a series of proprietary labels which are present on the majority of sheets. Some sheets have labels or inscriptions but no specimens, reserving a space for future acquisitions. That the collection has undergone many changes is evidenced by the numerous alterations to the summaries of the parts' contents. Page numbers within the parts are often not sequential, some are duplicated, some sheets bear no numbers at all and in addition many sheets have been removed, as evidenced by the stubs where sheets have been cut out. In part 150 (*Dryopteris*), for example, the summary indicates that it should have 14 pages but now only has five pages present, with specimens on just three. Five of the 155 parts are missing completely - numbers 33 and 34 containing Fabaceae (2) and (3), numbers 70 and 72 containing Compositae (8) and (10) and part 99 containing Chenopodiaceae (2). Seventeen parts are bound with uncut proof sheets of the doctoral thesis noted above.

There are approximately 2,600 specimens remaining in the collection (excluding multiple *Lemna* specimens) and about 1,900 combinations of specimens and location. There are two main focuses: the London area, where he nominally practised, with around half the total, and Cumberland, said by his obituarist to be his home county, with about half the remainder. Other geographical counties with totals in three figures are Kent and Westmorland. The main interest of the herbarium lies in the picture it gives of the everyday flora of the respective vice-counties, but, of course, the rarities are not ignored. From Middlesex, for example, there are *Tulipa sylvestris* (Wild Tulip) and *Cardamine bulbifera* (Coralroot) at Harefield and *Cyperus fuscus* (Brown Galingale) from Little Chelsea. Weeds of domestic cultivation are also present, familiar and otherwise: *Aegopodium podagraria* (Ground-elder)

'In the garden at No. 2 Chestnut Row. Kentish Town, a troublesome weed. August 28, 1845' and *Scandix pecten-veneris* (Shepherd's needle) 'Garden No 2 Darell Terrace, Kentish Town. June 1844'. The herbarium was, of course, unknown to Douglas Kent when he wrote the *Historical flora of Middlesex* so that there are many Middlesex sites with dated specimens earlier than the earliest records in both Kent's book and also in Trimen and Dyer's *Flora of Middlesex*.

The earliest specimens are six from 1817 (Edinburgh) and the latest 1859 (*Sisymbrium irio* (London-rocket) from Battersea and *Erica cinerea* (Bell Heather) from Putney Heath). Between these years there are only four - 1819, 1822, 1857 and 1858 - where there are no specimens present, the majority of specimens (53%) being collected between 1840 and 1849. All the mounting sheets are good quality laid paper, with dated watermarks, so, assuming these dates represent the years when the herbarium was being worked on, it is possible to see when it was put together. The earliest sheet is watermarked 1835 and the latest 1856, with the great majority (89%) being mounted at dates - like the collecting dates - between 1840 and 1849.

By a remarkable coincidence what appears to be a duplicate of this herbarium was found when the science laboratory at Prendergast School, Lewisham, was cleared out in 2005. The writing on the sheets is the same and the collectors and locations are largely the same. The main points of difference from the Museums Sheffield herbarium are that it is not as large and the sheets in the herbarium are unbound, with a continuous pagination. Also the sites and the collectors are often described in greater detail. The dates of collection follow on from the Museums Sheffield herbarium, although there is some small measure of overlap. This herbarium was donated to the Natural History Museum by Barry Phillips, the father of the teacher who rescued it.

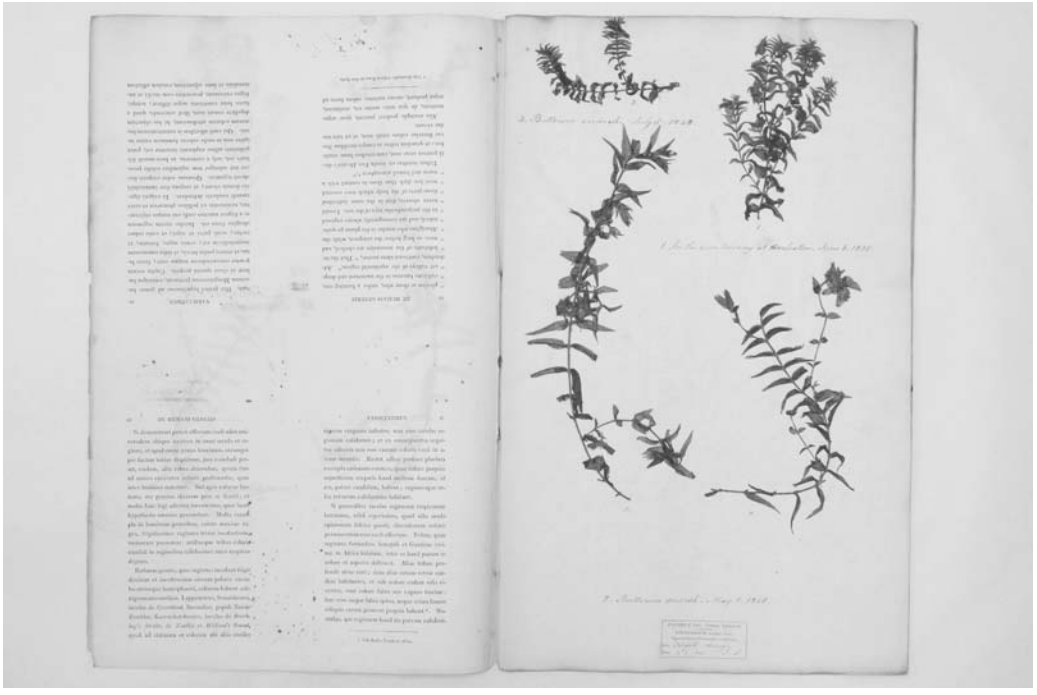
It seems clear from the evidence that in about 1856 Stephenson started building a new herbarium, taking full account of his experience gained in the mounting and arranging of his old one. No doubt he was especially keen to avoid the troublesome procedures involved in inserting sheets into already bound volumes. This new herbarium used mainly freshly acquired material, but clearly there would also have been some cannibalisation of his old collection, accounting, no doubt, for many missing specimens in the Sheffield collection.

Stephenson requested in his will that his *hortus siccus* should be donated to the Linnean Society. Unfortunately this could not be carried out, as, in 1863, the Society had resolved that it would no longer accept new collections, and would also dispose of existing collections not deemed to be of major importance. How and when the two herbaria were separated and came to be in their respective ownerships is unknown.

The numbers of specimens makes a complete listing here impractical, but a spreadsheet of the Sheffield herbarium can be obtained by contacting Alistair McLean, Curator of Natural Sciences at Museums Sheffield (alistair.mclean@museums-sheffield.org.uk) or the author (graemecoles@btinternet.com). The Natural History Museum data for the Stephenson herbarium is currently not available on-line and requests for information should be sent to Dr Mark A. Spencer, Senior Curator, British and Irish Herbarium (m.spencer@nhm.ac.uk).

Vice-counties with more than 40 specimens in the John Stephenson herbarium at Museums Sheffield are: 14, 15, 16, 17, 18, 21, 31, 69 and70.

Acknowledgements:
My thanks are due to Dr Mark Spencer and to Barry Phillips for information regarding the Natural History Museum herbarium, and to the Linnean Society for a list of the Fellows recommending John Stephenson for election, and for handwriting specimens.



John Stephenson herbarium. An unusual feature of 17 of the 155 bound parts is the use of uncut proof sheets of his 1817 doctoral thesis as a cover. This is Part 116, which starts with a sheet *of Groenlandia densa* (Opposite-leaved Pondweed) specimens from Battersea marsh and Harleston, Norfolk

John Stephenson herbarium. *Scirpus sylvaticus* (Wood Club-rush) gathered in a meadow between Kentish Town and Highgate, Middlesex, June 9th, 1840

Adventives & Aliens News 3

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

V.c.13 (West Sussex)

Moricandia arvensis (Violet Cabbage). Shoreham (TQ2105), 6/2002, E. Bishop: single plant in the garden of Mrs E. Bishop, not planted! A handsome annual crucifer with fleshy, pruinose, amplexicaul stem leaves (more or less entire/oblong-ovate), and rather showy deep-pink flowers in terminal racemes, which might be familiar to members who botanise in the Mediterranean region, where it is a not uncommon feature of disturbed waste ground. It is listed as an esparto alien in Clement & Foster (1994), but spilt bird seed is a more likely origin in this case. Are there other instances of this plant arising unbidden in gardens or on gardened ground?

Dittrichia graveolens (Stinking Fleabane). Hambrook (SU801067), 12/2013, P. Stanley & E.J. Clement: either side of lay-by, north side of A27; Chichester (SU839057), 12/2013, P. Stanley & E.J. Clement: road verges north side of A27. The first Sussex records. These finds go some way towards closing the gap between records to the west in S. Hants and to the east in both Kentish vice-counties. It might well have been present in Sussex for some time and gone unnoticed. This would not be surprising given its propensity for growing on the verges and central reservations of motorways. It now remains for someone to find it in v.c.14.

V.c.14 (East Sussex)

Disphyma crassifolium (Purple Dewplant). Bexhill (TQ7213306692, TQ7216706698, TQ7266606830), 2/7/2014, M. Berry & R. Wells: several isolated mats growing with much more abundant and carpet-forming *Carpobrotus edulis* (Hottentot-fig). *D. crassifolium* was first detected on the cliffs at Bexhill by the late Ken Bull in 1980, so, excluding the possibility of a re-introduction, it has persisted here for over thirty years. It is distinguished at a distance by its obviously smaller leaves and more prostrate habit (it roots at the nodes, unlike *C. edulis*). Other members of the Aizoaceae are unlikely to become established this far east, being too tender. For illustrations, see Clement *et al* (2005): pp. 42, 46.

Geranium traversii (Hook.f.) (Chatham Island Cranesbill). Bexhill sea-front (TQ72211. 06706), 24/6/2011, E. Campbell & J. Rose (det. Judy Clark, conf. Andrew Norton): spread into cracks between steps and on wall top by promenade. This native of the Chatham Islands has attractive blue-green, silver-fringed leaves, cut to about half-way, and pale pink sub-orbicular petals, c.10-12mm long (see Colour Section, Plate 2), but as yet still seems to be an uncommon garden plant. Should it be more widely grown, further records will surely follow, as at Bexhill it has made its way down some steps onto the top of a wide wall by the promenade from an elevated beach front garden, and survived here for at least four seasons without any obvious signs of spread along the wall top. Probably the first British record, is it still the only one?

Nepeta racemosa (Eastern Cat-mint). Princes Park (TQ6268000450), 3/5/2014, M. Berry (conf. E.J. Clement): one patch on waste ground at south end of football pitch (since dug up for the garden!). Most of the records of genuinely self-sown garden cat-mint are probably of this species rather than of *N. ×aassenii* (Garden Cat-mint), which is likely to be highly sterile, appearing outside gardens only as a throw-out. *N. racemosa* (see Stace, 2010: 624) is a smaller, more delicate plant, with crenate rather than coarsely toothed leaf margins and cordate rather than sub-truncate leaf bases. The upper lips of the flowers are bent back, exposing the ends of the stamens. In the hybrid they lie flat over them.

