

BSBI

NEWS

JAN 2018

137



 Botanical
Society of
Britain &
Ireland

ADMINISTRATION AND IMPORTANT ADDRESSES

President	MR CHRIS METHERELL Woodsia House, Main Street, Felton, Northumberland NE65 9PT Tel.: 01670 783401; chris@metherell.org.uk
Hon. General Secretary	DELYTH WILLIAMS Bryn Siriol, Graigfechan, Ruthin, Denbighshire LL15 2HA Tel.: 01824 702196; delyth@siriolbryn.co.uk
Hon. Treasurer	Vacant
Membership Secretary (Payment of Subscriptions & changes of address) & Yearbook Editor	MR GWYNN ELLIS 41 Marlborough Road, Roath, Cardiff CF23 5BU Tel.: 02920 332338; gwynn.ellis@bsbi.org <i>Please quote membership number on all correspondence; see address label on post, or Members List</i>
Hon. Field Meetings Secretary (incl. enquiries about Field Meetings)	MR JONATHAN SHANKLIN 11 City Road, Cambridge CB1 1DP Tel.: 01223 571250; jdsh@bas.ac.uk
Panel of Referees & Specialists (comments and/or changes of address)	MR JEREMY ISON 40 Willeys Avenue, Exeter, Devon EX2 8ES Tel.: 01392 272600; jeremy_ison@blueyonder.co.uk
Book Reviews Editor	DR JOHN EDMONDSON Long Chase Farm, Sundawn Avenue, Holywell, Flintshire CH8 7BH Tel.: 07758 583706; a.books@mac.com
BSBI News – Receiving Editor	MR ANDREW BRANSON Riversdale, The Street, Stour Provost, Gillingham, Dorset SP8 5RZ Tel.: 01747 838223; andrew.branson@bsbi.org
BSBI Head of Operations	MS JANE HOULDSWORTH 7 Grafton Gardens, Baxenden, Accrington, Lancs. BB5 2TY Tel.: 07584 250 070; jane.houldsworth@bsbi.org
BSBI Head of Science	DR KEVIN WALKER Suite 14, Bridge House, 1–2 Station Bridge, Harrogate HG1 1SS Tel.: 01423 526481 or 07807 526856; kevin.walker@bsbi.org
BSBI Scottish Officer	MR JIM MCINTOSH c/o Royal Botanic Garden, Inverleith Row, Edinburgh EH3 5LR Tel.: 01312 482894; jim.mcintosh@bsbi.org
BSBI Welsh Officer	PAUL GREEN 11 Co-op Lane, Pembroke Dock, Pembrokeshire SA72 6XL Tel.: 01646 689199 or 07772 111113; paul.green@bsbi.org
BSBI Irish Officer	DR MARIA LONG c/o National Botanic Garden, Glasnevin, Dublin 9, Ireland Tel.: 00 353 87 2578763; maria.long@bsbi.org
BSBI Scientific Officer (& Vice-county recorders – comments and/or changes of address)	DR PETE STROH c/o Cambridge University Botanic Garden, 1 Brookside, Cambridge CB2 1JE Tel.: 01223 762054 or 01832 720327; peter.stroh@bsbi.org
BSBI Database Officer	MR TOM HUMPHREY c/o CEH, Maclean Building, Benson Lane, Crowmarsh Gifford, Wallingford, Oxon OX10 8BB Tel.: 01491 692728; tom.humphrey@bsbi.org
BSBI Finance Officer (all financial matters except Membership)	MS JULIE ETHERINGTON Church Fold, 2 New Street, Mawdesley, Lancashire L40 2QP Tel.: 07513 458921; julie.etherington@bsbi.org
BSBI Communications Officer (incl. Publicity, Outreach & Website)	MS LOUISE MARSH 234 London Road, Leicester LE2 1RH Tel.: 07971 972529; louise.marsh@bsbi.org
BSBI Publications	MR PAUL O'HARA c/o Summerfield Books, Unit L, Skirsgill Business Park, Penrith, Cumbria CA11 0FA Tel.: 01768 210793; Fax: 01768 892613; info@summerfieldbooks.com

BSBI WEBSITE ADDRESS www.bsbi.org

CONTENTS

NEWSLETTER OF THE BOTANICAL
SOCIETY OF BRITAIN AND IRELAND

EDITORIAL

FEATURE ARTICLES

Why are some plant species more threatened than others? Evidence from the BSBI's Threatened Plants Project *Kevin Walker, Pete Stroh & Bob Ellis* 3

British saltmarshes *Clive Chatters* 10

Hybridisation and the conservation of *Nuphar pumila* (Least Water-lily) *Richard Lansdown, Mags Cousins, Roberta Gargiulo & Mike Fay* 14

The status of *Teucrium chamaedrys* (Wall Germander) in the British Isles *Fred Rumsey* 20

SHORT ARTICLES

Atriplex praecox (Early Orache) on a shore in the Menai Strait *E. Ivor S. Rees* 24

Atriplex praecox (Early Orache) a new native species to Ireland in 2017 *Paul R. Green* 27

Lepidium latifolium (Dittander) turns up in Co. Waterford after being absent for 271 years in its old haunt *Paul R. Green* 28

Observations on the frequency of host plants of *Cuscuta epithymum* (Dodder) in Jersey *Anne Haden, Tim Wright & David Shimwell* 30

Rosa villosa L. in Shropshire, second British record *Roger Maskew* 32

The names of dog-roses (*Rosa* sect. *Caninae*) *Roger Maskew & Clive Stace* 33

Morphological variation in *Rumex longifolius* (Northern Dock) *Bernd Sonnberger* 34

Ambiguity in recording *Centaurea* (knapweeds) taxa using MapMate *Ken Adams* 37

Epipactis hybrids in the UK with particular reference to *E. x stephensonii* *Richard Mielcarek* 38

Chara connivens (Convergent Stonewort), a new East Kent (v.c.15) record from the Dungeness NNR *Stephen Lemon* 40

BEGINNER'S CORNER

Choosing and using hand lenses *Andrew Branson* 44

IDENTIFICATION

Identifying woody plants (xylophytes) in winter *John Poland* 46

2 ADVENTIVES AND ALIENS NEWS 13

Compiled by Matthew Berry 49

Epilobium tetragonum ssp. *tournefortii* naturalised near Luton Airport (v.c.30) *Steven Squires* 53

Stylophorum lasiocarpum (Chinese Celandine Poppy) in North Shields *Gordon Young* 55

I shot an arrowhead in the air, it fell to Earth in *Sagittaria graminea* *George Hounsome* 56

Allium cristophii (Star of Persia) – a plant on the up? *Matthew Berry* 57

Senecio minimus Poir. (Toothed Fireweed) arrives in Co. Dublin (v.c.H21) *Alexis FitzGerald* 58

COUNTRY ROUNDUPS

Notable events and findings from around the countries 60

ANNUAL SUMMER MEETING

Holywell (v.c.51), 5th–9th June 2017 *Jonathan Shanklin* 65

OBITUARIES *Compiled by Chris Preston* 69REVIEWS *Compiled by J. Edmondson* 73

NOTES 75



Front cover
Hyoscyamus niger,
Lindisfarne. *Chris Jeffree*

Contributions for the next issue of **BSBI News** (no. 138) should be sent to the Editor Andrew Branson (andrew.branson@bsbi.org) by **26th February 2018**.

©2018 BSBI

ISSN 0309-930X



EDITORIAL

Editorials, as Gwynn Ellis pointed out in his valedictory message in the previous issue, are usually done at the last minute and their extent is often dictated by the remaining space. It is not my intention to write lengthy editorials, but I would, however, like to take this opportunity to set out the background and aspirations of the 'new-look' *BSBI News*. By now you will have already had a look through the issue and seen the changes. I hope that you will enjoy the new design. This change has been widely discussed within BSBI and has been driven partly by developments in print technology, which mean that it is now possible to include much more colour in a publication without a major increase in cost. Changes in photography have also played an important part. Cameras and, indeed, mobile phones are now handy digital devices that can easily upload images to other devices in a way which would have been undreamed of only a decade ago. This means that excellent images for magazines are now much more available. But, importantly, there is now a generation of botanists who expect this accessibility to be reflected in the publications they receive. I had the pleasure of attending the recent BSBI Annual Exhibition Meeting and was immediately struck by the wide age range of the people attending. As a society, it is important that we make the material we send to members more welcoming to all ages and degrees of expertise.

While still keeping the range of articles submitted by members, covering everything from changes in plant distribution to discoveries of new alien plants, it is the intention that *BSBI News* will also introduce a few new elements, such as summaries of sightings and activities from around the regions, as well as articles which will appeal to beginners and the inclusion of reports of some of the field meetings. The obituaries have now moved from the *Yearbook* to *BSBI News*, which means that they will be more current than when they were published only once a year. This is your publication and I am very keen to hear your views and ideas, so please do not hesitate to get in touch.

Andrew Branson

Editor

andrew.branson@bsbi.org



Ruscus aculeatus (Butcher's-broom). Bob Gibbons



Why are some plant species more threatened than others? Evidence from the BSBI's Threatened Plants Project

KEVIN WALKER, PETE STROH & BOB ELLIS

The BSBI's Threatened Plants Project (TPP) was a survey of 50 of Britain and Ireland's least studied threatened plant species (Walker *et al.*, 2017). The main aims of the project were to quantify the extent of recent losses, to research why they had taken place, and to gather information on their local abundance, habitats and ecological and management requirements. The approach differed from previous BSBI projects in two important respects: surveys focused on population characteristics, rather than on general recording of species in sites or grid squares, and the methods were structured to reduce 'observer bias' and improve confidence in the results. Many recorders enjoyed recording in a more systematic way, and the reward was often a deeper understanding of a species' ecology or the re-discovery of long-forgotten populations. Although our initial analyses have been rather limited, the results provide remarkable insights into how our threatened flora has changed over recent decades

Polystichum lonchitis. Fred Rumsey

and why. Here, we present some of the main findings, discuss why some plant species appear to be more threatened than others, and suggest what can be done about it.

Overall findings

Over six years (2008–2013), 1,993 randomly selected historic populations of 50 threatened species were revisited by BSBI recorders at sites across the whole of Britain and Ireland (Table 1). Populations of the TPP species were refound at 51% of these sites. The number of populations refound ranged from 18% for *Ranunculus arvensis* (Corn Buttercup) to 88% for *Sibbaldia procumbens* (Sibbaldia) with an overall average of 51% across all 50 species (Table 1). As expected, there were marked geographic variations in refind rates, with significantly more populations relocated in the uplands (Fig. 1a) and on protected (conservation) sites (Fig. 1b). Refind rates

Table 1. The number of populations surveyed and refound during the BSBI's TPP, 2008–2013.

Species	Surveyed	Refound	%
<i>Alchemilla wichuriae</i>	15	10	67
<i>Anacamptis morio</i>	74	42	57
<i>Astragalus danicus</i>	70	42	60
<i>Baldellia ranunculoides</i>	54	27	50
<i>Blysmus compressus</i>	47	31	66
<i>Bupleurum tenuissimum</i>	27	21	78
<i>Campanula patula</i>	22	10	45
<i>Carex ericetorum</i>	23	15	65
<i>Cephalanthera longifolia</i>	43	26	60
<i>Cicendia filiformis</i>	24	15	63
<i>Coeloglossum viride</i>	56	24	43
<i>Crepis mollis</i>	34	21	62
<i>Cuscuta epithymum</i>	51	39	76
<i>Dianthus deltoides</i>	44	23	52
<i>Fallopia dumetorum</i>	13	4	31
<i>Fumaria parviflora</i>	25	6	24
<i>Galium pumilum</i>	17	11	65
<i>Gentianella campestris</i>	80	41	51
<i>Glebionis segetum</i>	126	29	23
<i>Gnaphalium sylvaticum</i>	54	15	28
<i>Groenlandia densa</i>	56	13	23
<i>Hermidium monorchis</i>	25	10	40
<i>Hordeum marinum</i>	21	13	62
<i>Hypochaeris glabra</i>	27	20	74
<i>Hypopitys monotropa</i>	55	29	53
<i>Juncus compressus</i>	41	22	54

Species	Surveyed	Refound	%
<i>Juniperus communis</i>	20	17	85
<i>Melampyrum cristatum</i>	28	13	46
<i>Melittis melissophyllum</i>	35	22	63
<i>Meum athamanticum</i>	41	28	68
<i>Neotinea ustulata</i>	26	8	31
<i>Oenanthe fistulosa</i>	47	21	45
<i>Ophrys insectifera</i>	55	34	62
<i>Orchis anthropophora</i>	22	11	50
<i>Persicaria minor</i>	33	11	33
<i>Polystichum lonchitis</i>	29	25	86
<i>Pseudorchis albida</i>	40	18	45
<i>Pyrola media</i>	55	34	62
<i>Ranunculus arvensis</i>	49	9	18
<i>Scleranthus annuus</i>	79	28	35
<i>Sedum villosum</i>	38	21	55
<i>Sibbaldia procumbens</i>	24	21	88
<i>Silene conica</i>	16	8	50
<i>Sium latifolium</i>	38	17	45
<i>Stellaria palustris</i>	31	14	45
<i>Tephrosia integrifolia</i>	26	15	58
<i>Torilis arvensis</i>	28	13	46
<i>Vicia orobus</i>	51	33	65
<i>Vicia parviflora</i>	18	11	61
<i>Viola lactea</i>	40	20	50
Total	1993	1011	51

also varied significantly in relation to life history (lower rates for short-lived species) and habitat (lower rates for anthropogenic habitats; results not shown). Worryingly, population sizes were small, with three-quarters of populations supporting fewer than 100 individuals (Fig. 2a). But possibly the most notable result of all was that lack of suitable management (including undergrazing) was by far the most significant threat reported, accounting for 36% of all assessments made, compared to agricultural intensification at c. 20% (Fig. 2b). This is in marked contrast to the 1960s, when habitat loss (e.g. ploughing, drainage) was by far the greatest

threat to rare plant populations (Perring, 1970). Interestingly, native invasive populations were 13 times more likely to be reported as a threat than non-native invasive species (5.2% versus 0.4%), a finding completely at odds with the unsubstantiated assertion that non-natives were the second greatest threat to Britain's plant diversity after habitat destruction (Plantlife, 2000).