Libertia formosa (Chilean-iris). Eastbourne (TQ6330300542), 12/5/2014, M. Berry (conf. E.J. Clement): one clump on earth

rampart by Sovereign Skate Park. Presumed self-sown, as the rampart has been in existence for a number of years, and worked by me a number of times, before I noticed the *Libertia* in 2014. This might not self-sow that readily, as, though widely planted, there do not seem to be a commensurate number of 'wild' records. Contrast this with another widely planted member of the Iris family, *Sisyrinchium striatum* (Pale Yellow-eyed-grass) - a much more convincing self-sower, both as a casual in pavement cracks and as extensive, persistent populations on shingle *etc*. (*e.g*. TQ65020349),16/6/2012, M. Berry & R. Wells, on fixed shingle near Martello Beach Caravan Park, dense in places).

I should point out that the most unexpected and exciting alien find of 2014 is probably Arthur Hoare's discovery of the female form of *Petasites fragrans* (Winter Heliotrope) in v.c.14. For details, see his account on p. 43 of this issue of *BSBI News*.

V.c.69 (Westmorland)

Potentilla norvegica (Ternate-leaved Cinquefoil). Barrow-in-Furness (SD21916876), 20/7/2007, A. Boucher: one large plant on industrial waste ground at Cavendish Docks, Roosecote. Plant not found in 2011/2012. Another most welcome, if short-lived, recent record for this once more familiar North American/Eurasian species.

V.c.85 (Fife & Kinross)

Cuscuta campestris (Yellow Dodder). Saline, 7/2013, R. Smith (comm. and det. G. Ballantyne): growing on *Aster* sp. (Michaelmas-daisy) in a garden. *Cuscuta* species in general are very rare in Scotland, even native, warmth-loving *C. epithymum* (Common Dodder), in spite of the great abundance of potential ericaceous hosts, so the record is doubly significant. Assuming the haustoria have penetrated, this record might also be a British first of *C. campestris* on this particular host (see Colour Section, Plate 2).

V.c.H36 (Co.Tyrone)

Cardamine corymbosa (New Zealand Bittercress). Cookstown (H801778),2007, I. McNeill: at The Pines. This nursery weed has predictably spread to parks and gardens in various parts of the British Isles, but can easily be missed unless specifically sought early in the season, when its relatively showy white flowers (with petals up to 3mm wide), singly or in corymbs on leafless stems, catch the eye. The normally trifoliate leaves are also characteristic. For an illustration by M. Braithwaite, see *BSBI News*, **58**: 39. See also v.c.H40, below.

Crambe hispanica ssp. *abyssinica* (Abyssinian Sea-kale). Doons (H729799), 2008, I. McNeill (det. T. Rich): on waste ground. For a short species description, brief details of other records and details of where to find reliable images of this species on the web, see *BSBI News*, **101**: 35. See also Stace (2010): 417 for the change of name.

V.c.H39 (Co. Antrim)

Agastache rugosa (Korean Mint). Flow Bog, south of Ballymena (J119935), 2007, I. McNeill (det. R. Harley): growing on bare peat. The wildest, most remote location yet for a record of this garden plant? For a key separating the three *Agastache* species most likely to be encountered and a brief account of other British records, see *BSBI News*, **99**: 47 (a correction should be made to line 3 (*loc. cit.*): the finder of the Lebberston plant being Jesse Tregale, not J. Clarke, as given). The cover of this same issue bears a drawing of *A. rugosa* by Ruth Freeman. For a photograph, see plate 3, colour section, *BSBI News*, **113**.

V.c.H40 (Co. Londonderry)

Cardamine corymbosa (New Zealand Bittercress). Maghere Garden Centre (C856004), 2005, I. McNeill: the possible source of all the other local records (pers. comm. I. McNeill); Altagoan (H798946), 2007, I. McNeill.

Acknowledgements:

As usual my thanks go to all those who provided me with records. Please keep them coming.

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Female *Petasites fragrans* (Winter Heliotrope)

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My wife and I decided to take a walk round Borde Hill Garden in West Sussex. Unfortunately we found the garden closed. However there is a farm track, which is also a public footpath, running alongside the garden, so rather than return home we chose to take a walk along the track. We had only covered a couple of hundred metres when serendipitously I saw a plant that was a mystery to me. My first thoughts were of *Petasites*, but it did not look like any species I knew. There was a large patch, so I collected enough material to take and study once I got home. Still not able to get a positive identification, I sent a note to Eric Clement about the find, along with a voucher specimen and as much details about the plants as I could. Eric suggested the possibility of the female *Petasites fragrans* (Winter Heliotrope), but not having an herbarium specimen to compare it with he advised me to contact Dr Fred Rumsey at the Natural History Museum, where they may have had a herbarium specimen. He also mentioned that Stace (3rd ed.) states that the female *Petasites fragrans* is not known in Britain and if the specimen is what he thinks it is, then this is a most important find.

I then contacted Dr Rumsey by email, giving him all the details that I had given to Eric Clement, to see if he was prepared to accept the challenge and if possible confirm the identity of this *Petasites*. Thankfully, he readily agreed. This necessitated a return visit to the site to gather fresh material. Since my original find, just over a week had passed and the plants then were not in a pristine state. However, I managed to collect fresh material that I hoped would be acceptable as a voucher specimen.

I arrived at the garden and found that it was open; so after making my collection I entered the garden to inquire at the reception if there was anyone I could speak to about the plants in the garden and in particular my mystery plant. I was kindly directed to Andy Stevens, the head gardener. When asked about the plants he said he knew them just as *Petasites* and that there were a number of patches scattered about the garden. He also said that they were a problem plant, which didn't surprise me. He was not sure of the actual species and unaware of the female plant of *P. fragrans*, nor did he know how or when the plants arrived in the garden. One can only assume it was an accidental introduction, but going by the size of the patches and having an idea of the rate of spread, these colonies must be at least 50 years old. I was then in no doubts that the source of this alien invasion was from the garden. Although a frequent visitor to the garden I had not noticed these plants before; but then, when walking around a large garden, I suppose it is easy to overlook the less showy specimens when confronted by the splendid displays of the gaudy horticultural show-offs.

The collected plants were prepared and voucher specimens pressed ready for sending to the Natural History Museum. After just a few days I had the reply I was hoping for. Dr Fred Rumsey confirmed my mystery plant as the female *Petasites fragrans* and that my voucher specimen is now housed in the museum's herbarium.

***Petasites fragrans* (Vill.) C. Presl (Winter Heliotrope)**

A dioecious perennial that is native to the Mediterranean region. It was introduced into Britain in 1806 as being good for ground cover; also for its fragrant flowers, which

appear in winter. It was first found in the wild in 1835 and soon became invasive, spreading along roadsides, beside streams and woodland edges. It is now widely naturalised; so much so that it is now considered to be a pest species. It can spread about a metre a year, although this can be greatly increased if the plant is mowed, as any piece of rhizome that has been cut through will produce a new plant. Once established it out-competes all the native vegetation to form dense stands. The female plant has not previously been known in Britain.

The female plant of *Petasites fragrans*

Collected by Arthur G. Hoare at Borde Hill, Haywards Heath (TQ3207326441) (v.c.14), 16/3/2014:- track side, grass verge, outside a fence adjacent to a garden, a patch about 50m long × 1m wide. Well naturalised (see inside back cover).

Plant: Stem hollow >60cm tall; >15mm diam. at the base, tapering to 5mm just below the inflorescence; a few cauline leaves clasping the stem. Basal leaves suborbicular, caudate base, serrate margin, 15–18cm wide, petiole 25cm long, hairy and purple at the base. Racemose inflorescence, small purple flowers with narrow hairy involucral bracts, purple tipped.

I visited the garden again on 5th June to look at the plants. There were no signs of the flowering stems and the leaves had grown to 45cm-50cm wide, with petioles >30cm long. The leaves covered the ground, excluding all other vegetation.

Acknowledgements:
Eric J. Clement; Fred J. Rumsey (NHM); Jonny Morris, Estate Manager and Andy Stevens, Head Gardener at Borde Hill Garden.

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Scolymus hispanicus in Surrey (v.c.17)

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Ron Parker is an enthusiastic Surrey recorder. In June 2014 he was doing one of the squares on Clapham Common when he came across a single plant of *Scolymus hispanicus* (Golden Thistle) growing by roadside railings at TQ28447468, a plant he recognised from having seen it in Spain. In July Dave Dawson and I went to see it. It is a large spiky-looking composite about a metre tall (photo 1), with golden-yellow, clustered capitula about 4cm across (photo 2) and is common in southern Europe. The stem leaves are lanceolate and pinnatisect, with spiny margins and white marbling on the veins (photo3) (see Colour Section, Plate 1). The leaves and roots are eaten in Spain and it is sometimes cultivated in this country. Although it resembles a thistle it is actually in the sub-family Cichorioideae, producing a latex and with all flowers ligulate. The plant is unlike any other I have seen in the British Isles and, once seen (and felt), unlikely to be confused with anything else except perhaps *Scolymus maculatus* (Spotted Golden Thistle), an even less common plant, with white-edged leaves and more open inflorescence. I have never seen it.

The BSBI Distributional Database lists records from 17 hectads, the most recent in Cardiganshire (v.c.46) in 1999 (BSBI DDb). As far as I know there are none this century before this one. The source of the plant is unknown. The cosmopolitan mix of the inhabitants of Clapham makes self-sowing from cultivation a possibility but it is more likely to be a bird-seed alien, although there were no other such species present, just the usual plants of scruffy London verges.

Acknowledgements:
I would like to thank Ron Parker for letting us know about the plant and Dave Dawson for taking me to see it.

Reference:

BSBI Distribution Database. http://bsbidb.org.uk/record/2cd4p9h.1nz6bk. Accessed 14/7/2014.

Leersia oryzoides at Harvard Pond, Massachusetts, New England, USA

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When away from British shores it is always interesting to see common plants that are very rare at home and *vice versa*. In the late summer of 2010 I saw *Leersia oryzoides* (Cut-grass) growing as a local dominant around Harvard Pond, Petersham, Massachusetts. The species is widespread in north America, where it is considered important for sediment control, sequestering pollution from agricultural run-off and maintaining the integrity of drainage ditches in lowland agricultural landscapes (Darris & Bartow, 2004; Pierce *et al*., 2007). I saw it growing in profusion on and around an abandoned beaver dam at the side of the lake, where the one-sided lateral position of the leaf blades at the top of the culms immediately brought to mind the picture in *Plant crib* (Rich & Jermy, 1998). My suspicion that it was indeed *Leersia* was increased by the extreme, siliceous roughness of the leaves. Closer inspection revealed several flowering individuals, serving to identify the species beyond doubt (see Colour Section, Plate 3), although walking through a dense stand in shorts will allow immediate identification even with eyes firmly closed, I suspect.

The absence of *Leersia* from the more heavily wooded pond margins suggested shade intolerance and its dense colonisation of the beaver dam perhaps pointing toward a liking for pulse-disturbance, where a newly opened patch is subsequently left infrequently disturbed or undisturbed. In this case occasional winter flooding could conceivably set back successional establishment by plants of drier ground, including tree species. At Harvard Pond it was growing in oligotrophic conditions in a pure stand on acid peat (pH 4 – 4.2) and therefore in a habitat quite different from its preference for the fertile edges of ditches and ponds at its few English locations (Birkenshaw, 1990). Evidently, the Harvard Pond habitat is also rather different from its typical locus in the US, where it is tolerant of acid conditions but with an optimum between pH 5.1 and 8.8 (Darris & Bartow, 2004). To my knowledge *Leersia* has never been recorded from similar oligotrophic habitats in southern England. Candidates are rare, but might include the edges of oligotrophic waterbodies such as turf ponds in Broadland, pingo pools in west Norfolk and peaty pond margins in the New Forest. To determine whether these more oligotrophic habitats are occupied in mainland Europe I examined the species composition of 963 quadrats containing *Leersia*, extracted from an unpublished database being compiled at Alterra, Netherlands. The most common associates were *Lythrum salicaria* (Purple Loosestrife), *Juncus bufonius* (Toad Rush), *Persicaria hydropiper* (Water-pepper), *Echinocloa crus-galli* (Cockspur), *Alisma plantago-aquatica* (Water-plantain) and *Urtica dioica* (Common Nettle). However, *Leersia* was also recorded with species more typical of the kinds of lowland, low-productivity wetlands listed above. These rarer associates included *Molinia caerulea* (Purple Moor-grass), *Calamagrostis canescens* (Purple Small-reed), *Sium latifolium* (Greater Water-parsnip), *Cicuta virosa* (Cowbane), *Carex rostrata* (Bottle Sedge), *C. echinata* (Star Sedge), *Oenanthe aquatica* (Fine-leaved Water-dropwort), *Ludwigia palustris* (Hampshire-purslane) and *Illecebrum verticillatum* (Coral-necklace).

Returning to the status of *Leersia oryzoides* in England, several authors indicate that flowering is constrained by our cool summers (Rich & Jermy, 1998; Birkenshaw, 1990). Thus *Leersia* is at its northern limit, being found more widely in central and southern Europe, while Petersham, Massachusetts experiences much warmer summers than the UK, being at approximately the same latitude as Rome. It might therefore be expected to do well under projected climate change, particu-

larly since, once established, it is capable of vigorous vegetative spread. It does, however, appear sensitive to over-grazing. Birkenshaw (1990), for example, describes the restriction of *Leersia* to the narrow zone next to the water's edge at Amberley Wildbrooks, its growth curtailed by cattle grazing on one side and by standing water on the other. This would appear to be an example of a rare species being confined to linear features or ecotones in our landscape, where the spatial extent of the population is necessarily limited by the width of the feature and reliant on management factors that often accidentally maintain a window of opportunity across enough of its width. The precarious status of *Leersia* is somewhat reminiscent of the residual niche of *Thalictrum flavum* (Common Meadow-rue) in the Sheffield region, described by Hodgson (1991). Loss of habitat due to past drainage and improvement had left the species confined mainly to productive ditch-sides rather than its optimal situation in wet, unimproved meadows. The difference with *Leersia* is that in the US and in England it appears to be most common in productive wetlands and on ditch banks, its preference for peaty, oligotrophic conditions at Harvard Pond being unusual in the US, occasional but possibly atypical in continental Europe and perhaps never realised over here.

Acknowledgements:
My thanks to Aaron Ellison and Laurie Chiasson at the Harvard Forest for information on *Leersia oryzoides* in the United States and the Petersham area of Massachusetts. Thanks to Kevin Walker for additional comments and to Ann Sankey and Martin Rand for information on the current status of *Leersia* in England. Thanks to Wieger Wamelink for information on the associates of *Leersia* in continental Europe.

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Diary for 2014

JANE HOULDSWORTH, *16 Carlisle Street, Bromley Cross, Bolton, BL7 9JF*;
(Tel.: 07584 250 070; jane.houldsworth@bsbi.org)

7 Oct	Records & Research Committee, Linnean Society, London.
11 Oct	Irish Committee.
15 Oct	Publications Committee, Linnean Society, London.
21 Oct	Training & Education Committee, Shrewsbury.
22 Oct	Training the Trainers workshop, Shrewsbury.
25 Oct	Welsh Committee.
1 Nov	Scottish Annual Meeting, Edinburgh.
12 Nov	Council. Linnean Society, London.
22 Nov	Annual Exhibition Meeting & Annual General Meeting, Leicester University.
10 Dec	Board of Trustees, Brewin Dolphin offices, London.

Applying the 2014 Red List to Cornwall and comparing that with the 2005 Red List

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Introduction

Cornwall (v.c.c.1 & 2) is probably the most intensively and comprehensively biologically surveyed region in Britain, with the ERICA database, the principal database used in Cornwall, currently holding over 1,750,000 flowering plant and fern records. The Botanical Cornwall Group is now over two-thirds of the way through a systematic survey of every 1km square, adding 100,000 records per year to the database. With this wealth of electronic data and the recent publication of *A vascular plant red list for England* (Stroh *et al*., 2014) (see also p. 51), it was thought appropriate, in the context of the Cornish dataset, to compare the England Red List species and their threat categories with those calculated for Great Britain (Cheffings & Farrell, 2005). To this end, a sneak preview of the final England Red List was made available for analysis prior to publication.

The 2005 Red List computed a list of Red Data species for Great Britain according to IUCN criteria. In essence the list comprises flowering plant and fern species that are declining or threatened and is sub-divided into various categories according to the calculated degree of threat. The IUCN categories are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC) and Data Deficient (DD). An additional category, Waiting List (WL), is applied when a full assessment is not possible due to inadequate data, taxonomic uncertainties or uncertainties over native or archaeophyte status.

The 2014 Red List repeated the same procedures, but excluded data from Scotland and Wales. It is expected that species that are common and not declining in Scotland and Wales but are declining in the rest of Britain should move to a higher threat category in the 2014 list, and conversely that species declining in Scotland and Wales, but doing well elsewhere, will move to a less threatened category.

The effects on Cornwall

This article will only focus on the four IUCN categories listed in table 1 and only use Cornish data. Table 1 shows the overall changes in the total number of species in those four categories between the two Red Lists and compares that with the changes in Cornwall. The 37% increase in the total number of species in these four categories is considered to be largely an artefact of excluding the Scottish and Welsh data from the computations, and the proportionately larger rises in the Near Threatened (98% compared with 64%), Vulnerable (34% compared with 12%) and the Total (51% compared with 37%) indicates that the effects of dropping Scotland and Wales has had a greater impact on Cornwall than on England.

Table 1: The number of species in each of the four IUCN categories, showing the percentage increase for England and Cornwall.

	England				**Cornwall**		
	2005	**2014**	%		**2005**	**2014**	%
Critically Endangered (CR)	40	58	45		11	9	-18
Endangered (EN)	91	137	51		26	37	42
Vulnerable (VU)	156	175	12		61	82	34
Near Threatened (NT)	87	143	64		42	83	98
Total	**374**	**513**	**37**		**140**	**211**	**51**

When the 1km squares with records of Red List species made since 1989 are plotted, the geographic coverage of the changing number of species is revealed (note: all the maps are using only post-1989 records). In the case of EN species (maps 1 & 2, p. 50), the overall increase in the number of species has resulted in a greater spread of Red List species across Cornwall, but more noticeably has better demarcated the area of conservation interest on the Lizard and has also highlighted the Mid-Cornwall Moors. Conversely the Penhale Dunes, part of which is a SAC, no longer has EN species and so disappears from the 2014 map.

The pair of maps showing the distribution of NT species (maps 3 & 4, p. 50) demonstrates that, following the almost doubling of NT species there are few 1km squares in Cornwall without any Red List plants. Map 5 (see colour Section, Plate 3) re-draws the 2014 data as a hotspot map, with the darker red colour representing a greater number of NT plants. In this way the key areas of nature conservation interest are revealed – the Lizard, West Penwith Moors, Mid-Cornwall Moors, Bodmin Moor and the northern coastal fringe. With the exception of part of the Lizard, these areas are barely highlighted by map 6 (see colour Section, Plate 3), which uses the 2005 data from all four IUCN categories, clearly indicating that the 2005 Red List is less sensitive to conservation needs in Cornwall.

Furthermore, cross-referencing the Red List species with the Ellenberg broad habitat categories (Hill *et al*., 1999) demonstrated that the change in the number of species for each of the IUCN categories is more pronounced for particular broad habitat types (see Table 2, p. 49). For example, the number of VU species of fen, marsh and swamp rose from two to 12, whilst EN dwarf shrub heath plants rose from six to ten.

Figure 1 (p. 51) plots the changes in number of species for the Ellenberg broad habitats for all four IUCN categories combined. The habitats that stand out, from the Cornish perspective (all above 20 species), are boundaries, arable, calcareous grassland, acid grassland, dwarf shrub heath, fen, marsh and inland rock. All but boundaries and arable have shown a significant increase in the number of species added in 2014 and all are important constituents of the Cornish landscape, even, surprisingly, calcareous grassland, the characteristic plants of which are found along the coast, not just on sand dunes. Plotting hotspot maps of each of these Ellenberg broad habitats shows the distribution of these communities across Cornwall and remarkably the maps of more acid communities, such as dwarf shrub heath (map 7 (see colour Section, Plate 3)) and acid grassland, are similar to the NT hotspot map (map 5) and highlight the same key areas of nature conservation interest. This suggests that the greatest change between the 2005 and 2014 lists has been amongst species characteristic of more acid communities.

It should be noted that not all of the Red List plants have been assigned Ellenberg values. For example, the discovery of *Cystopteris diaphana* (Diaphanous Bladder-fern) was too recent. Secondly, many species have been placed in more than one Ellenberg habitat category, hence the discrepancy in the totals between tables 1 and 2.

Conclusion

The 2014 Red List has substantially increased the number of threatened plant species, resulting in a greater spread of Red List species across Cornwall, as well as larger numbers of Red List species concentrated in the key areas of conservation interest, highlighted by hotspot mapping. The additional threatened species in the 2014 Red List are not spread evenly across the Ellenberg broad habitat categories and the greatest changes appear to be amongst more acid communities. It is thought that many of these changes are a direct result of excluding Scottish and Welsh data from the 2014 calculations, which in the 2005 Red List masked the decline in a significant number of species in the rest of Britain, particularly amongst the more acid communities that continue to flourish along the western fringe of Britain.

Cornwall is one of the Celtic nations and has much closer affinities to Scotland and Wales than to England, both in terms of its culture but also in terms of its flora. The exclusion of Scottish and Welsh data from the 2014 Red List

Table 2: The number of species in each of the Ellenberg broad habitats, by IUCN category and by Red List.