Why are some species more threatened than others?

As expected, arable species had the lowest survival rates (*Fumaria parviflora* (Fine-leaved Fumitory),

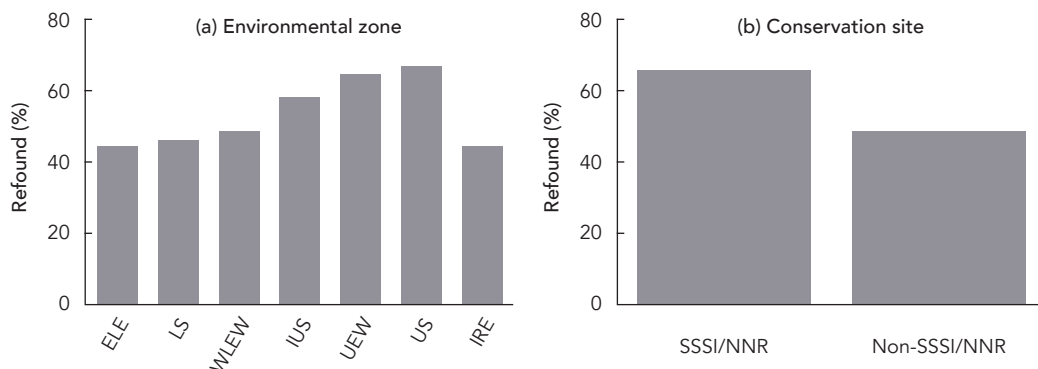


Figure 1. The percentage of populations of the 50 TPP species refound in relation to (a) environmental zone (ELE, Eastern Lowlands England; LS, Lowland Scotland; WLEW, West Lowlands England and Wales; IUS, Intermediate Uplands Scotland; US, Uplands Scotland; IRE, Ireland); and (b) site conservation designation.

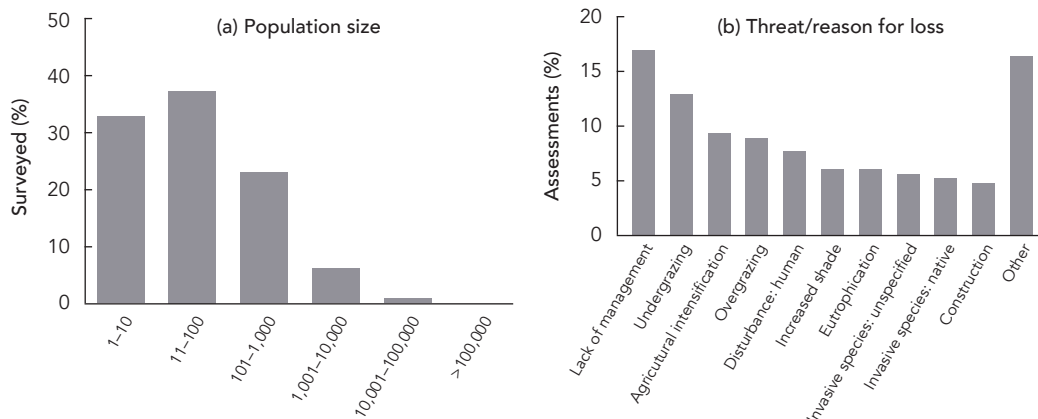


Figure 2. (a) Overall population sizes; and (b) main threats to or reasons for loss of populations of the 50 TPP species.

Glebionis segetum (Corn Marigold), *Ranunculus arvensis* (Corn Buttercup) and *Torilis arvensis* (Spreading Hedge-parsley), reflecting the widespread use of herbicides to eradicate ‘crop weeds’ since the 1940s (Robinson & Sutherland, 2002), coupled with their dynamic life-histories (and their tendency to appear sporadically from the seed bank). Much more revealing, however, were the very low survival rates for short-lived species with poor competitive abilities. These included species with long-lived seed banks, such as *Campanula patula* (Spreading Bellflower), *Fallopia dumetorum* (Copse Bindweed), *Gnaphalium sylvaticum* (Heath Cudweed) and *Scleranthus annuus*

(Annual Knawel), that also appear sporadically following periodic disturbance associated with traditional management. Like the arable species mentioned above, this illustrates the difficulties in estimating ‘losses’ during ‘one-off’ surveys, such as TPP, as some species that are not present above-ground may persist for long periods in the soil seed bank.

Equally threatened, if not more so, however, were short-lived species with transient seed banks and limited dispersal and competitive abilities. *Gentianella campestris* (Field Gentian) is an illustrative example. This short-lived perennial relies on annual seed

production combined with grazing to reduce competitive dominance and create 'gaps' in the sward for germination and establishment (Lennartsson & Svensson, 1996). As a result, it disappears quickly following relaxation of grazing and fails to return (from the seed bank or via dispersal) even if appropriate grazing levels are subsequently restored. Many grassland orchids have probably suffered a similar fate; in this study: *Anacamptis morio* (Green-winged Orchid), *Coeloglossum viride* (Frog Orchid), *Herminium monorchis* (Musk Orchid), *Orchis anthropophora* (Man Orchid) and *Pseudorchis albida* (Small-white Orchid), as well as a range of grassland and wetland herbs; in this study: *Baldellia ranunculoides* (Lesser Water-plantain), *Dianthus deltoides*

(Maiden Pink), *Melampyrum cristatum* (Crested Cow-wheat), *Oenanthe fistulosa* (Tubular Water-dropwort), *Silene conica* (Sand Catch-fly), *Sium latifolium* (Greater Water-parsnip) and *Stellaria palustris* (Marsh Stitchwort).

Clonal perennials had higher re-find rates, presumably because they remain visible above ground (unlike arable weeds, etc.) and are better adapted to survive unfavourable periods and recover if/when suitable management is restored. *Carex ericetorum* (Rare Spring-sedge) is a good example. This sedge was re-found at most of its historic sites, including a number that had suffered from long periods of intensive grazing or neglect. Likewise, meadow species, such as *Vicia orobus* (Wood Bitter-



Gnaphalium sylvaticum. Mark Gurney



Melampyrum cristatum. Pete Stroh

vetch), had disappeared from many fields but had managed to 'hang-on' in marginal habitats inaccessible to livestock and machinery.

By comparison, species with the highest re-find rates included a few montane species that require little in the way of active management, and were therefore largely self-sustaining, e.g. *Sibbaldia procumbens*, *Polystichum lonchitis* (Holly Fern). These findings corroborate the work of Sydes (2008), who found that most arctic-alpines in Scotland showed relatively little change in distributions, although increased grazing pressure appeared to be a threat to some shorter-lived species, as shown by the work of Geddes & Payne (2006). Conversely, declines in grazing levels, combined with climate change (warmer, wetter conditions), have been associated with population declines of some short-lived montane species, e.g. *Gentiana nivalis* (Alpine Gentian) (Geddes & Miller, 2010, 2012; Miller *et al.*, 2010). In general, perennials of woodlands had also suffered fewer losses, although the results were more variable because some species, e.g. *Cephalanthera longifolia* (Sword-leaved Helleborine), are more reliant on traditional management that has declined, whereas species such as *Hypopitys monotropa* (Yellow Bird's-nest) have complex life-histories that are reliant on ectomycorrhizal fungal associates that may themselves be declining owing to increased nitrogen deposition (Suz *et al.*, 2014).

Too little or too much management

It will come as no surprise to many botanists that abandonment is now one of the main concerns for many threatened plant populations. As cereal production has become more profitable since the 1950s (owing to mechanisation/industrialisation) the area of grassland managed for livestock production, at least in the lowlands, has declined markedly. This has led to widespread land abandonment, especially on marginal land that is 'too steep for the plough' or is difficult to manage intensively either because it is remote, has low fertility, or is prone to waterlogging and flooding. A similar process of abandonment has taken place in many lowland woods owing to declines in small-scale commercial forestry and woodland

practices, such as coppicing, charcoal production, etc. At the same time, agricultural intensification has led to declines in plant diversity on grasslands that have been improved, and on arable land where productivity has increased as a result of applications of herbicides and fertilisers. Although impacts have been greatest on the most productive soils in the lowlands, there is increasing evidence that many upland habitats have also deteriorated owing to drainage, fertilisation and over-grazing of meadows, pastures, bogs and mires. Such changes are likely to have been accentuated by increased atmospheric deposition of nitrogen, which reaches a peak in the uplands, and is likely to have favoured the spread of tall, nutrient-demanding species at the expense of weak competitors adapted to infertile conditions (Maskell *et al.*, 2010; McClean *et al.*, 2011).

Some good news

Much of the above provides grim reading, but there is some (relatively) good news. First, the results have shown that on average threatened species have fared better on Sites of Special Scientific Interest (SSSIs) than in the wider countryside, suggesting that in these sites conservation initiatives have worked, even for populations located on SSSIs that were not originally designated for their plant species. This was consistent across virtually all habitats but was particularly the case for calcareous grasslands, heathlands and wetlands (Fig. 3). The caveat here is that the re-find rate across all SSSI populations was just 65%, and many of the threats, including 'lack of management', were not confined to the 'wider countryside'. Second, some species appear to be less threatened than we originally thought, almost certainly because they were overlooked in many sites during fieldwork for the *New Atlas* (Preston *et al.*, 2002), which provided the basis of the most recent threat assessments (Cheffings & Farrell, 2005). In most cases, populations were simply not revisited because they were too remote, e.g. *Crepis mollis* (Northern Hawk's-beard), *Sibbaldia procumbens*, and/or perceived perhaps to be of no botanical interest, e.g. *Bupleurum tenuissimum* (Slender Hare's-ear).

The future

The future of our threatened flora hangs in the balance. The results of the TPP have shown that protection is no longer sufficient to guard against population extinction. Although many species are faring better on nature reserves than in the wider countryside, we suspect that they are just declining at a slower rate, because organisations who manage them (including conservation agencies) lack sufficient resources and expertise to care for them appropriately. Having said that, the prognosis for species largely confined to habitats in the wider countryside (e.g. roadsides) is likely to be far worse. Well-targeted land management on both private and public land will be vital to ensure that such areas are managed appropriately. For many species this will rely on the continuation or restoration

of low-intensity management practices that may no longer be commercially viable. For grasslands and heaths, including on roadsides, this equates to livestock grazing or mowing outside of the main flowering period in most years in order to allow seeding to take place, suppress dominants and create microsites for germination and establishment. In woodlands, ride and canopy/coppice management are required to disturb seed banks and restore high light levels. On arable land, targeted management options appropriate to soil type, aspect and slope will be needed to establish cultivated margins free from herbicides and fertilisers. In the uplands, sheep- and deer-grazing and regulated burning will need to be reduced in some areas, but increased in others where sheep-farming has declined. But, as this study has shown, many threatened species rely on

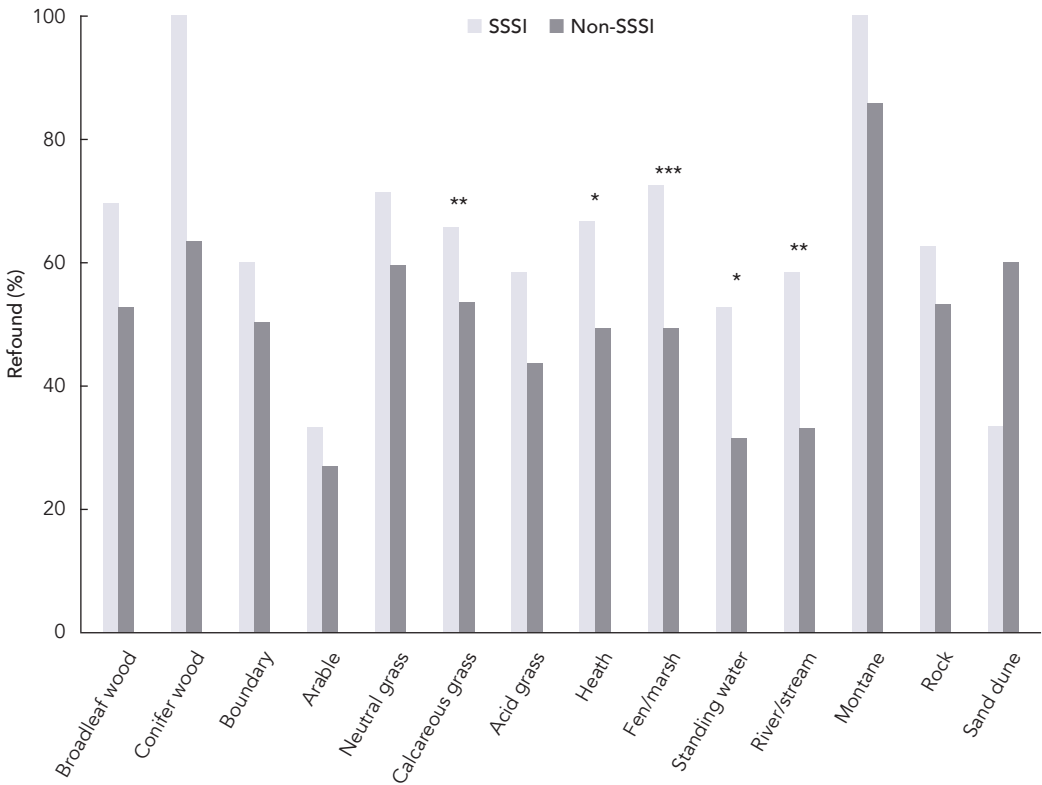


Figure 3. The proportions of populations of threatened plants refound on protected and non-protected sites in relation to their broad habitats. The significance of the differences between means for protected and non-protected sites were calculated using the Chi-square test (* = $p < 0.1$; ** $p < 0.01$; *** $p < 0.001$).

the periodic disturbance of infertile soils and waterbodies to suppress competition, expose seed banks and create suitable conditions for germination and establishment. In most cases, these conditions will be best achieved by the restoration of traditional management practices mentioned above, although some species will undoubtedly rely on more interventionist approaches that at first sight might seem destructive (deep ploughing, turf removal, etc.).