	Near Threatened		Vulnerable		Endangered		Critically Endangered	
	2005	2014	2005	2014	2005	2014	2005	2014
Broadleaved, mixed and yew woodland	4	6	3	3	2	3		
Coniferous woodland	0	2						
Boundary and linear features (e.g. hedges, roadsides, walls)	5	9	10	9	7	9	2	1
Arable and horticultural (includes orchards, excludes domestic gardens)	4	7	12	10	7	11	6	4
Improved grassland	0	1					1	0
Neutral grassland (includes coarse *Arrhenatherum* grassland)	4	7	3	2	2	0	0	2
Calcareous grassland (includes lowland and montane types)	6	17	6	11	1	2		
Acid grassland (includes non-calcareous sandy grassland)	4	9	7	9	1	3		
Dwarf shrub heath (cover of dwarf shrubs at least 25%)	5	12	6	11	6	10		
Fen, marsh and swamp (not wooded; includes flushes, rush-pastures, springs and mud communities)	3	15	2	12				
Bog (on deep peat; includes bog pools as well as acid lowland valley mires on slightly shallower peat)	0	7	0	6	1	1		
Standing water and canals	3	4	3	7	2	2	0	1
Rivers and streams	2	4	0	5			1	1
Montane habitats (acid grassland and heath with montane species)	0	1						
Inland rock (heterogeneous - includes quarries, limestone pavement, cliffs, screes and skeletal soils over rock)	7	12	6	8	3	4	2	2
Built-up areas and gardens	0	2	2	2	1	0	0	1
Supralittoral rock (does not include maritime grassland)	1	1	3	4	3	1		
Supralittoral sediment (strandlines, shingle, coastal dunes)	5	8	4	7	4	3		
Littoral sediment (includes saltmarsh and saltmarsh pools)	3	3	1	2				
Inshore sublittoral sediment (only *Zostera marina*)	1	0	0	1				
Total	57	127	68	109	40	49	12	12

has proved advantageous to Cornwall, as a disproportionate number of the additional species showing an increased threat level are to be found in Cornwall, where many, such as *Potentilla erecta* (Upright Tormentil), *Jasione montana* (Sheep's-bit), *Calluna vulgaris* (Heather) and *Erica cinerea* (Bell Heather), are common and show little or no signs of declining.

Overall, the 2014 Red List appears to be a much more sensitive indicator of important plant communities or habitats and, in consequence, it can be considered better suited to the needs of wildlife conservation. In short, it is a truer reflection of the habitat types of greatest concern to conservationists.

Acknowledgement:
I am grateful to David Pearman and Pete Stroh for their constructive comments.

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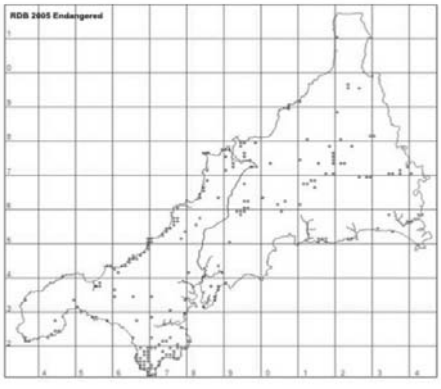
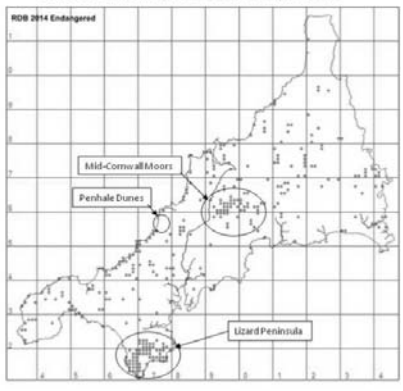
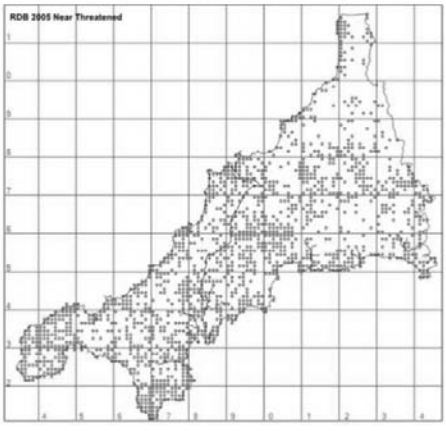
Map 1: the distribution of 2005 Red List Endangered plants



Map 2: the distribution of 2014 Red List Endangered plants



Map 3: the distribution of 2005 Red List Near Threatened plants



Map 4: the distribution of 2014 Red List Near Threatened plants

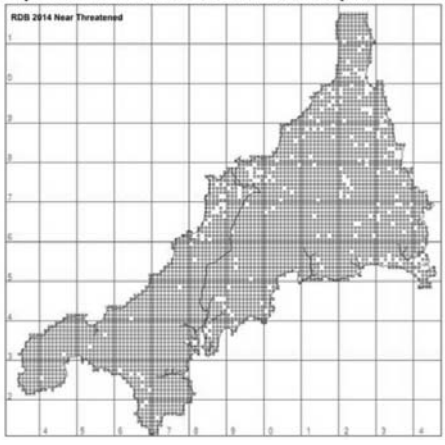
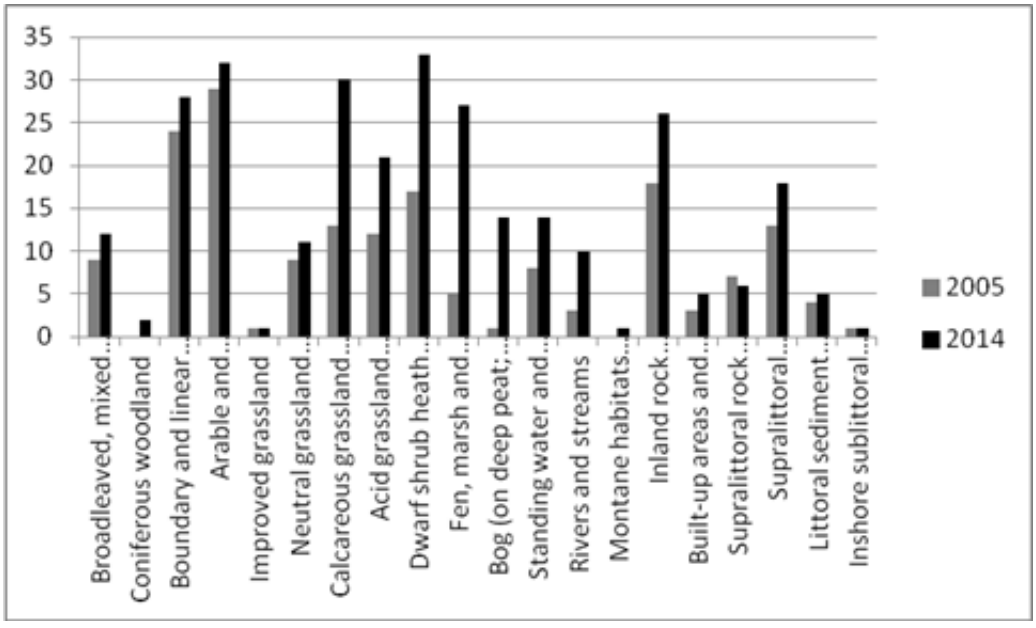


Fig. 1. The number of species in each of the Ellenberg broad habitats combining the four IUCN categories



NOTICES

Now available: *A vascular plant Red List for England*

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

After two years of hard work *A vascular plant Red List for England* is now complete and will be officially launched on 17th September 2014 at the Royal Botanic Garden, Kew. The book presents for the first time a comprehensive assessment of threat, using globally recognised IUCN categories and criteria, for over 1800 native and archaeophyte species found in the region (England is a 'region' in IUCN parlance). With colour photographs liberally distributed throughout its 192 pages, the *Red List* has sections describing the methods and processes used to work out threat status, including examples of how the IUCN criteria were applied for ten species. Detailed interpretation of the main results include subsections on the comparison of threat between England, Wales and Great Britain; the ecological characteristics of threatened species in England; regionally extinct taxa; species reaching their European edge of range; declining widespread taxa; and plants for which England has a particular responsibility. All this *and* the 114-page Red List Table too!

Copies are available from Summerfield Books www.summerfieldbooks.com, price £16 (+ p&p), and it will also be available soon on the BSBI website as a free download. Copies will also be sent free of charge to all current England VCRs in recognition of the pivotal role they have played in providing the underpinning data for this important project.

Euphrasia Study Group

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

In the absence of an *Euphrasia* (Eyebright) referee, and following on from a number of, I hope successful, workshops over the last two years, it seems that this might be a suitable moment to see whether a UK wide *Euphrasia* study group would be useful. The aim would be to encourage recorders to upgrade their knowledge of the genus (and *en passant* upgrade my knowledge too!). It is hoped that the knock-on effect of this would be to produce more, and better quality records for the 2020 Atlas project and perhaps also lead to a reappraisal of many herbarium specimens.

To that end four study days have been organised in different parts of the country over the winter, each based at an herbarium with a good collection of examples: **RBGE**, **NMW**, Leicester University and Reading University. The latter two hold parts of Peter Yeo's collections (the main part is at **CGE**) which are particularly informative. It is hoped to organise an Irish event in due course.

The format of the days is somewhat fluid at present, but might perhaps start with a general presentation on *Euphrasia* anatomy and identification, followed by a critical examination of specimens from the relevant herbarium. We might usefully start by looking at the *E. arctica /confusa/nemorosa* and *E. rostkoviana/anglica* (or *E. officinalis* ssp. *pratensis/anglica* if you prefer) groupings, which are the cause of much confusion and potential for mis-identification; although at **RBGE** we might perhaps replace the latter with some work on *E. foulaensis* and *E. marshallii*.

Too many hours in an herbarium can be trying, so the day might be further split up by discussions on taxonomy, hybridity and problem areas, for example, and there will of course be opportunities to discuss specimens brought by participants. At all three locations there will be opportunities to interact with some of the MSc students studying at the relevant institution.

If the events prove popular and worthwhile, I hope to organise an *Euphrasia* based field trip in the summer of 2015.

Provisional dates are:

Royal Botanic Gardens Edinburgh – 3rd November 2014

Leicester University – 20th January 2015

National Museum of Wales – 12th February 2015

Reading University – date to be fixed – Feb/March

To make the days work well numbers must of necessity be limited. No special expertise is required, just an interest, or even a potential interest in the genus. Please email: chris@metherell.org.uk in the first instance to express an interest.

Plant ID: have you considered Leicester?

J.S. & M.V. WALTON, *46 Hill Top, Baddesley Ensor, Atherstone, Warwickshire, CV9 2BQ*; (johnwalton46@tiscali.co.uk)

Three years ago, we took over the job of joint vice-county recorders for Warwickshire, and, being aware of our limitations, we started to look around for a botany course.

After dismissing FSC courses as not being quite what we wanted at the time, we came across, by accident (from a friend of a friend), the Plant Identification Course run at the University of Leicester Botanic Garden. This course, with three terms of regular Tuesday evening meetings, seems not to have been mentioned in *BSBI News* or, until very recently, on the BSBI website, so we would like to draw your attention to it here.

The course started in the autumn, with lectures on the evolution of the different plant families. By the end of the term we knew many new words, such as 'phylogeny', 'gameto-

phyte' and 'hypanthium', and sometimes even understood them! The Botanic Garden next door provided us with an endless supply of freshly picked material for us to examine and dismantle.

The lecturers were the ever patient Richard Gornall, who always looks his best with his hands full of slimy Potamogetons, and John Bailey who had a terrier-like nose for unusual plants. The course was attended by a mixture of students, interested amateurs, both experienced and beginners, and professional ecologists.

Later on it was how to use a key and a few more long words ('apomicts' and 'polyploidy') plus, after Easter, workshop sessions on grasses and sedges. In the summer we got down to the nitty-gritty, with whole-day excursions to oak woodland, an acid grassland NNR (v.c.55), Sutton Park NNR (v.c.38) for sedges, Derbyshire (v.c.57) for the limestone flora and Aylestone Meadows LNR (v.c.55) for aquatics. We finished with a trip to the seaside at Holme Dunes NNR in North Norfolk (v.c.28) for sand-dune and saltmarsh specialities. Only a botany group would be on its knees in the car park looking for *Crassula tillaea* (Mossy Stonecrop) and rare *Trifolium* spp. We remember a mad dash with the warden to see the wonderful *Dactylorhiza incarnata* ssp. *coccinea* (Early Marsh-orchid) at the end of the day.

We took the course in the 2011/12 academic year and were fortunate enough to have the opportunity to spend a week in Mallorca alongside the full-time biological science students from Leicester University who were taking a module in Island Biology and Speciation. The Mallorca trip is offered as an optional extra for any Plant ID students who are interested.

We cannot imagine a better course. It was thorough, and for those with no previous botanical training it provided an excellent balance of theory and practical identification experience. All this, of course, was followed by an optional FISC test.

Details can be found on the Botanic Garden website: www.le.ac.uk/botanicgarden

BSBI Recorders' Conference in Scotland – Friday 6th to Sunday 8th March 2015

JIM MCINTOSH, *c/o Royal Botanic Garden Edinburgh, Inverleith Row, Edinburgh, EH3 5LR*; (Tel.: 0131 248 2894; jim.mcintosh@bsbi.org)

Recorders in the north should note in their diaries that I have just booked accommodation for a residential Recorders' Conference at FSC Kindrogan, near Blairgowrie, in March next year. We will cover MapMate, Atlas 2020, the Distributional DataBase, Rare Plant Registers, Axiophytes and Memory Map. But I would be particularly interested to have your suggestions of particular topics or training needs you would like us to cover.

Recorders further south should note that a Recorders' Conference is being held one month later over the weekend of 10-12th April 2015 at the Gateway and FSC Preston Montford in Shrewsbury.

2014 BSBI Photographic Competition open to all BSBI members

JIM MCINTOSH, S*cottish Officer, c/o Royal Botanic Garden Edinburgh, Inverleith Row, Edinburgh, EH3 5LR*; (Tel.: 0131 248 2894; jim.mcintosh@bsbi.org)

Claudia Ferguson-Smyth has very kindly agreed to organise this year's competition. There will be just two classes in 2014: 1) 'Plants' – including higher plants, ferns, lichens, mosses, fungi, charophytes and 2) 'People' (well – with some botanical connection). This should allow you to submit your very best images without too many restrictions. Please submit a title for each image. In order to encourage entries and standardise print quality and size, we are asking for entries in electronic format only this year. Please

email your images directly to Claudia at: claudia@ferguson-smyth.co.uk before Monday 13th October – to allow her plenty of time to get them printed and mounted before the 2014 Scottish Annual Meeting at RBGE on Saturday the 1st of November. There is a maximum of three entries per person per class. Please submit the largest possible file sizes. Contact Claudia if you would like to use Dropbox and/or if you have any technical questions. The winner will be decided by a vote by those attending the Annual Meeting, and the winning photographs will be published on the BSBI website and BSBI Scottish Newsletter. Good luck!

NEWS OF MEMBERS

The Presidents' Award 2013

This annual award agreed jointly between the President of BSBI and the President of the Wild Flower Society 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.

On the nomination of Sir Ghillean Prance, President of the Wild Flower Society and with the enthusiastic endorsement of Dr Ian Denholm, BSBI President, the award for 2013 will be made to Prof. John Edgington for his book *Who found our ferns? A history of the discovery of Britain's ferns, clubmosses, quillworts and horsetails.*

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 the presentation to John Edgington was made at their AGM in Bethnal Green, London on 6th September.

REQUESTS

Marsh Violet – *Viola palustris* and its subspecies

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

There are two subspecies, of *Viola palustris* (Marsh Violet): ssp. *palustris* and ssp. *juressi*, and apart from variable leaf shapes the main characters are given in Stace (2010). Recently in Wales I saw ssp. *juressi* at SH6960 and SH6959 (v.c.49), although I was not there long. It could be frequent in Wales and some other western areas, as shown by more recent records on the BSBI maps scheme. It may even replace ssp. *palustris* in these areas and the latter needs to be confirmed also if it occurs. I was told it may have gone from some areas, however. Sometimes the petioles may seem either less hairy or at least appear glabrous in some plants of ssp. *juressi*, but it is a different plant.

Please collect a voucher from any colonies, preferably fresh material. It should have at least one fruit and I would be happy to look at any amount of material over the next few years for the Atlas.

Reference:

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

OFFERS

The Scottish Naturalist: the new free on-line journal of Scottish natural history

DR GEORGE THOMSON (thescottishnaturalist@gmail.com)

The Scottish Naturalist, in its present form, ceased publication in 2011. This is being replaced by a free, on-line journal, which welcomes articles, long or short, on any aspect of Scottish natural history in the broadest sense. The editorial team comprises Dr George Thomson (editor), Professor David Bryant, Professor Roger Dennis and Louise Bustard.

The journal will take a step at a time and, initially, articles proposing new taxa or combinations cannot be accepted. Longer articles will be reviewed by at east one referee. Publication will be when sufficient material has been received to comprise an issue, hopefully at least once a year. We trust that this venture will be well supported by naturalists, both amateur and professional.

Guidelines for authors are available from the website: http://www.thescottishnaturalist.org/

The *Scottish Naturalist* and the *Western Naturalist* – free online access

DR ALAN G. KNOX, *University of Aberdeen*; (a.g.knox@abdn.ac.uk)

Over the years the *Scottish Naturalist* and the *Western Naturalist* have published a great many important papers, as well as notes and obituaries documenting the history and development of Scottish natural history. Latterly in particular, the journals had limited circulation and access has been difficult for anyone who did not receive their own printed copies or have a set of the journal(s) in a nearby library.

We would like to make access to the full run of the journals available through the Biodiversity Heritage Library. The BHL (www.biodiversitylibrary.org), whose main partners in the UK are the Natural History Museum and the Royal Botanic Gardens at Kew, has become the world's main free archive of digitised natural history literature, and has established itself as a leading online research library. If you do not already know it, you should have a look – it offers free access to a vast amount of historical books and journals, including the *Scottish Naturalist* and the *Annals of Scottish Natural History* through to 1922, the *Proceedings of the Glasgow Natural History Society,* rare books by Pennant, Harvie-Brown, MacGillivray and much more. By adding the rest of the *Scottish Naturalist* (after 1922) and the short run of the *Western Naturalist* to the BHL we hope this will allow more people around the world to find and read these journals and appreciate their contribution to natural history. It will bring these journals to many new audiences.

The heirs of Dr Jack Gibson, as well as Aberdeen University Press and the current owners of Oliver & Boyd, as publishers of the journal, have either given their consent or raised no objections to this plan. Authors, photographers and artists originally submitted their articles and other material to the *Scottish Naturalist* and the *Western Naturalist* for print publication, mostly before the idea of digital access came along. It is now impracticable or impossible to trace all the individual contributors or their legal representatives, but we believe that most or all would be happy to see their work now reaching new and wider audiences to the overall benefit of Scottish natural history. If any copyright holder does not wish to have their material included in free digital access, they are asked to contact: mail@the-soc.org.uk to discuss this with us as soon as possible, preferably before 1st December 2014. Arrangements are in place to have material excluded from web access where necessary.

RECORDERS AND RECORDING

Panel of Referees and Specialists

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

Clare O'Reilly has resigned as referee for *Symphytum* and **Dr Bob Leaney** has agreed to take over. Bob's contact details are: 122 Norwich Road, Wroxham, Norfolk, NR12 8SA. (Tel.: 01603 782462).

Panel of Vice-county Recorders

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

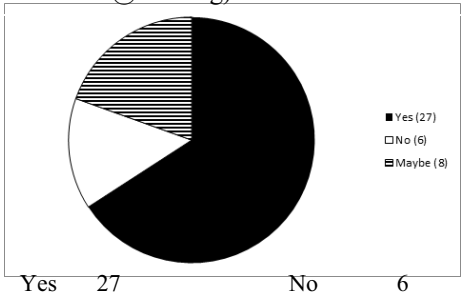
There are no new recorders, changes or retirements to report. I would, however, like to take this opportunity to congratulate Ken Adams (v.c.c.15 & 16) and Geoffrey Halliday (v.c.69) on reaching the inspiring landmark of 40 years in the role of Vice-county Recorder, a quite incredible feat! Geoffrey has also been VCR for Cumberland (v.c.70) since 1989. They both join an exclusive club of Recorders now in post for over four decades; step forward Declan Doogue (v.c.H19; 44 years), Rod Corner (v.c.80; 45 years), Mike Porter (v.c.42; 46 years) and Walter Scott (v.c.112; 53 years).

Is Scotland on course for complete hectad coverage for Atlas 2020?

JIM MCINTOSH, *c/o Royal Botanic Garden Edinburgh, Inverleith Row, Edinburgh, EH3 5LR*; (Tel.: 0131 248 2894; jim.mcintosh@bsbi.org)

At the beginning of 2014 the Recording & Research Committee asked all BSBI recorders to complete an Annual Report and questionnaire. With just over five field seasons to go, we thought it would be good to assess how the BSBI is shaping up to the Atlas 2020 challenge and what help recorders might need.

In addition to asking for a brief summary of activity in the vice-county for the previous year, we asked whether Recorders were on course for complete hectad coverage by 2020, and, if not, what help would be required. It is a crucial issue in Scotland, where we have some of the biggest vice-counties – many with extensive mountainous and remote areas, but very few botanists. I would like to thank everyone for responding. As always it is a fascinating and humbling experience reading about the vast range of Recorders' botanical endeavour. The BSBI is indeed in debt to its Recorders. Also the range of different approaches Recorders adopt never ceases to amaze me!



Yes	27	No	6
Maybe	8	Total	41

It was greatly encouraging that so many Recorders said they were on track. The 'Maybe' category includes a range of phrases from 'Probably' or 'Hopefully' to 'Might' or 'Possibly not'! There was also one 'Don't know'. However, I am optimistic that, with sufficient support and encouragement, the Recorders in the 'Maybe' category will rise to meet the challenge. The main reason the six Recorders said that they would not manage full hectad coverage was due to a lack of Recorder time. But another recurring answer was ability (*i.e.* fitness) to cover the ground.

We asked if help would be needed to achieve full hectad coverage and 18 respondents said yes. These included, unsurprisingly, all those in the 'No' and 'Maybe' categories but also several who had said 'Yes', they would manage full hectad coverage. Then we asked what help would be required. Here is what they said followed by our response:

Joint or successor Recorders are needed in six Scottish counties. We have advertised for three joint Recorders in recent months, with mixed results. We are speaking with a possible joint Recorder for Easterness but there are still joint vacancies for Dumbarton and West Sutherland, so if you are interested do get in touch! We are now advertising specifically for Atlas 2020 recorders to help in Jura (South Ebudes) & East Lothian. We hope that these new time-limited posts will attract new interest. In addition, several Recorders are on the look-out for possible successors amongst local botanists.