At a larger scale, first and foremost, we need the Government to agree and to implement measures that address the serious issues of nitrogen emissions and climate change, both of which appear to be having detrimental effects on many plant communities, most especially in the uplands, where their impacts are likely to be the greatest. We should also consider sustainably re-establishing lost links between plant populations. This could be either by habitat creation or by the movement of livestock between sites, in order to promote geneflow between populations which have become increasingly isolated within inhospitable landscapes. Finally, as a botanical recording society, we have a duty to make our locality information more openly available so that the knowledge we have gained via phenomenal volunteer efforts can be used to better inform land management, planning and research, and in doing so make a positive difference to our threatened flora, both now and in the future.

References

- Cheffings, C.M., Farrell, L. (eds.), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J. & Taylor, I. 2005. *The Vascular Plant Red Data List for Great Britain. Species Status* 7: 1–116. Joint Nature Conservation Committee, Peterborough.
- Geddes, C. & Miller, G.R. 2010. Long term changes in the size of an Alpine Gentian *Gentiana nivalis* L., population in Scotland. *Watsonia* 28: 65–73.
- Geddes, C. & Miller, G.R. 2012. Will climate change counteract the benefits of sheep-grazing in conserving a rare alpine dwarf-herb community? *New Journal of Botany* 2: 92–99.
- Geddes, C. & Payne, S. 2006. Loss of Highland Cudweed *Gnaphalium norvegicum* from the Caenlochan area. *BSBI News* 102: 26–27.
- Lennartsson, T. & Svensson, R. 1996. Patterns in the decline of three species of *Gentianella* in Sweden illustrating the deterioration of semi-natural grasslands. *Symbolae Botanicae Upsaliensis* 31: 169–184.
- Maskell, L.C., Smart, S.M., Bullock, J.M., Thompson, K. & Stevens, C.J. 2010. Nitrogen deposition causes widespread loss of species richness in British habitats. *Global Change Biology* 16: 671–679.
- McClellan, C.J., Van Den Berg, L.J., Ashmore, M.R. & Preston, C.D. 2011. Atmospheric nitrogen deposition explains patterns of plant species loss. *Global Change Biology* 17: 2882–2892.
- Miller, G.R., Geddes, C. & Mardon, D.K. 2010. Effects of excluding sheep from an alpine dwarf-herb community. *Plant Ecology and Diversity* 3: 87–93.
- Perring, F.H. 1970. The last seventy years. In F.H. Perring (ed.) *The Flora of a Changing Britain*, pp.128–135. B.S.B.I. Conference Report No. 11. Botanical Society of the British Isles, London.
- Plantlife 2000. *At War with Aliens. Changes needed to protect native plants from invasive species*. Plantlife, London.
- Preston, C.D., Pearman, D.A. & Dines, T.D. 2002. *New Atlas of the British and Irish Flora*. Oxford University Press, Oxford.
- Robinson, R.A. & Sutherland, W.J. 2002. Post-war changes in arable farming and biodiversity in Great Britain. *Journal of Applied Ecology* 39: 157–176.
- Suz, L.M., Barsoum, N., Benham, S., Dietrich, H.P., Fetzner, K.D., Fischer, R., Garcia, P., Gehrman, J., Kristöfel, F., Manninger, M., Neagu, S., Nicolas, M., Oldenburger, J., Raspe, S., Sánchez, G., Schröck, H.W., Schubert, A., Verheyen, K., Verstraeten, A. & Bidartondo, M.I. 2014. Environmental drivers of ectomycorrhizal communities in Europe's temperate oak forests. *Molecular Ecology* 23: 5628–5644.
- Sydes, C. 2008. Can we protect threatened Scottish arctic-alpine higher plants? *Plant Ecology and Diversity* 1: 339–349.
- Walker, K.J., Stroh, P.A. & Ellis, R.W. 2017. *Threatened Plants in Britain and Ireland*. Botanical Society of Britain and Ireland, Bristol.

Kevin Walker

BSBI Head of Science, Suite 14, Bridge House,
1–2 Station Bridge, Harrogate HG1 1SS
kevin.walker@bsbi.org

Pete Stroh

c/o Cambridge University Botanic Garden,
1 Brookside, Cambridge CB2 1JE
peter.stroh@bsbi.org

Bob Ellis

Former BSBI Projects Officer, 11 Havelock Road,
Norwich NR2 3HQ



British saltmarshes

CLIVE CHATTERS

Saltmarshes occur wherever vascular plants grow in wetlands enriched by sodium chloride, the dominant salt of sea water. The global distribution of such habitats is both coastal and continental; one does not have to travel very far into central Europe and Asia Minor to encounter salt lakes and their associated steppes.

Most British saltmarshes are coastal, the habitat forming wherever tidal waters are sufficiently sheltered to allow vegetation and sediments to accrete. The distribution of Britain's islands across many degrees of latitude supports numerous local variations on this basic model relating to climate, sediment size and the degree of salinity. Northern saltmarshes are characterised by a suite of species whose global distributions are of the sub-arctic and Baltic. These northern marshes tend to be set in extensively managed habitats and thus retain the expression of a wide range of environmental conditions. Scotland's saltmarshes support many of Britain's most complete coastal habitats, reflecting the stresses of varying salinity in lagoon systems, together with the unmodified habitats of tidal rivers

and the peatlands that form in their headwaters. Substantially intact estuarine landscapes, such as Mòine Mhòr in west Scotland, help us to interpret the fragmented remains of wetlands along our southern shores such as around the Wash, Broadland and the levels of the tidal Severn.

In the south, Britain's saltmarshes have associations with the Mediterranean, but tend to be constrained within the girdles of seawalls and floodbanks. With relative sea-level rise these southern marshes are becoming squeezed out of the landscape where provision cannot be made to allow them to migrate inland. The pace of these changes is not subtle; on the Solent coast the saltmarshes are retreating landward at around 10m a year, where permitted. Where denied the ability to migrate, these habitats are rapidly disappearing along great swathes of Hampshire's coast. In such circumstances, engineers are faced with a treadmill of ever-increasing risks requiring exponential growth in expenditure and ingenuity. Where it is possible to assist the coast to realign naturally there is a growing understanding as to what is needed to



Möine Mhòr, Knapdale – an interface of saltmarsh and estuarine peatlands. *Clive Chatters*

allow saltmarsh habitats to reassert themselves. The key elements are building flexibility into the hard engineering, together with ensuring the presence of livestock.

In common with most habitats in lowland western Europe, the saltmarshes of Britain have co-evolved with their attendant species. Recent ecological history, namely the 10–12,000 years of this interglacial, has seen the displacement of native large herbivores from saltmarshes and their replacement with domesticated substitutes, notably cattle and horses. With the growth of agriculture, from the New Stone Age onwards, a range of imported sheep have also played an increasingly important role. As with other open habitats, large herbivores exploit the vegetation of the saltmarsh and in doing so they suppress vigorous coarse perennials to the advantage of less robust competitors. In recent decades, over not much more than a century, large herbivore grazing has been lost from many saltmarshes in the south of Britain to the disadvantage of the species of structurally diverse open habitats. Extinctions from the British

saltmarsh flora, together with species that are critically endangered, are all associated with the loss of quality of open habitats formerly maintained by pastoral farming.

The natural dynamism of saltmarshes means that they are constantly in the process of being created and overwritten. Engineered modifications, such as seawalls, can artificially enhance aspects of the ecosystem. Coastal grazing marshes, with their slight and occasional salt intrusion, represent a natural ecotone in an unnaturally extensive form. Historical studies have shown how these marshes evolved with periodic times of plenty, punctuated by catastrophic floods. Unfortunately, in recent centuries, a significant proportion of this landscape has been enveloped within growing cities, the flat, open ‘dry land’ of the marshes being superficially attractive for housing and industry. The proposed realignment of the M4 motorway across the Gwent Levels is just the latest project reflecting a hubristic disregard of the inescapable power of natural processes.



Arnolds Marsh, North Norfolk. *Clive Chatters*



Top left *Gaux maritima* (Sea-milkwort) with *Limonium bellidifolium* (Matted Sea-lavender), north Norfolk, the latter being a Mediterranean species.

Top right *Inula crithmoides* (Golden-samphire); a Mediterranean species.

Centre left *Blysmus rufus* (Saltmarsh Flat-sedge); a northern species.

Centre right *Hordeum marinum* (Sea Barley).

Bottom left A host of confusing *Salicornia* (glassworts).

Bottom right An engineered realignment at Medmerry, in Sussex.

All photographs Clive Chatters



To the botanist, it is often the extremes of the habitat that encourage exploration. A band of salt-bearing rocks underlies a part of England's West Midlands. Natural salt-springs from Gloucester to Cheshire provided a foundation for Britain's chemical industry, with over 2,000 years of commercial exploitation. This industry has accelerated natural processes, leading to localised subsidence following the dilution of rock-salt. Whilst Britain does not sustain salt lakes on the scale of our continental neighbours, there are still distinctly saline habitats to be found throughout the West Midlands, supporting characteristic saltmarsh species.

The wind supplements the tide in bringing salt ashore. Anyone who has taken a coastal walk in a gale will have experienced flying spume and the taste of salt on their skin. In northern latitudes our coastlines are particularly exposed to Atlantic gales. Storms deposit salt far inland across coastal plains, such as the machair of the Outer Hebrides, and in rockier terrain across the cliff-tops of the Northern Isles, where saltmarsh communities are perched at improbable altitudes.

The curious botanist may find a great deal to discover in Britain's saltmarshes. Our northern marshes are still remarkably unexplored. The recent Scottish Saltmarsh Survey has helped quantify their extent and character, not least highlighting the diversity of perched saltmarshes. There are many species, once considered rare, whose distribution is becoming apparent as we learn to recognise their niches. A recent addition to the British list is *Carex salina* (Saltmarsh Sedge) which can be searched for in the headwaters of sea lochs of the north-west. The tight-grazed swards of these northern marshes are also home to a range of *Euphrasia* (eyebrights), including several endemics, whose distribution is poorly understood. In my recent wanderings along the Pentland Firth, I encountered a second Scottish population of *Eleocharis parvula* (Dwarf Spike-rush) in an interesting, but not particularly unusual, grazed upper saltmarsh. Coastal realignments along our southern shores, natural and planned, generate opportunities for colonisation from nearby marshes and the near



A spontaneous coastal realignment at Cwm Ivy on the Gower Peninsula. *Clive Chatters*

continent. Every season brings fresh possibilities for exciting discoveries.

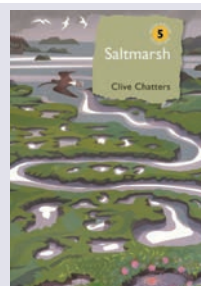
In my recent book, *Saltmarsh*, I have endeavoured to celebrate the natural history of Britain's saltmarshes, together with the people who have helped us to understand them. By way of this celebration, I also tracked the history of the role saltmarshes have played in the development of nature conservation in Britain. We have been remarkably successful in slowing their deliberate destruction, but have yet to rise to the twin challenges of loss of quality and the relentless process of coastal squeeze.

Clive Chatters

Hampshire & Isle of Wight Wildlife Trust,
Beechcroft House, Vicarage Lane, Curdridge,
Hampshire SO32 2DP

clive.chatters@hiwwt.org.uk

Saltmarsh (Vol. 5 of the British Wildlife Collection Series) by Clive Chatters is published by Bloomsbury. See review on p. 73. This is available from Summerfield Books (www.summerfieldbooks.com) at a special price of £25.00 (r.r.p. £35.00) to BSBI members.





Hybridisation and the conservation of *Nuphar pumila* (Least Water-lily)

RICHARD LANSDOWN, MAGS COUSINS,
ROBERTA GARGIULO & MIKE FAY

The only comprehensive monograph of the genus *Nuphar* recognises eight species and three hybrid combinations (Padgett, 2007). Of these, three species, *N. advena* (Spatter-dock), *N. lutea* (Yellow Water-lily) and *N. pumila* (Least Water-lily), and one hybrid *N. × spenneriana* (*N. pumila* × *N. lutea*) (Hybrid Water-lily) have been recorded in Britain (Stace, 2010).

N. advena is native to eastern and mid-western North America and has been reported from Britain since 1772 (Preston *et al.*, 2002). However, attempts to confirm its continued presence in Britain have been unsuccessful (M. Spencer, pers. comm.) and it seems unlikely that it persists here in the wild.

N. pumila is mainly a boreal species of montane or alpine areas, except where it occurs in warm temperate areas in southern China. It occurs from northern Europe east through Siberia and Mongolia to the Russian Far East, Kamchatka, Sakhalin Island, Japan and China (Maiz-Tome, 2016). It is known from 68 ten-kilometre squares in Scotland and a single site at Cole Mere in England, although it formerly occurred in other meres in Shropshire. It is absent from Ireland.

Figure 1. Floating leaves of *Nymphaea alba*, *Nuphar pumila* and possibly *N. × spenneriana*, Loch Uvie, Easterness. R.V. Lansdown

N. lutea occurs from Scandinavia south to North Africa and east through the Middle East, the Caucasus, Siberia and Kazakhstan to China (Akhani, 2014). In Britain it has been recorded from 1,651 ten-kilometre squares (Preston *et al.*, 2002).

N. × spenneriana has been recorded from Scandinavia south to central Europe and east to south central Siberia (Padgett, 2007). In Britain populations of this taxon have been identified based on morphological characters (e.g. Stace, 2010; Rich & Jermy, 1998) and it is now considered to occur in 50 ten-kilometre squares (Stace *et al.*, 2015). Bees, bumblebees and hoverflies are the most important pollinators in Europe (Padgett, 2007) and transport of pollen by these vectors is the main cause of hybridisation.

The presence of *N. lutea* at Cole Mere, which supports the only known population of *N. pumila* in England, raised concerns that the genetic integrity of this population could be threatened by hybridisation which had recently been reported as a serious threat

Table 1. The location and vice-county details for material analysed (species names in bold indicate the field identification of plants collected).