Several Recorders suggested a Recording Week. They have been an enormously successful and popular way of gathering Atlas 2020 records in remote areas. Generally, a group of about a dozen enthusiastic Recorders and members are based in catered accommodation for a week and go out in threes or fours every day to help local Recorders with Atlas 2020 recording. In 2013, for example, Angus Hannah organised an excellent recording week on the Isle of Islay. Twelve members – half of whom were Recorders – collected 6,200 records and achieved good coverage of 36 of Islay's 180 tetrads in a week. There was much mutual learning and it was a great social event. Seven counties will probably need at least one such recording week, including Wigtownshire, South Aberdeen, Westerness, Easterness, West Ross, West Sutherland and Shetland. In recent years we have run one per year. However this year's event at Shiel Lodge, West Ross, was over-subscribed. Consequently we arranged a second Recording Week to meet demand and utilise voluntary effort. This made me think that we should run two Recording Weeks in Scotland every year from 2015-2019 inclusive. If you would like to help, look out for the entries in the Field Meeting programme and note your interest early.

Several Recorders said that weekend (or long weekend) field meetings would be helpful for recording for Atlas 2020, particularly where there perhaps would not be enough botanical interest to support a full Recording Week. So watch out for field meetings listed in the *Yearbook* organised by Recorders with the stated aim of Atlas 2020 recording, and please support them.

Many Recorders said they needed help from local or visiting botanists, and specifically asked for help in remote or mountainous areas. Recorders might like to advertise for help in these areas (or particular hectads). Equally, members may like to offer to help in their local area, perhaps in the hectad in which they live, or whilst on holiday in other areas. Either way I am sure Recorders will be very appreciative and will be able to direct to specific areas where help is needed most. Alternatively, members can get in touch with me and I can suggest where they might go on holiday to help with under-recorded areas of Scotland! The important thing with any of these ideas is that they must be arranged with the Recorder to avoid duplication and to ensure a consistent approach. It is important, for example, that the local recording method (monads or tetrads) and preferred recording card, *etc*. are used.

There are at least a dozen local groups in Scotland, run by the Recorder, or with at least some Recorder involvement (such as local natural history societies). These groups are another way that local botanists might be engaged and help with Atlas 2020.

I am taking names of BSBI members who would like to form a Targeted Recording Group (TRG) in Scotland. This group could be deployed to survey remote mountainous areas, perhaps camping or staying in nearby bothies. I would also be interested in having bids from Recorders for TRG effort in their counties. We would obviously work in close liaison with the local Recorder.

Training on more specialist plant groups was mentioned by a few folk, including some more recently appointed Recorders. I will continue to organise at least one training event at Recorder level per year. In addition, there are specialist courses run by the Field Studies

Council and a BSBI grant is available for training purposes.

Several folk said they needed more spare time. Well I am afraid I cannot help much here!

Thanks again to everyone for responding so positively. We will periodically repeat the exercise during the next few years to ensure we are on course for a successful Atlas 2020.

Atlas 2020 Recorders sought for East Lothian, v.c.82, and for Jura, v.c.102

JIM MCINTOSH, c/o Royal Botanic Garden Edinburgh, Inverleith Row, Edinburgh, EH3 5LR; (Tel.: 0131 248 2894; jim.mcintosh@bsbi.org)

East Lothian, v.c.82

The Recorder for East Lothian, Helen Jackson, would like help with Atlas 2020 recording. The Scottish Committee is therefore seeking a botanist volunteer (or volunteers) to lead on Atlas 2020 recording in East Lothian. Helen would continue to be the main point of contact for enquiries and information.

East Lothian is one of the smallest vice-counties in Great Britain. With an area of 720 km^2, it ranks 104th out of 112 and includes just one six full, or almost full, hectads plus a number of peripheral slivers. It has a rich and varied coastline – with dune systems, marshes, scrub and grassland to the west of North Berwick – and a more rocky coastline to the east. The hinterland is largely farmland, which gently rises to moorland to the south of the River Tyne valley. The vice-county boundary follows the Lammermuir Hills and culminates in the 535m high Meikle Says Law. Other notable landscape features in the county are the igneous outcrops and offshore islands of Bass Rock, Craigleith & Fidra, the igneous Traprain and North Berwick Laws; the River Tyne, its estuary and tributaries.

We are seeking an enthusiastic volunteer botanist to undertake a sample survey of at least five tetrads (or monad equivalents) in each of the county's full hectads for Atlas 2020. Each lowland square would generally take about a day, and would be repeated later in the recording season. Upland squares could be done in significantly less time and need not be re-visited. Ideally the volunteer would live in the vice-county, but with easy access via the A1 it might suit someone living along its route, in Edinburgh for example. Help would be available for digitising records in MapMate, if that were required.

Isle of Jura, v.c.102

The Recorder for Islay, Jura & Colonsay, Malcolm Ogilvie, lives on Islay and is pre-occupied with Atlas 2020 work there. The Scottish Committee is therefore seeking a botanist volunteer (or group of volunteers) to lead on Atlas 2020 on the Isle of Jura.

Jura is one of the most sparsely populated Scottish islands, with an area of 368 km^2 and only 196 inhabitants. The main settlement is the village of Craighouse on the east coast, which has the island's only hotel, shop, kirk and whisky distillery!

The southern part of the island, designated a National Scenic Area, is largely rolling moorland and blanket bog, interspersed with numerous lochans, culminating in the shapely cones of the Paps of Jura. Their summits rise to 700-800m and shimmer with quartzite screes. The remoter northern half of the island is similar but has more rounded and rather lower hills. The west coast has dramatic raised beaches and cliff lines, while the eastern shore is fringed by indented bays and islets, with some woodland, both semi-natural and planted.

We are seeking one (or more) enthusiastic volunteer botanist(s) to undertake a sample survey of tetrads in each of the island's nine main hectads for Atlas 2020 - a great challenge given the island's remoteness and terrain. Being able to spend significant time, *e.g.* a week or even two, on the island each season between now and 2020 would be essential. Help would be available for digitising records in MapMate, if required.

If you are interested in either of these exciting opportunities, please send me a note of your interest along with your CV by 30th November 2014.

OBITUARY NOTES

Since the publication of *BSBI News* **126**, we regret to report that the news of the deaths of the following members, including several of very long standing and three Honorary members, has reached us. We send regrets and sympathies to all the families.

Mrs M. Briggs MBE FRPharmS, of Pulborough, West Sussex, a member since 1960 and an Honorary member since 1979, see below.

Mr K.R. Chapman of Wokingham, Berkshire, a member since 2003.

Mr K. Cunningham of Consett, Co. Durham, a member since 2008, see p. 59.

Dr D.H. (Kerry) Dalby BSc PhD, of Stanley, Perthshire, a member since 1951 and once a referee for *Cochlearia* and *Salicornia*.

Dr O.M. Hollings of Littlehampton, West Sussex, a member since 1987.

Mr P.F. Hunt of Gillingham, Dorset a member since 2002.

Mr A.C. Jermy BSc of Cefn-y-Bedd, Wrexham, a member since 1950 and an Honorary member since 1997, see p. 61.

Mr N. Lusmore, of Upper Framilode, Gloucestershire, a member since 1966.

Mrs C.W. Murray BSc, of Portree, Isle of Skye, a member since 1960 and an Honorary member since 2008. A profile by Lynne Farrell was published in *BSBI News* **109**, p. 81.

Mr J. Tayles of Stewartby, Bedfordshire, a member since 2012.

Mr I.R. Wallace of Harrogate, N Yorks, a member since 1997.

Mrs E.J. Williams of Lewes, East Suffolk, a member since 1976 (died 2011).

Obituaries of some of these will appear in *BSBI Yearbook 2015*.

Mary Briggs (1923 – 2014)

CLIVE LOVATT, *BSBI Administrative Officer, 57 Walton Road, Shirehampton, Bristol BS11 9TA*; (clive.lovatt@bsbi.org)

Mary Briggs, a long servant of the Society (Council 1966 - 2000) died peacefully on 25 July 2014. Although she had only joined BSBI in 1960, her interest in plants went back to her days as a pharmacy student, when she evidently cycled all over Sussex noting down in a diary all the birds and plants she had seen. She was appointed Meetings Secretary in 1964 and served eight years in that role. Her husband had encouraged her to accept the position, saying 'they might not ask you again'. BSBI continued to ask and Mary invariably said 'yes'.

She then became Honorary General Secretary and was only the second woman to hold that position in our Society – since 1836. Only G.C. Druce, another pharmacist, exceeded Mary's tenure of 24 years (1972-1996). Michael Walpole was Treasurer throughout the period and with a succession of Presidents it is clear that their joint efforts in managing the Society on a day to day basis during that period must have been profound. Bearing in mind there was no email and no salaried staff, a daily pile of correspondence came, each one requiring and receiving a personal reply. Amongst them, I imagine, must have been my own enquiry about membership in 1977.

Mary became an MBE in recognition of her input to the Wildlife and Countryside Act 1981. She was an honorary member of the BSBI and, in similar fashion, as an individual who had attained distinction in her pharmacy career, she was elected as a Fellow of the Royal Pharmaceutical Society.

Mary next became a Vice-President and President-elect (1996-8) and then BSBI President (1998-2000). Despite our Society (as the Botanical Society of London) having welcomed lady members from the outset, we had never had a lady President before; nor in fact have we had one since.

She served as BSBI recorder for W. Sussex (v.c.13) for many years until 2007 and was Hon.

Secretary of the Sussex Flora Committee from 1966 to 1972 during the field work for the *Sussex Plant Atlas* (1980). She was President of its successor body, the Sussex Botanical Recording Society, at the time of her death. She edited the *Sussex Rare Plant Register* (2001) and, a keen photographer (see inside front cover), she wrote and illustrated a book aimed at a general readership with an interest in wild plants, *Sussex Wild Flowers* (2004).

Mary also edited the 1991 to 2003 editions of the *BSBI Year Book* and was the Society's Obituaries' editor from 1997 to 2012. Sadly, her eyesight was failing. She used to phone me from time to time to make sure the Society was paying to have its reference set of journals (part of the Society's archives then at the Natural History Museum) properly bound and worrying about the incomplete set of conference proceedings held.

She attended the Society's Cambridge Conference in November 2012 and, between courses at the informal dinner afterwards, she called me across for a chat. I must have discerned her colonial background (she was born in India but sent home aged 5 for schooling) in that particular strength of character, and her evident commitment and humanity, and her easy manner with a like-minded soul. Apparently she led 166 commercial botanical tours in 29 countries over 32 years – with scarcely a foreign phrase in her vocabulary. Both photos of Mary included on the inside of the front cover were taken abroad.

Her funeral was held on Wednesday 6 August at Our Lady of England Catholic Church, Storrington, Sussex. BSBI was represented by Gwynn Ellis, Mary's successor as Hon. General Secretary, and at least a dozen other members.