Site Name	Vice County	VC No.	Species reported from site
Betton Mere	Shropshire	40	<i>N. × spenneriana</i>
Cole Mere	Shropshire	40	<i>N. lutea</i> , <i>N. pumila</i> , <i>N. × spenneriana</i> *
Kirriereoch Loch	Kircudbrightshire	73	<i>N. lutea</i> , <i>N. pumila</i> *
Loch Uvie	Easternness	96	<i>N. lutea</i> , <i>N. pumila</i> , <i>N. × spenneriana</i> **
Rannoch Moor	Rannoch Moor	98	<i>N. pumila</i>
Little Rogart Loch	East Sutherland	107	<i>N. pumila</i>

*No evidence for this taxon was found at the site at the time of the visit

**Material at the site was very variable and the material collected could have included *N. pumila*.

to *N. pumila* populations in the Alps (Arrigo *et al.*, 2016). A research project was initiated by Natural England under the Species Recovery Programme to assess whether there was evidence of hybridisation in the Cole Mere *N. pumila* population (Gargiulo *et al.*, 2017; Lansdown, 2017; Peach *et al.*, 2017). The analysis was carried out by the genetics team at Kew; material was collected by R.V. Lansdown and M. Cousins. This short article discusses the implications of results of the genetic analysis and other recent research on the conservation of *N. pumila* in England and the identification of *N. × spenneriana*.

Materials and methods

Material for genetic analysis was collected from a total of six sites (Table 1), which were selected using data from the BSBI Distribution Database (<https://database.bsbi.org>), in order to obtain material of all three taxa from a wide geographical range.

The population sampled from Loch Uvie was highly variable, including plants with uniformly very small parts and deeply lobed, regular stigmatic disks, plants with larger leaves and distorted stigmatic disks, and plants apparently typical of *N. lutea* (Fig. 1). The sample collected included four leaves from the uniformly small plants and one larger leaf.

Access to plants was made on foot from the margin, except at Cole Mere and Betton Mere, where a boat and dry suit were used respectively, so it was not always possible to choose the most characteristic material. At each site, five leaves were

collected, the length and width measured using Vernier callipers and a piece approximately 5 × 3cm preserved in a sealed bag of approximately 15g of silica gel. Where possible, the number of rays in the stigmatic disk of five flowers was also recorded. Total genomic DNA was extracted from leaves using the CTAB method (Doyle *et al.*, 1987) and purified using the QIAquick PCR purification kit (QIAGEN). A detailed description of the methods employed for genetic analysis is given by Gargiulo *et al.* (2017).

Results and discussion

Genetic analysis revised the identification of two of the samples, whilst confirming the field identification of the remainder (Table 2). Most significantly, no evidence of hybridisation was found in material from Cole Mere, the material collected from Loch Uvie identified in the field as *N. × spenneriana* was re-determined as *N. pumila* and the material previously

Table 2. Revised identification of samples based on genetic analysis.

Site	Field identification	Molecular identification
Betton Mere	<i>N. × spenneriana</i>	<i>N. lutea</i>
Cole Mere	<i>N. lutea</i>	<i>N. lutea</i>
Cole Mere	<i>N. pumila</i>	<i>N. pumila</i>
Kirriereoch Loch	<i>N. lutea</i>	<i>N. lutea</i>
Loch Uvie	<i>N. × spenneriana</i>	<i>N. pumila</i>
Rannoch Moor	<i>N. pumila</i>	<i>N. pumila</i>
Little Rogart Loch	<i>N. pumila</i>	<i>N. pumila</i>

identified as *N. × spenneriana* from Betton Mere (e.g. Burgess *et al.*, 2014) was genetically attributable to *N. lutea*, although it showed greater genetic variability and one anomalous allele. It was not possible to detect whether the source of this allele is actually the result of ancestral hybridisation between *N. lutea* and *N. pumila* or whether it represents variation in *N. lutea* not sampled from elsewhere in this study.

It has already been noted that *N. × spenneriana* seems to be ‘a taxon created to cover plants falling between *N. lutea* and *N. pumila*’ (Heslop-Harrison 1953) and it appears that identification of the hybrid based purely on morphology is unreliable (Volkova *et al.*, in press). Similar under-estimation of the variability of the parent species resulting in erroneous exaggeration of the abundance of hybrids by so naming all plants deviating from the expected morphology of the parents has already been recognised in *Nymphaea* (Volkova *et al.*, in press) and this may be the case in *Nuphar*.

N. lutea can be readily distinguished from *N. pumila* by the size of most parts and usually by

the shape of the stigmatic disk. Unsurprisingly, *N. × spenneriana* is highly intermediate between the parent species. Typical *N. lutea* can be distinguished from *N. × spenneriana* in most cases by the larger flowers, broader neck to the fruit and the diameter of the stigmatic disk, but small *N. lutea* populations will be indistinguishable from some populations of *N. × spenneriana* (Table 3). Many *N. lutea* populations in areas where the possibility of hybridisation with *N. pumila* is vanishingly small include plants with small leaves which appear simply to be immature or belong to immature plants. It is probably best, therefore, to treat the occurrence of small leaves in populations of *N. lutea* with some caution. There is no single character which reliably separates *N. pumila* from *N. × spenneriana*.

Characters most frequently considered useful for separating *Nuphar* taxa in Britain are the overall percentage fertility, the outline and number of rays in the stigmatic disk, the size (maximum length and width) of the floating leaves and the number of lateral veins in floating leaves. These characters are discussed in more detail below.

Fruit showing varying degrees of distortion are often found in populations of *N. lutea* and were a particular feature of the *N. pumila* population in Cole Mere. The distorted fruit in *N. lutea* appear otherwise to be fully formed. In contrast, those from the *N. pumila* population at Cole Mere were shrunken and empty. Padgett (2007) states that ‘emaciated fruit’ are unique to *N. × spenneriana*. However, confirmation of the molecular identity of the population at Cole Mere as *N. pumila* shows that this is not the case.

Stigmatic disk

The outline of the stigmatic disk is normally considered to be one of the most useful characters for separating the three taxa: entire or occa-

Table 3. Biometric data from selected sources.

	<i>N. pumila</i>	<i>N. × spenneriana</i>	<i>N. lutea</i>
Stigmatic disk rays			
Stace (2010)	7–12	7–14	9–24
Padgett (2007)	8–14	9–15	11–21
This study	7–10*		13–20
Lateral veins			
Stace (2010)	11–18	15–22	23–28
Padgett (2007)	10–21	11–19	16–29
This study	9–20		19–38
Leaf length (cm)			
Padgett (2007)	5–15.5(–17)	9–20.5	16–30
This study	5.7–13.1		14.3–33.5
Leaf width (cm)			
Padgett (2007)	(4)–5.5–12.5	6.1–15	11.5–22.1
This study	5–10.4		11–22.6

*One stigmatic disk from Loch Uvie gave a count of 20, but the plant from which this was collected was not necessarily included in the genetic analysis and therefore its identification cannot be considered certain.

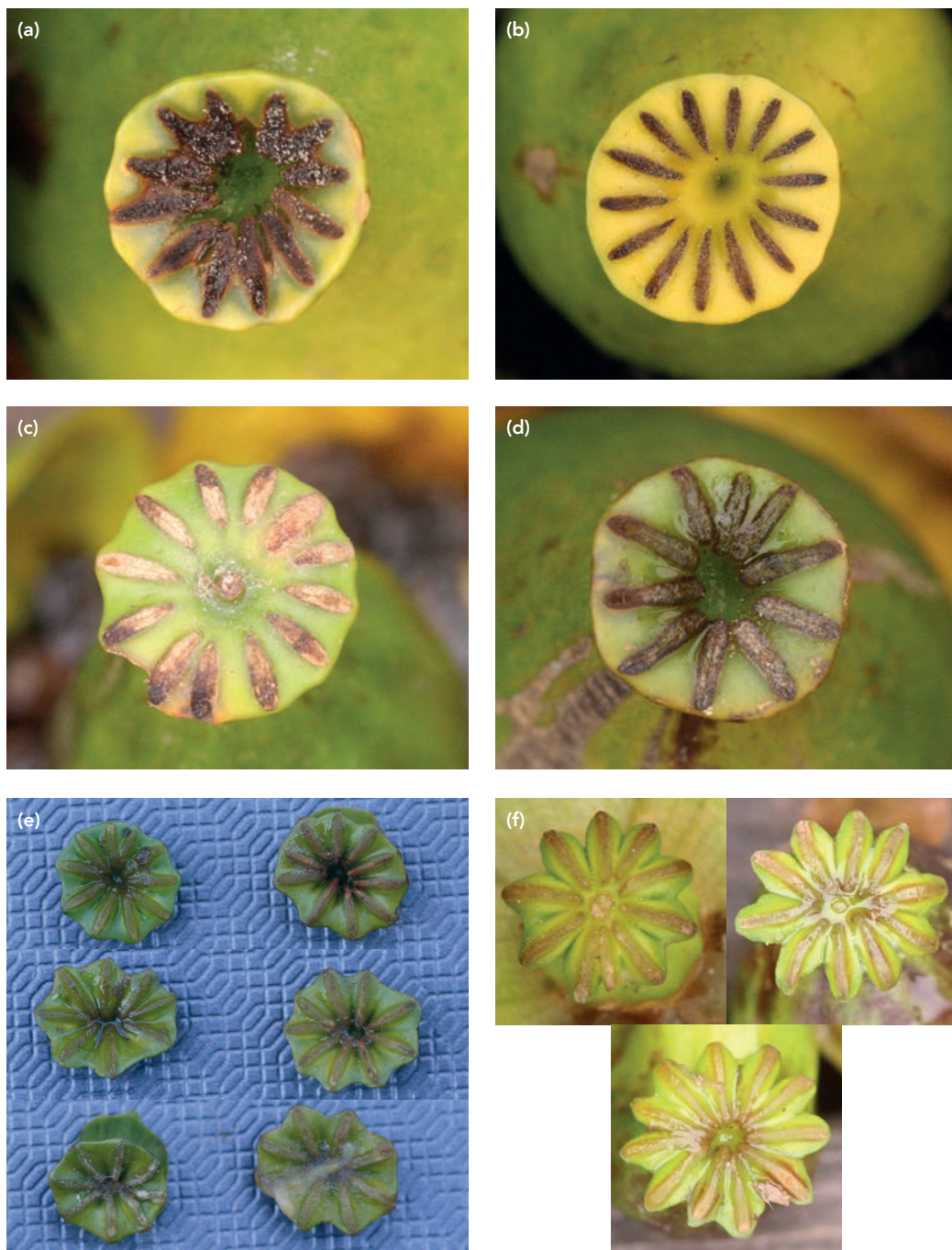


Figure 2. Stigmatic disks of (a, b) *N. lutea*, Norrbotten, Sweden 2012, (c, d) presumed *N. x spenneriana*, Norrbotten, Sweden 2012, (e) *N. pumila* from Cole Mere, and (f) *N. pumila* from Norrbotten, Sweden. R.V. Lansdown

sionally undulate in *N. lutea*; crenate in *N. × spenneriana*, and deeply lobed in *N. pumila* (Fig. 2) (e.g. Heslop-Harrison, 1953). However, recent genetic and morphological analysis of material from across the range of the species found *N. lutea* with crenate stigmatic disks and material attributable to *N. × spenneriana* with the typical morphology of *N. pumila* (Volkova *et al.*, in press). This suggests that this character may contribute to identification of *N. lutea*, but is not reliable for distinction of *N. pumila* from *N. × spenneriana*.

Floating leaves

The length and width of *N. lutea* leaves shows only slight overlap with those of *N. pumila* and typical populations of both species are very different in size (Table 3). *N. × spenneriana* typically appears to have floating leaves intermediate in size between those of its parents and therefore this character is unreliable for separation of the three taxa. All floating leaves of the three taxa have a strong central vein, with varying numbers of lateral veins in a pinnate pattern (e.g. Rich & Jermy, 1998). The number of these lateral veins has been considered an important identification character. However, interpretation of these veins is not straightforward, as can be seen by the disparity in biometrics (Table 3). In fact, the venation of *Nuphar* leaves is not simple. Most leaves show

a pattern of primary and secondary veins (Fig. 3) and none of the literature using this character states whether both types of veins should be counted or whether biometrics refer only to the primary veins.

Fertility

Literature sources suggest that the fertility of *N. × spenneriana* is typically low and that this may be a useful identification character (e.g. Heslop-Harrison, 1953; Padgett, 2007), although Caspar (1869, 1879) showed through artificial crossing experiments that fertility of F₁ hybrids could be as high as 73%. This high range of fertility has been found in *N. × spenneriana* by other studies (Arrigo *et al.*, 2016; Volkova *et al.*, in press). Such high fertility in the hybrid means that low fertility cannot be considered a useful identification character, particularly as there may be other reasons for low fertility in aquatic plants, such as submergence of developing flowers by rising water levels. It is also clear that with such high fertility, there is a high likelihood of backcrossing and introgression where hybrids occur (Volkova *et al.*, in press) which may help to explain the difficulty of finding reliable morphological identification characters. In spite of the apparently limited genetic barriers to hybridisation, Volkova *et al.* (in press) concluded that, contrary to much of

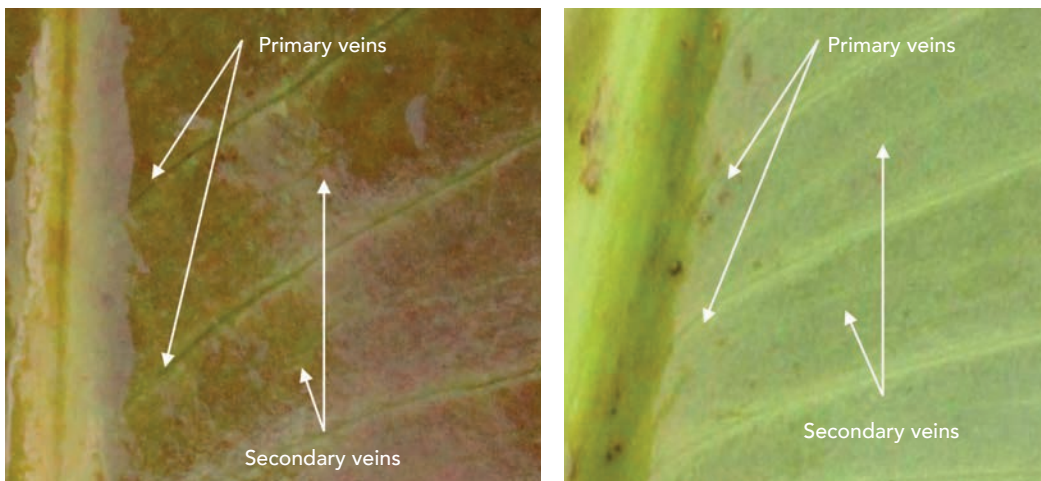


Figure 3. Venation of *N. pumila* (left) and *N. × spenneriana* leaves. R.V. Lansdown

the literature (e.g. Heslop-Harrison, 1953; Padgett, 2007), hybridisation between *N. lutea* and *N. pumila* is quite rare.

Conclusions

This study shows that there is currently no evidence that hybridisation between *N. pumila* and *N. lutea* is occurring at Cole Mere. The genetic analysis did not confirm the identity of any *N.* × *spenneriana* populations from other British sites, but this is because the sample size was low. A thorough genetic study including samples from most or all British *N. pumila* and putative *N.* × *spenneriana* populations would be needed to confirm the distribution of these taxa.

Evidence from this study and others suggests that identification of *N.* × *spenneriana* using field characters is unreliable. A thorough study combining morphological and genetic analyses, including samples from most or all British *N. pumila* and putative *N.* × *spenneriana* populations, would be needed to establish whether there are reliable field characters which can be used to identify these two taxa.

Genetic evidence that *N. pumila* and *N. lutea* hybridise, albeit rarely (Arrigo *et al.*, 2016), shows that, although there is currently no evidence that hybridisation has taken place at Cole Mere, the proximity of the two species suggests that if sexual reproduction occurs it is likely that they will hybridise, in which case there will be a risk to the genetic integrity of the only population of *N. pumila* in England.

References

- Akhani, H. 2014. *Nuphar lutea*. *The IUCN Red List of Threatened Species 2014*: e.T164316A42398895. <http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T164316A42398895.en>. Downloaded on 9th November 2017.
- Arrigo, N., Bétrisey, S., Graf, L., Bilat, J., Gerber, E. & Kozłowski, G. 2016. Hybridization as a threat in climate relict *Nuphar pumila* (Nymphaeaceae). *Biodiversity and Conservation* doi:10.1007/s10531-016-1165-z.
- Burgess, A., Goldsmith, B. & Goodrich, S. 2014. *Interpretation of Water Framework Directive Macrophyte Data for CSM Condition Assessment*. Project Reference No: 25552. Unpublished report to Natural England, Peterborough.
- Gargiulo, R., Lansdown, R.V. & Fay, M.F. 2017. *Evaluation of genetic diversity and admixture in the only English population of Nuphar pumila*. Natural England Commissioned Report, No. 245, York.
- Heslop-Harrison, Y. 1953. *Nuphar intermedia* Ledeb., a presumed relict hybrid, in Britain. *Watsonia* 3: 7–25.
- Lansdown, R.V. 2017. *Development of a conservation plan for Least Water-lily (Nuphar pumila) in England*. Natural England Commissioned Report, Number 243, York.
- Maiz-Tome, L. 2016. *Nuphar pumila*. *The IUCN Red List of Threatened Species 2016*: e.T167888A1179645. <http://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T167888A1179645.en>. Downloaded on 9 November 2017.
- Padgett, D.J., 2007. A monograph of *Nuphar* (Nymphaeaceae). *Rhodora* 109(937): 1–95.
- Peach, J., Davies, R., Walmisley, J. & Chapman, T. 2017. *An assessment of seed viability, germination and vegetative propagation requirements for Nuphar pumila*. Natural England Commissioned Report, No. 244, York.
- Preston, C.D., Pearman, D.A. & Dines, T.D. 2002. *New Atlas of the British and Irish Flora*. Oxford University Press, Oxford.
- Rich, T.C.G. & Jermy, A.C. 1998. *Plant Crib 1998*. Botanical Society of the British Isles, London.
- Stace, C.A. 2010. *New Flora of the British Isles*. Cambridge University Press, Cambridge.
- Stace, C.A., Preston, C.D. & Pearman, D.A. 2015. *Hybrid Flora of the British Isles*. BSBI Publications, London
- Volkova, P.A., Arutyunyan, N.G., Schanzer, I.A., Chemeris, E.V. & Bobrov, A.A., in press. Genetic variability of Eurasian *Nuphar* species unravels possible routes in which freshwater plants could fill their wide areas. *Aquatic Botany*.

Richard Lansdown

Ardeola Environmental Services, 45 The Bridle,
Stroud, Glos. GL5 4SQ; Honorary Research
Associate, Royal Botanic Gardens, Kew, Richmond,
Surrey TW9 3AE
rlansdown@ardeola.demon.co.uk

Mags Cousins

Natural England, Parkside Court, Hall Park Way,
Telford TF3 4LR

Roberta Gargiulo

Jodrell Laboratory, Royal Botanic Gardens, Kew,
Richmond, Surrey TW9 3DS

Mike Fay

Jodrell Laboratory, Royal Botanic Gardens, Kew,
Richmond, Surrey TW9 3DS



The status of *Teucrium chamaedrys* (Wall Germander) in the British Isles

FRED RUMSEY

The GB Red List Group for vascular plants, previously the Species Status Assessment Group, is tasked with considering status, whether native or alien, taxonomic ranking issues and, where appropriate, calculating threat levels for taxa of sub-specific rank or above that are considered to be of native or archaeophyte status. The decisions made by the group are then presented, usually biennially, as published amendments in *BSBI News*, reflecting the changes made to the online listings (for the most recent, see Leach, 2017). The policy of the group has been that for decisions on both taxonomy and native status, we should not only seek expert advice and use best available evidence, but have clear published evidence on which to base our decisions. While we assemble this evidence, taxa are maintained on the 'Waiting List'. (This we also hoped would act as an encouragement to members and researchers seeking projects, although in this we have been admittedly somewhat disappointed!)

One species that has been on the Waiting List since the first GB Red List's publication in 2005 (Cheffings & Farrell, 2005) is *Teucrium chamaedrys* (Wall Germander), and in this short note it is my intention to look at the evidence supporting its claim to be native and to propose a threat status for it as a native species.

Haven Brow *Teucrium chamaedrys* site. Fred Rumsey

A long-lived sub-shrubby species, *Teucrium chamaedrys* is widely distributed but rare within the British Isles, primarily occurring on walls and derelict built structures and rocky roadside banks close to habitation, usually in coastal and limestone areas. In the majority of these sites the plant has proven persistent over very long periods, although showing little or no tendency to spread. Preston *et al.* (2002) comment that as a garden escape the species has declined, and furthermore indicate that many of these plants (particularly those more recently escaped?) may actually be of the horticultural hybrid *T. × lucidrys* (*T. chamaedrys* × *T. lucidum*), a larger and more glabrous plant.

Although first documented by Petiver as a British plant in 1690 from the walls of Camber Castle, near Winchelsea, East Sussex, where it persisted until 1991 (Briggs, 2004), it was only with the discovery by A.W. Graveson in 1945 of dwarfed examples in exposed downland turf at Cuckmere Haven, East Sussex, some 45km west-south-west of the Camber site, that the status of this species in the British Isles began to be questioned.

Wolley-Dod (1937), in the *Flora of Sussex*, had already recorded the species 'in grass' near Offham,

where it was first found in 1924, and it was still present at the time of the *Flora's* preparation. This site lies c. 20.9km to the north-west of the extant location. Material, presumably from this site, referred to as 'Blackcap' (Wolley-Dodd 25.08.1937 BM!), is less dwarfed than the extant Cuckmere plants but shows very close similarities in stem indumentum. In this regard, both of these potentially native Sussex populations differ from obviously naturalised plants. They exclusively possess short, stout, rather obtuse-ended and crispate appressed white hairs. Naturalised specimens differ in possessing, in addition, much longer, less appressed, slender-tipped, and often more, colourless hairs. Examination of the European material at BM suggests that the Sussex plants are similar to the most geographically proximal French material in these indumentum characters.

Widely distributed across Europe, North Africa and Asia Minor, this variable species is treated in Med-Checklist 3 (Greuter *et al.*, 1986) under 14 subspecies. Our potentially native plants equate to ssp. *germanicum* (F. Herm) Rech. f., as do the majority of the French occurrences away from

Lorraine in the north-east (Delvosalle, 2010). The species distribution within France extends in an arc, reflecting underlying geology, through the north to close to the Channel coast.

The taxonomy employed by Greuter *et al.* (1986) is still largely based on the monographic study by Rechinger (1941), which had an eastern Mediterranean focus and furthermore did not provide adequate keys to distinguish the infra-specific taxa recognised, reducing its practical use. Chromosome counts suggest *T. chamaedrys s. lato* represents a polyploid complex with diploid ($2n = 32$), tetraploid ($2n = 64$) and hexaploid ($2n = 96$) races, with an aneuploid series ($2n = 60; 62$) from the tetraploid (Stace, 2010). How these cytological races equate with morphological characters, or geographical distribution, is not clear. Tutin & Wood, in *Flora Europaea* (Tutin *et al.*, 1972), did not recognise subspecies and the circumscription of infra-specific taxa remains problematic. Tison & de Foucault (2014), in *Flora Gallica*, remark that the main variable characters are the density of the simple hairs, which can vary from virtually absent (except on the leaf nerves) to a dense pubescence capable of hiding the glands on the undersurface of the leaf. There is also variation in the cutting of the leaf and a reduction in width of the blade in hot and exposed situations; these characters do not correlate to the variation in the indumentum. Commenting on the situation, the authors declare 'problème à revoir', and also choose not to recognise subspecies.

While these characters may fail adequately to delimit infra-specific taxa they may still have potential to resolve the relationships and hence status of the British plants.

Current status

Currently, this species is held on the Waiting List (Cheffings *et al.*, 2005; Stroh *et al.*, 2014). The major British floras and field guides – Rose (1981), Sell & Murrell (2009), Stace (2010) and Stace & Crawley (2015) are (unusually) in accord and all regard it as Native – although Preston *et al.* (2002) gave it as a Neophyte, although conceding it may be native at Cuckmere.



Teucrium chamaedrys. Fred Rumsey

On what basis have these judgements been made? The evidence broadly stated is as follows:

Cons

- A very late discovery in ‘native’ situations (1924) which were probably well worked.
- Widely cultivated and naturalised in Sussex since 1690, therefore great potential to spread to ‘wild’ habitats.
- How likely is it to be native in just one site?

Pros

- Plants in the ‘native’ habitat are stunted and easily overlooked or could be mistaken.
- Morphologically plants are dissimilar from garden material and most like the nearest native occurrences in indumentum type.
- Other rarities have highly localised disjunct small populations on these cliffs – *Seseli libanotis* (Moon Carrot), *Bupleurum baldense* (Small Hare’s-ear), etc. Furthermore, the now lost ‘Blackcap’ population suggests the species may have once been more widespread and not just a more difficult to explain single-site occurrence.
- Extra-British range suggests it is plausible as a native.
- The species is present at Cuckmere in a habitat and vegetation type (NVC CG2(a) *Festuca ovina* – *Avenula pratensis* grassland) in which the frequency of occurrence of non-native taxa is low (Stace & Crawley, 2015). The turf is species-rich, supporting a range of less-common taxa of quality habitat, e.g. *Phyteuma orbiculare* (Round-headed Rampion), *Euphrasia pseudokerneri* (Chalk Eyebright), *Thesium humifusum* (Bastard-toadflax), *Spiranthes spiralis* (Autumn Lady’s-tresses), etc. Exposure, heavy trampling and a high grazing pressure maintain the very low community in which these species flourish, although the latter almost certainly acts to limit flowering and hence potential seed dispersal. Reducing these pressures results in the coarser CG3/CG4 grasslands which are closely adjacent and in which the *Teucrium* is absent.

I believe on balance that the evidence supports a claim for **Native** status for this species. The late

discovery date is explicable given the dwarfed, inconspicuous nature of the plant and its poor flowering performance.

Somewhat unusually, all of the major floras and guides are in consensus in sharing this view. At worst, even the most sceptical, I think, would grudgingly have to accept a Native or Alien categorisation. But as we also transfer those in such a category to the Main Red List, then we need to calculate a threat.

Threat categorisation

If we accept the area of occurrence suggested by post-1987, but pre-2000 six-figure records, against recent (post-2000) records, it suggests a decline in area and hence almost certainly numbers of individuals, such that it would qualify as CR Ba, b(iv,v). It would probably also qualify as CR C2 (a ii) if there has been a demonstrable decline. The difficulty comes in the quality of localisation of past records, which were pre-GPS. The loss of the ‘Blackcap’ population is arguably too ancient (<75years) to use for decline of AOO/EOO under B or C criteria. However, this is somewhat academic, as in the absence of any such proof of decline it could reasonably still qualify as CR under the D criterion.

Although it is difficult to determine what would constitute a discrete mature individual (see discussion below), my recent (2017) investigations would suggest only a very limited number of somewhat diffuse clonal patches are present (see Fig. 1 for the richest of these), and I would estimate fewer than 50 discrete patches currently occur. The depicted plant(s) almost certainly constitutes a single clonal patch, which I would for both practical and precautionary purposes view as a ‘mature individual’. However, individual ramets might survive the death of their neighbours and thus could arguably be classed as discrete individuals. Such an interpretation would dramatically inflate the number and radically alter (lower) the threat status. The IUCN focus on numbers of mature individuals for threat assessment is fine for tigers but not for clonal plants! It means how we treat these clonal organisms has a major bearing on the level



Figure 1. The densest area of occurrence detected in August 2017 (red circles indicate shoots). The average sward height is <2cm. This almost certainly constitutes a single clonal patch/mature individual. Fred Rumsey

of threat calculated; all we can do is explain our rationale, adopt a common-sense approach and try to be consistent in our treatment. In adopting the approach above, I hope that pragmatism does not fly in the face of biological sense and the true threat to the plant's survival is captured. Given the species' extreme localisation, it is quite conceivable that a single catastrophic event, or even a change in management, could result in the total loss of this plant as a British native.