I am grateful to Mary's daughter Jenny Grech for providing, at an emotional time, the images of Mary used to accompany this short note, and for her poignant eulogy of her mother which contains so many factual and personal details of her life. A fuller Obituary will be published in *BSBI Yearbook 2015*.

Keith Cunningham (1948 – 2014)

ANNE PICKERING, *'Darlington', Oakwood, HEXHAM, Northumberland, NE46 4LE*; (atpickering@yahoo.com)

Keith was born and worked in the north-east of England, in Sunderland, where he trained as an electrician, then as a deep sea diver on the oil rigs.

He was a long serving conservation volunteer with the Durham Wildlife Trust. He was a trustee for six years as well. He contributed to the collection and ordering of data for the Durham Biodiversity Action Plan.

Keith joined the Natural History Society of Northumbria and regularly attended their meetings and the mid-week botany outings. On these field trips he met many other members of the BSBI, which he joined in 2008. He worked closely with the recorder for v.c.66, John Durkin. His willingness to help and his computer expertise came together to create a new botanical database for County Durham. He rescued a quarter of a million plant records from an out-of-date system and created the new basis for County Durham's plant records. This has been used for the Botanical Society's 'Atlas' project, the County Durham Rare Plant Register and for the species maps available on the North-east Flora Website.

His recording work in Scotland, with fellow member Christine Irvine, led them to the discovery of a new site for the then-named *Dactylorhiza traunsteinerioides* ssp. *lapponica* ('Lapland Marsh-orchid') in Glencoe, which was later confirmed by Professor Richard Bateman.

He was a keen photographer of plants and fungi and produced spectacular pictures, which have been used in publications and on the websites of many conservation organisations. On field trips he was always the last of the group, as he was left behind, composing shots.

Clive Jermy (1932 – 2014)

ROBIN WALLS, *10 Old Brickfields, Broadmayne, Dorchester, DT2 8UY*; (robin@rmwalls.plus.com)

On 25th July we received the sad news that Clive Jermy had died in his sleep. Amongst his many activities he, with Arthur Chater, wrote the first BSBI handbook, on sedges, and fortunately saw it through a third edition, expanding it to include all the British Cyperaceae, before suffering a stroke.

Clive had been largely paralysed since the stroke, complicated by bouts of pneumonia. Despite his problems, he never complained. Visiting him I knew he was following what we were saying, but he could only respond intermittently. It is difficult to imagine how he felt. One piece of information he did manage to impart led to the re-discovery of a new species of sedge for the British Isles (James, T. *et al.*, *New Journal of Botany*, Volume: 2 Issue: 1, Jun 2012, pp. 20–25).

A full obituary will follow, but at the moment our thoughts are with his family and thinking of the friend we have lost.

BOOK NOTES

A short flora of Berwickshire by Michael Braithwaite

MICHAEL BRAITHWAITE, *Clarilaw Farmhouse, Hawick, Roxburghshire, TD9 8PT*

This hardback book, published privately in August 2014, consists of 432 pages liberally illustrated in full colour with photographs and distribution maps. English names for the wild flowers are shown alongside the Latin names throughout the book. The page size is 18×24.5cm to allow the book to be handled comfortably.

The main sections are (i) an illustrated botanical tour of Berwickshire, (ii) full species accounts for a selection of 415 species, including 1×1km distribution maps in a variety of formats showing the historical records as well as recent records and (iii) a full checklist for 1,573 species and other taxa with status, habitat and 1km frequency.

Further sections cover the history of botanical recording in the county, various aspects of recent change in the flora and supplementary analysis. As Berwick upon Tweed does not fall in Berwickshire its flora is discussed in a separate section.

The Botanical Society of Britain and Ireland has arranged grant assistance enabling the cover price for this limited edition book to be set at £20 plus £5 post and packing. To avoid disappointment please order early. A flyer with order form is available on the BSBI website under Berwickshire, or just send a cheque made out to me, as above.

The rare plant register of Cumbria

M.S. PORTER, *5 West Avenue, Wigton, Cumbria, CA7 9LG;* (carexmike@yahoo.co.uk)

Written by M.S. Porter and G. Halliday, this gives the post-1970 status of 287 rare species of native vascular plants and lists 2500 sites. It consists of 150 pages, six pages of colour plates and 24 distribution maps. It will be published by Trollius Publications and distributed by Summerfield Books. The expected price for BSBI members is £12, plus postage and packing of £2.50. Available from mid-September.

Wild flowers of Ordesa and Monte Perdido National Park (Spanish Pyrenees)

Author: JOSÉ LUIS BENITO ALONSO

This English edition of *Guía imprescindible de las flores del Parque Naçional de Ordesa y Monte Perdido* is the first guide to the flowers of Ordesa and Monte Perdido National Park published in English.

This field guide is illustrated with more than 275 full-colour plates. It contains 174 special flowers that are present in Ordesa and Monte Perdido National Park (Spanish Pyrenees), with 128 profiles, ordered according to 8 ecosystems, each one containing a larger photograph and some smaller ones showing details of the leaves, fruits, flowers of other related species.

They are complemented by interesting facts about the plant's special characteristics, curiosities, origin of name, uses, ecology, geographical distribution, *etc*.

A sample page can be viewed at:
http://www.scribd.com/doc/217131367/Wild-Flowers-of-Ordesa-and-Monte-Perdido-National-Park-Spanish-Pyrenees

NOTES FROM THE OFFICERS

From the Welsh Officer – *PAUL GREEN*

c/o Biodiversity & Systematic Biology, National Museum of Wales, Cardiff, CF10 3NP;
(Tel.: 02920 573152 or 077 72111113; paul.green@bsbi.org)

By the time you read this, Polly will be a mum for the second time. I will be covering Polly again while she is on maternity leave, going back to full time. I am still based in Cardiff Museum and now have my own room rather than having to share with six others.

I am pleased to announce that two more Welsh Counties, Denbighshire (v.c.50) & Merionthshire (v.c.48) have had their own rare plant registers printed. If you would like a copy, please do contact me.

Polly and I have been busy surveying rare species across Wales. *Pseudorchis albida* (Small-white Orchid) is one of the species we have failed to find at any of the sites we searched. The other species were generally a 50% hit rate. One of the most successfully searched-for species was *Fumaria purpurea* (Purple Ramping-fumitory) which only had two post-2000 records for Wales. It has now been re-found in Monmouthshire (v.c.35), Pembrokeshire (v.c.45), Caernarvonshire (v.c.49) (see Colour Section, Plate 4) and Anglesey (v.c.52), with failure only in Radnorshire (v.c.43).

At the start of my job as a Welsh Officer, most of the requests for help were from Welsh vice-county recorders. I now have many other members across Wales, and occasionally from outside Wales, asking for help, especially with plant identification. One of the most interesting requests was when Ian Carle sent me a photo of a *Dianthus* growing on rocks by the coast path in Pembrokeshire to identify. This proved to be *Dianthus deltoides* (Maiden Pink), a new county record. Even though situated in a wild spot and growing with *Betonica officinalis* (Betony), I am sure it is not native, as the flowers were a deep red and not the pink of the native form.

Recording for Atlas 2020 is coming on well in Wales. A number of the vice-county recorders have active groups which go out recording once a week/fortnight, often with a turnout of 15 plus.

I am planning workshops for 2015. The first of these has been arranged for 12th February at the National Museum of Wales, Cardiff on *Euphrasia*, led by Chris Metherall. If there are any species you would like workshops on next year, please do send me your suggestions.

From the Irish Officer – *MARIA LONG*

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

Dear oh dear – it has been too long since I have had a note in *BSBI News*! Things have been busy this year in Ireland so there is plenty to report on… the Irish BSBI Members' Conference, the Irish Species Project (ISP), new people out recording and field meetings are just a few of the main happenings.

Irish BSBI Members' Conference

The Irish BSBI Members' Conference took place over three days at the end of March in the beautiful National Botanic Gardens in Dublin and was a fantastic success. The turnout, both in terms of numbers, but also profile (lots of new faces), surpassed all of our expectations. There was a real celebratory atmosphere too owing to the celebration of 50 years of the BSBI Irish Branch (see photos p. 64 and Colour Section, Plate 2), including two fantastic birthday cakes!). One BSBI staff member who attended went so far as to say that it was the best BSBI conference he had ever attended!

The conference consisted of a MapMate workshop lead by Bob Ellis on the Friday. On Saturday we had some fascinating and top quality talks in the morning, followed by a series of excellent workshops in the afternoon. Reminiscences, exhibits, a sumptuous meal and glorious cakes rounded off the evening! On the final day we launched the Irish Species Project (more on that below), heard from a number of vice-county recorders (VCRs) on how they are getting on, and had a general discussion relating to recording. The conference finished up with a guided tour of the National Botanic Gardens with the Director, Matthew Jebb.

Throughout, there was a great atmosphere – one of real excitement and enthusiasm, and one that I think signals a vibrant time for BSBI in Ireland. Some of you may be interested to see that many of the contributors to the conference have made material from their presentations available online – visit the Irish webpage to see them:

http://www.bsbi.org.uk/ireland.html

Irish Species Project (ISP)

The Committee for Ireland (CFI) launched the Irish Species Project (ISP) at the Irish BSBI Members' Conference this year. The project has been spear-headed by John Faulkner, but with input from all of CFI, the Irish Officer and a number of BSBI staff members. The aim of this two-year project (2014/15) is to gather detailed information on a suite of uncommon plants. Species that are very rare were not included (these are likely to have been covered by other schemes like Threatened Plant Project or government surveys), and having a relatively wide distribution was desired in candidate species in order to help spread the workload among VCRs. Distribution Database records were checked in advance to determine rarity, distribution, resolution of records, etc., and the eight resulting chosen species are:

- Moonwort (*Botrychium lunaria*)
- Cyperus Sedge (*Carex pseudocyperus*)
- Autumn Gentian (*Gentianella amarella*)
- Toothwort (*Lathraea squamaria*)
- Grass-of-Parnassus (*Parnassia palustris*)
- Cowslip (*Primula veris*)
- Common Wintergreen (*Pyrola minor*)
- Cranberry (*Vaccinium oxycoccos*)

For these species, a number of sites with old records have been chosen for re-visits, spread as widely across the country as possible, but weighted by numbers of records. Recorders are asked to visit these sites (note that some are difficult to re-locate due to poor locational information) and record information such as: grid reference; population size, density and extent; management and threats; list of associated species (within 1m radius); and any other relevant information, including photographs, if they wish. We are also asking people to record the target species at extra/additional sites too – all such information will be valuable and help us understand how these species are doing.

Note that the 'recorder' for this project can be the VCR or a BSBI member or other enthu-

siast! But is it definitely best to get in touch with the local recorder or the Irish Officer (maria.long@bsbi.org) to avoid duplication of effort and to facilitate the best integration of the data. Details of the survey, including recording forms, are available for download from the Irish BSBI webpage: http://www.bsbi.org.uk/ireland.html. Please have a look, and get involved!