Acknowledgements

I am grateful to my fellow Red List panel members and Helena Crouch for their thoughts and comments on an earlier draft and particularly to David Pearman for his help and necessary scepticism.

References

- Briggs, M. 2004. *Sussex Wild Flowers*. Sussex Wildlife Trust, Shoreham on Sea.
- Cheffings, C.M. & Farrell, L. eds. 2005. The Vascular Plant Red Data List for Great Britain. *Species Status* 7: 1–116. JNCC, Peterborough.
- Delvosalle, L. 2010. *Atlas floristique IFFB: France, NW, N et NE, Belgique–Luxembourg*. Inventaire Institut floristique Franco-Belge.
- Greuter, W., Burdet, H.M. & Long, G. 1986. *Med-Checklist 3*

- Dicotyledones (Convolvulaceae–Labiatae)*. Conservatoire et Jardin botaniques de la Ville de Genève, Genève.
- Leach, S. 2017. Vascular Plant Red Data List for Great Britain: a summary of amendments in years 10 & 11 (2015–6) of the annual amendments process. *BSBI News* 135: 59–62.
- Preston, C.D., Pearman, D.A. & Dines, T. 2002. *New Atlas of the British and Irish Flora*. Oxford University Press, Oxford.
- Rechinger, K.H. 1941. *Botanisches Archiv*. 4: 344–389.
- Rose, F. 1981. *The Wild Flower Key*. Warne, London.
- Sell, P.D. & Murrell, G. 2009. *Flora of Great Britain and Ireland*, Vol. 3. Cambridge University Press, Cambridge.
- Stace, C.A. 2010. *New Flora of the British Isles*, 3rd ed. Cambridge University Press, Cambridge.
- Stace, C.A. & Crawley, M. 2015. *Alien Plants*. Harper-Collins, London.
- Stroh, P. et al. 2014. *A Vascular Plant Red List for England*. BSBI, Bristol.
- Tison, J.-M. & de Foucault, B. 2014. *Flora Gallica: Flore de France*. Biotope, Mèze.
- Tutin, T.G. et al. 1972. *Flora Europaea*, Vol. 3. Cambridge University Press, Cambridge.
- Wolley-Dod, A.H. 1937. *Flora of Sussex*. Kenneth Saville, Hastings.

Fred Rumsey

Dept. of Life Sciences: Algae, Fungi & Plants
Division, Natural History Museum, Cromwell Road,
London SW7 5BD

f.rumsey@nhm.ac.uk

Atriplex praecox (Early Orache) on a shore in the Menai Strait

E. IVOR S. REES

A*triplex praecox* (Early Orache), a boreal amphiatlantic seashore species, has been recorded for the first time in Wales. It was only confirmed as a British species in 1975 from two locations in north-west Scotland (Taschereau, 1977). Since then, earlier records have come to light, implying that it was present but not recognised. The BSBI database (DDb), at 24/10/2017, showed pre-1930 records from 6 hectads and 5 during the period 1930–1969. Elsewhere, the range is from Newfoundland to Greenland, Iceland, Scandinavia, the Baltic and the White Sea part of Russia. The DDb shows that most British records have been from Shetland, the Hebrides and Scottish north-west coast sea lochs. Until recently, the only records further south into the Irish Sea were from Kirkcudbrights (v.c.73).

A few plants that, on superficial inspection, fitted the descriptions of *A. praecox* given by Taschereau (1977 & 1985) were found in North Wales on 13th September 2015. They were on the Caernarfonshire (v.c.49) side of the south-west end of the Menai Strait, in Foryd Bay (SH 453595). The reddish-coloured prostrate plants were growing in stony gravel well below spring-tide strand-line levels and only just above the upper limit of *Pelvetia canaliculata* (Channel Wrack). This shore level is the ecological niche of *A. praecox* (Taschereau, 1977 & 1985; Richards, 2015). Photographs were taken, but due to an accident a sample did not get examined at the 2015 BSBI *Atriplex* Workshop in Bangor, led by John Akeroyd. Features visible when images were enlarged later supported the provisional identification. However, as the location was far south of the then accepted range of the species and the difficulty of confidently identifying some *Atriplex* taxa, the 2015 find had to be regarded as uncertain.

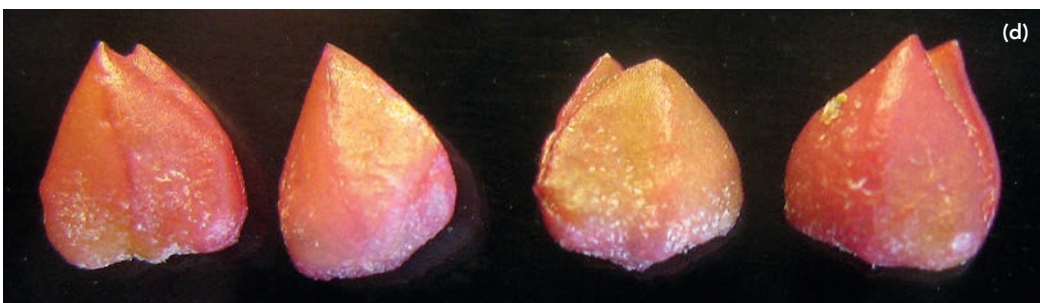
Prompted by news in his Wild Flowers of Wexford blog that Paul Green had found *A. praecox* even further south in Ireland for the first time in August 2017, the Foryd Bay shore was searched again on 2nd September 2017. On the same stretch of shore as in 2015, similar prostrate red plants were found. A further visit here on 15th September with Wendy McCarthy (Recorder for

v.c.49) located a few more about 150m from the original site. It was a relief that the plants had not washed away before being shown to her as the second 2017 visit was after high spring tides. Material from Foryd Bay has now been examined in detail, including taking macro-photos, measuring bracteoles and opening some of them. John Akeroyd (BSBI Referee for *Atriplex*) has since confirmed the identification, while Paul Green has indicated that they closely resemble those in Wexford (v.c.H12).

Fleshy *Atriplex* species do not press well and, more importantly, the bracteoles, which are essential for identification, tend to shrivel or get lost from herbarium sheets. Photographs of crucial features, some of which are shown here, can be a useful substitute. Suggestions about characters to look for were given by Richards (2015), but there are still very few images in print or on the web, particularly of the bracteoles, that would help recognition of *A. praecox*.

On semi-sheltered shores, reddish-coloured small prostrate *Atriplex* plants growing well below the strand line are worth checking, but several other taxa including *A. glabriuscula* (Babbington's Orache) and *A. prostrata* s.s. (Spear-leaved Orache) can be red coloured and sometimes grow below spring-tide strand-lines. Shapes of lower leaves can be useful in recognising some *Atriplex* taxa. Taschereau (1985) described those of *A. praecox* as having short outward pointing basal lobes, but these leaves are often lost or damaged by late August or early September, when the bracteoles are mature enough to provide critical identification evidence. Loss of lower leaves in plants exposed to wash-over during spring tides can be expected, and abrasion at lower nodes can often be seen where they have grown prostrate on stones or gravel. In keeping with the prostrate growth habit, well-grown plants of *A. praecox* often have branches that are much longer than the main stem. Upper leaves and the larger leaflets are trullate and even more fleshy than is typical for *A. glabriuscula*.

The bracteoles on the North Wales plants were mostly clustered in loose terminal inflorescence glomerules on the longer branches. These had smaller numbers of bracteoles in each glomerule than in most



(a) *Atriplex praecox* on a stony shore at Foryd Bay 02/09/2017. (b) Terminal part of branch. Bracteoles in loose glomerules subtended by leaflets to near tip. (c) Abnormal axillary branch with a single bracteole subtended by two leaflets. (d) Typical *Atriplex praecox* bracteoles with rounded lateral margins, lengths 4.6–5.1mm. Ivor Rees

other *Atriplex* taxa, with other small clusters of bracteoles on short axillary branches, which usually had two leaflets subtending the cluster of bracteoles. Rarely, there was just a single bracteole on an axillary branch looking partly like a stalked bracteole. The bracteoles were a characteristic shape with rounded lateral margins. Fully developed bracteoles on the Foryd Bay plants were 4–5mm in length, which is similar to the measurements given by Taschereau (1985). Much larger measurements of 7–9mm were given by Richards (2015) for *A. praecox* on the North Sea coast in Northumberland (v.c.68). Most bracteole pairs were slightly open and only fused across part of the base. Owing to the limited fusion, these bracteole pairs were easier to open to reveal the seed than in other *Atriplex* taxa with similar sized bracteoles, including *A. prostrata* s.s. which is fused right across a truncate base. By contrast, *A. praecox* bracteoles seemed more firmly attached to the plants, which might be an adaptation to living where they must withstand wash-over on spring tides. This observation suggests that *A. praecox* seeds may be shed and that they lodge in the sediment enabling the next generation to grow in the same ecological niche. In the strand-line species, such as *A. laciniata* (Frosted Orache) and *A. glabriuscula*, the mature bracteoles detach easily and aid dispersal.

Unless the disjunct distribution of *A. praecox* records in Britain and Ireland is an artefact of continued recognition difficulties, the small population now at Foryd Bay seems to be an outlier. Direct or inadvertent human intervention or drift by sea currents seem unlikely to account for outliers in the Irish Sea, but endozoochory (dispersal inside animals) merits consideration, although the evidence for this is inevitably only circumstantial.

Experimental feeding of *Atriplex* seeds to captive Mallards (*Anas platyrhynchos*) by Mueller & van der Valk (2002) showed that, although most seeds passed through their guts in a short time, a few were retained long enough for migrating ducks to carry some seeds about 1,400km. After passing through the Mallards in the experiment, about 7% of the *Atriplex* seeds could still germinate. The *A. praecox* site in Foryd Bay is near to some of the most extensive beds of *Zostera noltii* (Dwarf Eelgrass) in North Wales. These beds are grazed in autumn and winter by several hundred Brent Geese of the light-bellied race (*Branta bernicla hrota*) which nest in Arctic Canada. During their autumn migration most stop-over to feed on the coasts of western Iceland before continuing to inlets with *Zostera*, mainly in Ireland. Since

a low point in the 1950s, and particularly in the last three or four decades, the population of this race of geese has increased considerably (Robinson *et al.*, 2004). In recent years, a few Brent Geese have been seen in Foryd Bay as early as the last few days of August and by mid-September some counts have been over 150 (Cambrian Bird Reports). The timing of arrival implies that as the population has grown some Brent Geese travel direct to the more southerly locations which they previously exploited only later in the winter. Brent Geese have a theoretical capability to travel over 3,000km between places where they need to stop to feed (Clausen *et al.*, 2002). Although they graze primarily on plants that are available to them only at low tide, Brent Geese also ingest other plants at the edge of the sea during high-water periods. The autumn migration coincides with the period when *A. praecox* seeds are ripe, so on rare occasions endozoochory by wildfowl might have brought enough viable seeds beyond the historic distribution range of *A. praecox* to establish a small southern outlier population.

References

- Clausen, P., Nolet, B.A., Fox, A.D. & Klaassen, M. 2002. Long-distance endozoochorous dispersal of submerged macrophyte seeds by migrating waterbirds in Northern Europe – a critical review of possibility and limitation. *Acta Oecologica* 23: 191–203.
- Mueller, M.H. & van der Valk, A.G. 2002. The potential role of ducks in wetland seed dispersal. *Wetlands* 22: 170–178.
- Richards, J. 2015. Identification of *Atriplex praecox* (Early Orache). *BSBI News* 128, January 2015, pp. 13–14.
- Robinson, J.A., Colhoun, K., Gudmundsson, G.A., Boertmann, D., Merne, O.J., O'Briain, M., Portig, A.A., Mackie, K. & Boyd, H. 2004. Light-bellied Brent Geese *Branta bernicla hrota* (East Canadian High Arctic population) in Canada, Inland Iceland, France, Greenland, Scotland, Wales, England, the Channel Islands and Spain 1960/61–1999/2000. *Waterbird Review Series*. The Wildfowl & Wetlands Trust/ Joint Nature Conservation Committee, Slimbridge.
- Taschereau, P.M. 1977. *Atriplex praecox* Hülpfers: a species new to the British Isles. *Watsonia* 11: 195–198.
- Taschereau, P.M. 1985. Taxonomy of *Atriplex* species indigenous to the British Isles. *Watsonia* 15: 183–209.

E. Ivor S. Rees

Lahti, Mount Street, Menai Bridge, Anglesey
LL59 5BW
ivorerees@hotmail.com

Atriplex praecox (Early Orache) a new native species to Ireland in 2017

PAUL R. GREEN

A *triplex* (oraches) are notoriously difficult to identify and very plastic in diagnostic features. This is the likely reason why *Atriplex praecox* (Early Orache) had been overlooked in Ireland.

I was recording for the BSBI *Atlas 2020* project in south-west Kerry, seeing if I could refine an old record for *Carex punctata* (Dotted Sedge), on the south shore of Valentia Island, opposite the town of Portmagee on the mainland, but the *Carex* evaded me, as I had expected it would. Instead, I came across *Atriplex* that were growing along the top of the shore. As it was 5th August it was just too early in the season to safely put a name to what I was seeing. Indeed, none of the *Atriplex* had any fruits yet formed, having only buds or just starting to flower. About 200m north-west along the shore from Maurice O'Neill Memorial Bridge, which joins the island to the mainland, I came across a stand of over 100 plants of a small prostrate reddish *Atriplex*, growing on the rocky pebble beach. These plants were already in fruit.

What struck me was how small all the plants were; not a single plant was more than 12 x 10cm across and no taller than 5cm. The leaves were much thicker than I had seen in other *Atriplex* species. The bracteoles were joined at the very base. As it was a very sunny day, the bracteoles were almost transparent, and had the appearance of looking through red-stained glass. It was also clear that at some stage the plants had the sea over them as there was debris stuck to the plants.

Distribution in the UK

England

Known from four vice-counties on the very north-east coast from NE Yorks (v.c.62) to Cheviot (v.c.68).

Scotland

Known from nearly all the coastal vice-counties on the west side, including Outer Hebrides (v.c.110), and in the very north on Shetland (v.c.112). On the east side of Scotland reported only from E. Ross (v.c.106) and E. Sutherland (v.c.107).



Looking east on Valentia Island with *A. praecox* in the foreground, in 2017. Paul R. Green

Wales

After posting photos of my Irish finds on social media, Ivor Rees realised he also had *A. praecox* on Anglesey (v.c.52). A new native species to Wales. See page 24.

Current distribution in Ireland

South Kerry (H1)

South shore of Valentia Island, over 100 plants at V37647373, 5th August 2017. Another 15 plants found further along the shore, seen by John Diggin at V378737, 30th September, confirmed by PRG.

Co. Wexford (H12)

Scattered along the south shore of Lady's Island Lake, Rostonstown, T00, 22nd August 2017. This site is unusual as the lake is brackish and the population of *A. praecox* is cut off from the sea. The water level of the lake does fluctuate with the rising tides. On a windy day the lake also has waves battering the shore.

Rocky shore of Wexford Harbour, Drinagh, T05961869, 30th August 2017. Found while with Frankie Tennant and Roy Watson.



A. praecox growing on the shore of Valentia Island.
Paul R. Green

Sandy beach, Wexford Harbour, Ballytramon,
T04202502, 31st August 2017.

Abundant on shore, Wexford Harbour, Artramon,
T03472567, 31st August 2017. The largest population
in Co. Wexford.

Several along strand, Wexford Harbour, Strandfield,
T05871913, 2nd September 2017.

W. Mayo (H27)

Plentiful on rocky shore, Roman Island, Westport,
L97288463, 17th September 2017.

Overview of the Irish populations of *A. praecox*

All the Irish populations grow at a lower level on the beach than any other species of *Atriplex*, usually below the very high tide-level. The sites are all in areas that are sheltered from the open sea, and on pebble-rocky or shingle beaches or on a substrate of small pebbles and sand. The plants are all small, the same colour, best described as reddish-purple. *A. praecox* bracteoles are fused only at the base, and are much easier to open than those of other species of *Atriplex* and their hybrids. It is the only species which has bracteoles transparent on a sunny day. The leaves are much thicker in texture than all other species of *Atriplex*.

Now that *A. praecox* has been brought to the attention of Irish botanists, hopefully it will be found in many other sites around the Irish coast, ready for the publication of *Atlas 2020*.

Paul R. Green

Yoletown, Ballycullane, New Ross, Co. Wexford,
Y34 XW62

Lepidium latifolium (Dittander) turns up in Co. Waterford after being absent for 271 years in its old haunt

PAUL R. GREEN

I was taking a look at Twitter and happened to notice that Sam Thomas had put up photos of *Lepidium latifolium* (Dittander) at Kinsalebeg, Co. Waterford. I was surprised as I knew that for a very long time it had been extinct in Co. Waterford!

In 1746, the book *The Ancient and Present State of the County and City of Waterford* by Charles Smith was published. It mentions that *L. latifolium* is 'in the parish of Kinsalebeg, near the east side of Youghal harbour'.

There has been no other mention of *L. latifolium* from the county since. This is also the earliest published date for *L. latifolium* in Ireland.

L. latifolium has always been a very rare species in Ireland, recorded from just 11 out of the 40 Irish Vice-counties. South Kerry (H1) has had no records reported since Smith (1756), the same finder as the Co. Waterford record. There are records for vice-counties Limerick (H8), Wexford (H12), Wicklow (H20) and

Sligo (H28), but all these date back over 50 years. The only Vice-counties with extant populations are West Cork (H3), Mid Cork (H4), East Cork (H5), Dublin (H21) and Derry (H40). The sites from Co. Cork are all coastal. In Co. Dublin there is a healthy population along the Royal Canal, and in Co. Derry, *L. latifolium* grows along a 4m stretch of road bank.

Even though I have walked much of the coast of this estuary in search of the *L. latifolium* since 1997, I had not walked where Sam found the plants, always thinking it must be somewhere near the ruins of the monastery, which isn't far from the current population.

The following day, 25th July, after seeing Sam's photos on Twitter, I went and took a look. There were two patches on the tidal bank of the estuary, several metres apart. A sewage treatment plant had been put in, sometime within the last 20 years. A raised bank had been built up with a mixture of rubble, large chunks of concrete and other materials, most of which is now overgrown with brambles and other shrubs. This is the only part of the estuary where there is a raised bank, as all the other fields are grazed to the water margin, which then becomes saltmarsh at low tide.

There are three likely scenarios. The plants were brought in with the rubble to make the raised bank. This seems very unlikely, owing to the rarity of the species in Ireland. The plant has always been there, and over-looked or not reported if seen. The disturbance of the river bank to put in the sewage plant brought buried seed to the surface, which subsequently germinated. Whichever way, *L. latifolium* returned; it is great to have it back in the county!

Acknowledgement

I would like to thank Dave Riley for providing information on the Co. Derry site and for checking that it was still there, and Sam Thomas for providing a map reference so I could find the *L. latifolium*.

Reference

Smith, C. 1746. *The Antient and Present State of the County of Kerry*.
Dublin.

Paul R. Green

Yoletown, Ballycullane, New Ross, Co. Wexford,
Y34 XW62



Lepidium latifolium on tidal bank of estuary, looking south, in 2017. Paul R. Green



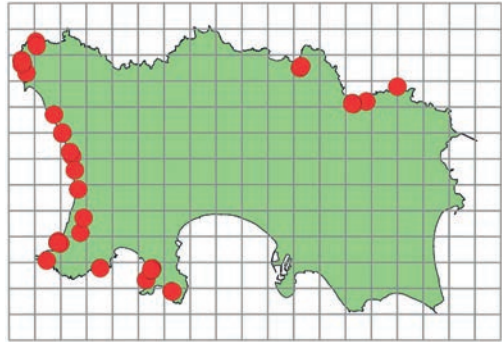
Lepidium latifolium in flower. Paul R. Green

Observations on the frequency of host plants of *Cuscuta epithymum* (Dodder) in Jersey

ANNE HADEN, TIM WRIGHT & DAVID SHIMWELL

For the past two years a project mounted by the Durrell Wildlife Conservation Trust during its Gerald Durrell Jersey Week has collected information on the frequency of the host plants parasitised by *Cuscuta epithymum* (Dodder), a plant which remains relatively common in Jersey. In her delightful *Flora of Jersey* (1984), Frances Le Sueur remarked that the plant was a 'locally common parasite particularly on Gorse which it festoons and sometimes almost engulfs with its threadlike stems and small pink spherical flower clusters'. Closer observations revealed that most, if not all, of the flower clusters were inward-facing, into the bulk of its host, beneath the tangle of its stems, forming a superficial net that caught the morning dew from the sea-mist. The fact that the stems of *C. epithymum* could themselves be parasitised by the larvae of two species of weevil, *Smicronyx coecus* and *S. jungermanniae* (Redfern *et al.*, 2002), recommended the project as the type of basic entomological investigation undertaken by the young Gerald Durrell and his mentor, Theodore Stephanides, in Corfu during the 1930s.

It was partly the following comments of Le Sueur which first stimulated the investigation: 'Other host plants include Woodsage, Lady's Bedstraw, Bell Heather, Red Bartsia, Lucerne and Bracken. No special search has been made for its hosts.' Also, an analysis of photographs of 19th century herbarium specimens from the island, published in *Herbaria United*, confirmed *Teucrium scorodonia* (Wood Sage) and *Erica cinerea* (Bell Heather) as hosts, and added *Veronica chamaedrys* (Germander Speedwell) and *Cytisus scoparius* ssp. *maritimus* (Prostrate Broom). Additional sources from Alderney identified *Thymus polytrichus* (Wild Thyme), *Lotus corniculatus* (Common Bird's-foot-trefoil), *Ononis repens* (Common Restharrow) and *Eryngium maritimum* (Sea-holly) as hosts. Finally, a recent record (by AH) of *C. epithymum* growing on *Galium saxatile* (Heath Bedstraw) in cliff-top grass-heath, at La Touraille, St Mary, WV607554, in June 2017, suggested that the parasite might still be widespread in suitable plant communities of maritime heath and grass-heath, and acidified dune systems.



Cuscuta epithymum records on Jersey, 2010–2016 on a 1km grid. Tim Wright

Initially, the project investigated the frequency of hosts at Les Landes SSI and Ouaisné Common SSI. In each locality, 30 discrete Dodder infestations were selected and the host(s) recorded. In many situations only one host was affected, but in others, the plant spread over two adjacent species, notably in the



Cuscuta epithymum at Les Landes (inset shows detail). Tim Wright



Cuscuta epithymum on *Galium saxatile*. Tim Wright

hummocky vegetation of the maritime heathland at Les Landes. In such samples, both species were recorded and thus the frequency values exceed the number of samples.

Les Landes Maritime Heathland, WV546563

Low tussock heathland, 0.2–0.3m tall, with occasional *Ulex europaeus* at 0.8m.

Host frequency: *U. gallii* (Western Gorse) 22; *Calluna vulgaris* (Heather) 12; *E. cinerea* 6; *U. europaeus* 1.

C. epithymum was not recorded on any other species in the heathland or in grass-heath mosaics, including *Armeria* (thrift) species, *Rubus fruticosus* (Bramble), *T. scorodonia* and 30 samples of *Thymus polytrichus*.

Ouaisné Common Dune Scrub, WV594476

Gorse scrub on stabilised hind-dunes, 1.0–2.0m tall.

Host frequency: *U. europaeus* 29; *Pteridium aquilinum* (Bracken) 1.

The populations of *C. epithymum* were predominantly found on *U. europaeus* at heights ranging from 1.0 to 1.5m.

Already under way, the second phase of the project is designed to record:

- (a) the distribution of Dodder in Jersey when compared with the maps Le Sueur published over 30 years ago (1984);

- (b) whether the present distribution of Dodder on different host plants is still as diverse as that recorded by Le Sueur;
- (c) whether Dodder is primarily found on hosts characteristic of the maritime Atlantic heaths and grass-heaths within the coastal aerohaline zone of onshore salt-laden winds.

Falling within the traditional overview of the BSBI, Jersey and the other Channel Islands would seem to be a region which remains a stronghold for *C. epithymum*, a species which has a negative 1930–99 change index of –1.28 (Preston *et al.*, 2002). It seems that this impression and an insight into the environmental and cultural factors responsible for its decline might be tested by mounting a nationwide survey of host plants, similar to the successful survey of *Viscum album* (Mistletoe) overseen by Franklyn Perring in the winter of 1969–70 (Perring, 1973); repeated in the BSBI/Plantlife survey some 20 years later (Briggs, 1996).

References

- Briggs, J. 1996. Mistletoe – distribution, biology and the National Survey. *British Wildlife* 7(2): 75–82.
- HerbariaUnited The webpage of the Botanical Collection Managers Group (BCMG), a specialist group of the Linnean Society of London. <http://herbariaunited.org>
- Le Sueur, F. 1984. *Flora of Jersey*. Société Jersiaise.
- Perring, F.H. 1973. Mistletoe. In: P.S. Green (ed.) *Plants Wild and Cultivated*, pp 139–145. E.W. Classey, Hampton.
- Preston, C.D., Pearman, D.A. & Dines, T.D. 2002. (eds.) *New Atlas of the British and Irish Flora*. Oxford University Press, Oxford.
- Redfern, M., Shirley, P. & Bloxham, M. 2002. British Plant Galls. Identification of Galls on Plants and Fungi. *Field Studies* 10: 207–531.

Anne Haden

BSBI Recorder for Jersey
hadenanne@gmail.com

Tim Wright

Manager, Conservation Academy, Durrell Wildlife Conservation Trust
tim.wright@durrell.org

David Shimwell

Botanical Consultant, Durrell Wildlife Conservation Trust
shimwell44@tiscali.co.uk

Rosa villosa L. in Shropshire, second British record

ROGER MASKEW

In 1997, Kate Thorne, at the time county recorder for Shropshire, collected a rose from Rhos Fiddle (SO2985) which was determined as *R. mollis*. Along with other species of roses she had had determined during this decade, she grew this plant on in her garden at Pulverbatch. This year, during Kate's rose identification meeting at the garden, using the new rose key (Maskew, 2017b), Mark Kitchen thought that the rose in question appeared to be *R. villosa* L. (Villous Downy-rose). Kate then contacted me and sent a sample of the bush, and I was able to confirm the specimen as *R. villosa*.

I visited the site on 20th September and found scattered bushes along a lane bank to the west of the Rhos Fiddle NR from SO199852 to SO204857, where the main associates were *Pteridium aquilinum* (Bracken), *Prunus spinosa* (Blackthorn) and *Crataegus monogyna* (Hawthorn). It was also present in the opposite hedge, but it was not possible to gauge to what extent as this had recently been severely cut. There was no evidence that *R. villosa* had hybridised with any of the other

species present – *R. canina*, *R. squarrosa*, *R. corymbifera*, *R. vosagiaca* and *R. sherardii*.

As my visit had been a relatively short one, I decided to re-visit the area a week later. To my astonishment, some 2km east of Rhos Fiddle, I found an even larger population in lane hedges on the east side of Bicton Hill. The hedges on both sides of the lane had been trimmed, but fortunately not as severely as at the original site and I found many scattered bushes between SO219850 and SO223853.

This district of south-west Shropshire, below the Kerry Ridgeway on the Welsh border, is a remote rural spot with very little habitation. The somewhat strewn-out irregular distribution of bushes at both sites gives no indication that they could have been planted, so at present there is no obvious explanation for the presence of *R. villosa* here. Although we know it has been present at Rhos Fiddle since 1997, there is also an earlier unconfirmed 1982 record for *R. mollis* from the site, which must refer to *R. villosa*. It so happens



Rosa villosa. Roger Maskew

that during my visits to the area, including a third one in early October to an adjacent district, I found only a single bush of the closely related *R. mollis*, at Cefn Einion (SO2886), some 6km east of Rhos Fiddle.