Other news

Very briefly, I can report that we appear to have had a surge in interest from members wanting to get out recording and contributing to both the ISP and Atlas 2020. Local groups exist now in Clare, Dublin, Wexford, Galway, Wicklow, and perhaps a few other places too! Some of these are very informal (friends on a small mailing list), but others are quite well-established. What unites them all is that it involves BSBI members actively recording and submitting records. Fantastic!

Of particular note are two relatively new members, Oisín Duffy and Mairéad Crawford, who have stepped in to help with recording in our only vacant vice-county, East Donegal (H34). They are enthusiastically linking up with the very helpful network of VCRs which surround them: Ralph Sheppard, Robert Northridge and Ian McNeill. Every success to them, as well as thanks.

Finally, our field meetings this year. So far we have been to an esker in north-east Galway, a woodland in Armagh, high up the Galtee Mountains in Limerick, in a wetland in Laois, recording in Westmeath and along the dramatic north Antrim coastline. Still to come are trips to north Clare, the Shannon callows, dunes at Mullaghmore in Sligo and ferns in Wexford in November for the hardy among us!

Toasting the success of the Irish BSBI Members' Conference, along with 50 years of the Irish Regional Branch of the BSBI were (l-r): Rory Hodd (joint recorder for H01 and H02) and members Sarah Hanrahan and Rebecca Creighton. Photo N. Sharkey © 2014

From the Publicity & Outreach Officer – *LOUISE MARSH*

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BSBI outreach 2014

Building on the successful outreach initiatives trialled through 2012-2013, we have adopted a slightly different approach this year, focusing on working even more effectively with partner organisations to maximise impact while minimising costs and volunteer input.

BSBI at British Birdfair 2014

In August, the BSBI attended British Birdfair, the world's largest wildlife event. Our Plant ID Quiz proved very popular with the hundreds of people who visited the stand, 37 of whom completed an entry form. This year, we also invited the Biological Records Centre, celebrating their 50th anniversary in 2014, to exhibit alongside us. Together, we promoted botanical recording since the last BSBI Atlas and also registered high interest in a new national plant monitoring scheme.

BSBI at the British Science Festival

September will be a very busy month for the BSBI. We will be participating in the British Science Festival in Birmingham on 8th September, offering a joint presentation with Botanic Gardens Conservation International. Ian Trueman will be talking about the new *Flora of the Black Country* (reviewed in the August issue of the *New Journal of Botany*) alongside BGCI staff, who will be talking about the role of botanic gardens in conservation. There will also be a visit to Winterbourne Gardens in Birmingham.

Images and reports from all BSBI outreach activities can be found on our News & Views page http://bsbipublicity.blogspot.co.uk/

Celebratory day at Kew

On 17th September, we are holding a very special event at Kew Gardens. During the day, there will be a celebration lunch for David Pearman, to thank him and pay tribute to his contribution to the BSBI and to British botany. We have invited some of his many friends and colleagues, but apologies to anyone who did not receive an invitation – we are constrained by the size of the venue rather than by the number of people who would like to join us and pay tribute to David!

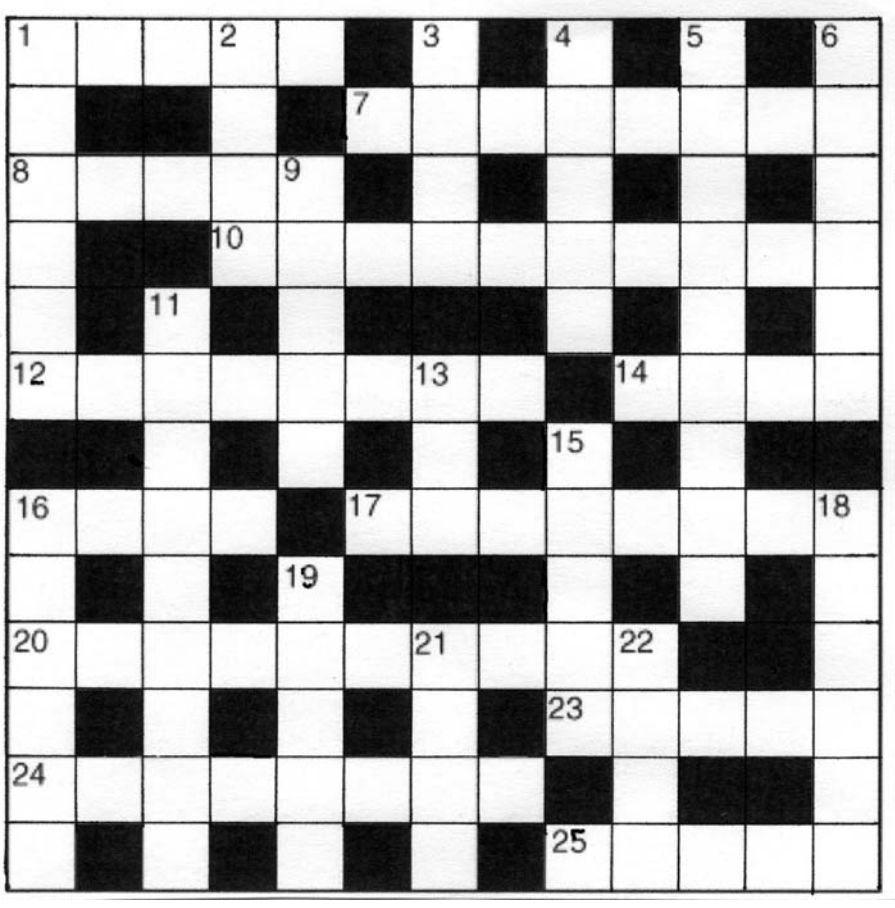
In the evening, we are holding a press launch for the new English *Red List*. Pete Stroh has played a major part in this, as the list's lead author, and you can read a note from him on page 51.

The AGM and AEM

The first Annual General Meeting and Annual Exhibition Meeting for the Botanical Society of Britain & Ireland will be held on 22nd November in Leicester. A booking form and outline programme can be found inside this mailing of *BSBI News*, and we hope to see many of you there. Please consider offering a poster at the AEM. This could cover any botanical theme and we welcome submissions from across Britain and Ireland. If you have never put together a poster before, this is a great opportunity to have a go, and we can help you with proof-reading, design tips, etc. Contact me at the above address if interested.

BOTANICAL CROSSWORD 23

by CRUCIADA



ACROSS

1. Enamoured of getting right into fern leaf (5)
7. Drug given to case of facial dermatitis in prominent family (8)
8. Provoke by cutting end of *Dipsacus* (5)
10. Former fallen angel intended, she said, to take part in trial (10)
12. Poor cast out to seek underground protection (8)
14. Grass stem sounds like it may cause damage (4)
16. One having river run past maple (4)
17. Able, with difficulty, to mull over part of orchid (8)
20. Plot to end the less-than-happy state of some contrived English names (10)
23. Learner you are texting on identification of some tulip colours, perhaps (5)
24. Twisting growth caused by genetic change – only initial change (8)
25. Shout loudly, but half-heartedly, about underneath of leaves, for example (5)

DOWN

1. What botanist hoped to get by going to the gym? (6)
2. Is well acquainted, we hear, with bouquet . . (4)
3. . . . and with container of naked seeds forming leading part of rocket (4)
4. Willow has half-life in briefly growing on rocks (5)
5. Originally be valet e.g. for Swede (9)
6. Month to meet hesitation over division of ovary (6)
9. Performance by one-time spouse is spot-on (5)
11. Nectar product sinks in pocket of tourist attractions (9)
13. Grass growing around a river (3)
15. Asian Piper makes noise like bug (5)
16. Fruit of pain taking two directions (6)
18. Gentle sheep almost gives way to fungus causing plant disease (6)
19. Grasses inclined to be found on south side (5)
21. A legume that's footless (1, 3)
22. Trick as to succulent fruit being right out (4)

Solutions to Botanical Crossword 23

Across
1. FROND 7. ROSACEAE 8. TEASE
10. EXPERIMENT 12. ROOTCAPS
14. HALM 16. ACER 17. LABELLUM
20. HYPHENATED 23. LURID
24. NUTATION 25. BELOW

Down
1. FITTER 2. NOSE … 3. CONE
4. SALIX 5. VEGETABLE 6. SEPTUM
9. EXACT 11. HONEYPOTS 13. POA
15. BETEL 16. ACHENE 18. MILDEW
19. BENTS 21. APOD 22. DUPE

Crib to Botanical Crossword 23

Across
1. F<R>OND 7. ROSACEA/E
8. TEASE(L) 10. EX-PERI/meant
12. anag POOR CAST 14. (alternative spelling of HAULM) sounds like 'harm' (but apologies to Scottish readers, to whom it doesn't) 16. ACE/R 17. anag ABLE + rev MULL 20. anag END THE HAP(P)Y
23. L/UR/ID 24. M*UTATION
25. BEL(L)OW

Down
1. pun 2. knows 3. definitions of CONE & NOSECONE 4. SA<LI>X
5. anag BE VALET EG 6. SEPT/UM
9. EX/ACT 11. Charade 13. swap A/PO
15. *Piper betle* – sounds like 'beetle'
16. ACHE/NE 18. MILD/EW(E)
19. BENT/S 21. double definition
22. D<R>UPE

CONTRIBUTIONS INTENDED FOR *BSBI NEWS* 128
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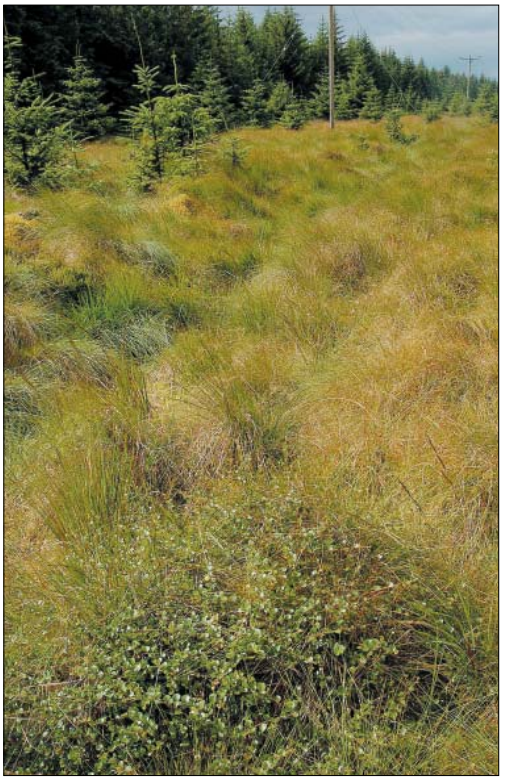
Petasites fragrans (Winter Heliotrope) at Borde Hill Garden, Haywards Heath (v.c.14): a large patch of female plants with detail of female inflorescence inset. Both photos A.G. Hoare © 2014 (see p. 43)

Shortly after retiring, Lynne Farrell demonstrates the effects of five years as HGS.
Photo S. Bungard © 2014 (see p. 2)



Betula nana – habitat

Betula nana with *Vaccinium oxycoccos* (Cranberry)

Betula nana (Dwarf Birch) – portrait of plant. All photos taken at Wark, Northumberland (v.c.67) by J. Richards © 2014 (see p. 19)