At present I am investigating the possible former presence of *R. villosa*, which in the past was called *R. pomifera* Herrm. (Apple Rose), elsewhere in Britain, but so far as I am aware there are no previous records for Shropshire.

The above taxonomy follows the recent changes (Maskew, 2017a).

References

- Maskew, R. 2017a. Recent taxonomic and nomenclatural changes in *Rosa* L. *BSBI News* 135: 46.
 Maskew, R. 2017b. New dichotomous key to native and alien species of *Rosa* L. *BSBI News* 135: 47–48.

Roger Maskew

Coppice House, Bannals Lane, Stoke Bliss,
 Worcestershire WR15 8RZ

The names of dog-roses (*Rosa* sect. *Caninae*)

ROGER MASKEW & CLIVE STACE

The current concept of species limits in the British dog-roses has evolved over more than a century. There is no need to dwell on that history now, but the classification found in all our recent floras and flower guides essentially dates from the first major post-Wolley-Dod treatment by Warburg in the first edition of CTW (*Flora of the British Isles*, 1952). Warburg used a few names differently from those now in use, and wrongly included an extra species, *Rosa elliptica*, but otherwise his account looks very familiar to modern botanists. The other major development has been the recognition that hybrids are very frequent, many of them having been previously treated as varieties of our ten species. This realisation should be primarily attributed to Melville (*Hybridization and the Flora of the British Isles*, 1975). The Warburg-Melville concept was developed and modified by Graham & Primavesi (*Roses of Great Britain and Ireland*, 1993), to give us our present system.

This evolution was, however, developed in Britain largely in isolation from advances made on the Continent. This has resulted in rather important differences between floristic accounts produced in Britain compared to those on the Continent. This was brought to the fore by the publication of *De Wilde Rozen (Rosa L.) van Nederland* by Bakker, Maes & Kruijer (Supplement to *Gorteria* 35, 2011). This is essentially the Dutch equivalent of Graham & Primavesi's BSBI handbook. It follows the German concept of dog-rose species, which is probably the dominant authority on the Continent and neatly highlights the British-Continental differences. To summarise, the German-Dutch system

recognises 17 rather than the ten species we recognised in Britain. The account by Klášterský in *Flora Europaea* 2 (1968) follows the Continental approach, but recognises 20 species in the British flora. These increases of seven or ten species over those currently accepted in Britain are due to (a) narrower species limits, resulting in splitting, and (b) the recognition of certain hybrids as species.

It seems counter-productive for two different systems of classification to exist for essentially the same taxa; conformity in treatment would lead to a more stable classification that would enable much better communication and comparative studies among European rose experts. To achieve this it is clear that compromise is required, and that a consensus can be attained only by discussion between the different parties involving both theory and practice, and a common desire to create a more widely acceptable classification.

To this end, the authors contacted the Dutch rose experts Piet Bakker and Bert Maes to suggest reciprocal visits to our respective dog-rose populations, since the first thing to establish was whether or not the Dutch and British taxa were essentially the same. They readily agreed, and two-day reciprocal visits (to the extensive Dutch fixed dunes and to Worcestershire) took place in August 2014. Our trip was generously funded by a grant from the BSBI's Science and Research Subcommittee, to which we offer our sincere thanks. After three years of discussion, extensive research of the literature, and communication with many botanists in western Europe, as far east as Hungary, we have produced our report: *Dog-roses (Rosa sect. Caninae): towards a consensus taxonomy*.

Over this period it became clear that:

- While there are differences between the dog-rose floras of Britain and the Continent (e.g. the presence in the Netherlands of *R. elliptica* and the absence there of *R. stylosa*), the general situation is the same, and Dutch and British botanists found themselves at home and abroad equally able to identify the dog-roses present. Differences in the classification are due to the divergent subjective opinions of the experts, not to different floras.
- This leads to the belief that a consensus classification should be possible.
- The enormous amount of research, much of it using modern techniques, that has been carried out especially in Sweden, Germany, the Netherlands and Belgium, has not been replicated, nor scarcely acknowledged, in Britain, with the result that our understanding of dog-rose evolution and classification lags well behind.
- Consensus demands compromise, i.e. the adoption of fresh ideas and the dropping of others by each side. The most obvious route to such a classification is that in Britain we adopt a slightly narrower

species concept (relevant to *R. canina*, *R. caesia* and *R. villosa*, leading to a total of 13 rather than ten species), and on the Continent hybrids are recognised formally, e.g. *R. × suberectiformis*, rather than *R. pseudoscabriuscula* for *R. sherardii* × *R. tomentosa*.

Our full conclusions are set out in our report *Dog-roses (Rosa sect. Caninae): towards a consensus taxonomy* by Bakker, Maes, Maskew & Stace, November 2017, which includes three tables, one listing all known hybrids involving dog-roses (72 in Britain, plus ten not recorded in Britain). A summary of the main taxonomic consequence and a new key have been provided by R.M. in *BSBI News* 135: 46–48 (April 2017), but it is our report that provides the reasoning behind the changes. This report is available at <http://bsbi.org/dog-roses-towards-a-consensus-taxonomy>.

Roger Maskew

Clive Stace

cstace@btinternet.com

Morphological variation in *Rumex longifolius* (Northern Dock)

BERND SONNBERGER

R*umex longifolius* (Northern Dock) is a taxon of probably hybrid origin with the putative parents *R. aquaticus* (Scottish Dock) and *R. crispus* (Curled Dock) (Kubát, 1990). Its general distribution is northern-eurasian to circumpolar with, not always unambiguously indigenous, occurrences in Greenland, Alaska, Canada and the north-east USA. The native distribution in Europe includes, besides the north European main range (northern Russia, Scandinavia, Scotland, north of England and Iceland), two disjunct areas in northern Spain (Pyrenees and Cantabrian Mountains) and the Massif Central in France (Jalas & Suominen, 1988). Moreover, possibly native populations occur in the Swiss Alps (Engadin), where they have over several decades presumably been mistaken for *R. crispus* (Adler, 1992).

In spite of its ruderal preferences, *R. longifolius* has been only sporadically noticed as an alien until the

end of the first half of the 20th century (Rechinger, 1990). Shortly afterwards, the species became invasive almost exclusively in higher upland ranges, unlike most Central European neophytes. The history of its expansion is fairly well documented for the Czech Republic (Kubát, 1984a, 1984b), where *R. longifolius* has within a few decades colonised the ranges bordering Bohemia (Krkonoše, Jizerské Hory, Krušné Hory (Ore Mountains) and Šumava (Bohemian Forest)). Kubát (1984b) assigns practically all introduced populations to a discrete ssp. *sourekii* K. Kubát, which he newly describes from the Krkonoše mountains. It differs from the nominal subspecies (see below) in its broader (length/width ratio 2:3) and less undulate basal leaf blades (Fig. 1). Kubát assumes the possible area of origin to be in Russia, where morphologically similar plants were noticed in the surroundings of Moscow and Vladimir. Remarkably, in the Bohemian Forest



Figure 1. From left to right: basal leaves of *R. longifolius* ssp. *sourekii* (locality 1), *R. longifolius* ssp. *longifolius* (locality 2) and *R. longifolius* s. l. (locality 3). Bernd Sonnberger



Figure 2. Upper row, from left to right: valves of *R. longifolius* ssp. *sourekii* (locality 1), *R. longifolius* ssp. *longifolius* (locality 2), *R. longifolius* s. l. (locality 3); lower row, from left to right: *R. x propinquus* (locality 4), *R. patientia* (locality 5). Bernd Sonnberger

both infraspecific taxa occur. The nominal subspecies grows here in the German part of the mountain range (commonly called ‘Bavarian Forest’) just a few kilometres apart from a population of ssp. *sourekii* located on the Czech side of the border (Sonnberger, 2017).

Variation in leaf shape also occurs in the native range of *R. longifolius*, where a distinct geographical pattern was observed (Jalas & Lindholm, 1975; Holm & Korpelainen, 1999). Plants from central and south-east Scandinavia and adjacent Russia have narrow and strongly undulate basal leaf blades (length/width ratio > 4), in contrast to the broader and less undulate blades of plants from the west (Pyrenees, France, Iceland, Denmark) and north (Scandinavia north of 67°). Adopting an infraspecific concept, the broad-leaved north-western taxon should be identified as the nominal subspecies, because the original description of *R. longifolius* by De Candolle in 1815 was based on material from the Pyrenees. Its typical length/width ratio of the basal leaf blades may be assumed as ranging from 3 to 4, which is the figure given in modern floras encompassing the Pyrenees (Castroviejo *et al.*, 1990; De Bolòs *et al.*, 2000). On the other hand, the narrow-leaved, south-eastern plants represent, perhaps, another, hitherto undescribed infraspecific taxon (subspecies or variety).

In contrast to information found in most floras (e.g. Stace, 2010; De Bolòs *et al.*, 2000; Webb & Reching, 1964), the fruiting inner perianth-segments (valves) of *R. longifolius* may develop small tubercles up to 1 × 0.5mm (Castroviejo *et al.*, 1990; Kubát, 1990; Fig. 2, upper left valve). Unfortunately, the presence or absence of tubercles on the valves is commonly used in identification keys as a determining feature, thus rendering a proper assignment of such callous forms impossible. Although according to Kubát (1990) tubercles may show up in the nominal subspecies as well as in ssp. *sourekii*, my personal observations

have revealed their presence practically exclusively in the latter.

Taking into account the supposed hybrid origin of *R. longifolius*, the development of rudimentary callosities on the valves is not surprising. It probably reflects some atavistic manifestation of *R. crispus* genes normally suppressed by dominant genes of *R. aquaticus*, but not an introgression of another species. Callosities resulting from introgression as in *R. x propinquus* Aresch (*R. longifolius* × *R. crispus*), or occurring in similar, 'truly' tubercle-valved species like *R. patientia* L., are always distinctly larger than 1 × 0.5mm (Fig. 2, lower valves).

A recently discovered population of *R. longifolius* near St Anton, in Austria (locality 3), is most likely the result of a secondary spreading down the upper Inn valley from the (possibly) native area in the Swiss Engadin. The material seen seems to have somewhat narrower and more undulate basal leaf blades than the nominal subspecies (Fig. 1), thus approaching the south-east Scandinavian type. In order to verify this observation, and to assess the taxonomical status of the latter, a closer examination of the Austrian population is planned for 2018. In this context it would be very helpful to see material from the native range of *R. longifolius*, e.g. northern England or Scotland. Any pertinent information, such as herbarium specimens or scaled images showing the characteristic features of valves and basal leaf blades, would be greatly appreciated.

Description of localities mentioned in the text

Locality 1

Czech Republic, Šumava (Bohemian Forest), road verge in the village Špičák north of Železna Ruda, 830m; *Rumex longifolius* ssp. *sourekii*, leg. B. Sonnberger 15/07/2017.

Locality 2

Germany, Bavarian Forest, road verge north-east of the settlement Brennes, 1,040m; *Rumex longifolius* ssp. *longifolius*, leg. B. Sonnberger 16/07/2017.

Locality 3

Austria, North Tyrol, meadow near the summit station of the cable car Gampenbahn above St Anton, 1,860m; *R. longifolius* s. l., leg. S. E. Fröhner 25/08/2017.

Locality 4

Germany, Bavarian Forest, road verge south of the settlement Brennes, 1,050m; *R. x propinquus*, leg. B. Sonnberger 06/08/2016.

Locality 5

Slovak Republic, Bratislava, wasteland south of Karlova Ves, ca. 140m, *Rumex patientia*, leg. B. Sonnberger 23/08/2017.

References

- Adler, W. 1992. Ist *Rumex longifolius* (Polygonaceae) in den Alpen doch heimisch? *Verhandlungen der Zoologisch-Botanischen Gesellschaft in Österreich* 129: 153–158.
- Castroviejo, S., Laínz, M., López González, G., Montserrat, P., Muñoz Garmendia, F., Paiva, J. & Villar, L. 1990. *Flora Iberica* Vol. II. Real Jardín Botánico, Madrid.
- De Bolòs, O., Masalles, R.M., Vigo, J. & Ninot, J.M. 2000. *Flora Manual dels Països Catalans*. Pòrtic Natura, Barcelona.
- Holm, Ch. & Korpelainen, H. 1999. Geographical differentiation of *Rumex longifolius*. *Nordic Journal of Botany* 19: 15–22.
- Jalas, J. & Lindholm, K. 1975. Biosystematics of *Rumex longifolius* DC. of Fennoscandia and the Pyrenees. *Anales del Instituto Botanico A. J. Cavanilles* 32(2): 197–202.
- Jalas, J. & Suominen, J. 1988. *Atlas Florae Europaeae*, vol. 2. Cambridge University Press.
- Kubát, K. 1984a. Bemerkungen zur Verbreitung von *Rumex longifolius* DC. in der Tschechoslowakei. *Acta Botanica Slovaca Academiae Scientiarum Slovaca*, Ser. A, Suppl. 1: 149–152.
- Kubát, K. 1984b. Bemerkungen zu einigen tschechoslowakischen Arten der Gattung *Rumex* s. str. *Preslia* 57: 205–217.
- Kubát, K. 1990. *Rumex* L. In: Heyny, S. & Slavík, B.: *Květena České republiky* 2: 311–322. Praha.
- Rehinger, K.H. 1990. Zwei kritische *Rumex*-Arten, *R. longifolius* DC. und *R. aquilanicus* Rech. f., und ihre Verbreitung. *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 111: 347–364.
- Sonnberger, B. 2017. Zwei Sippen von *Rumex longifolius* DC. im bayerisch-böhmischen Grenzgebirge. *Berichte der Bayerischen Botanischen Gesellschaft* 87: 187–190.
- Stace, C. 2010. *New Flora of the British Isles* (3rd ed.). Cambridge University Press.
- Webb, D.A. & Rehinger, K.H. 1964. *Rumex* L. In: *Flora Europaea*, Vol. 1: 82–89. Cambridge University Press.

Dr Bernd Sonnberger

Am Wallersteig 13, D-87700 Memmingen,
Germany
familie.sonnberger@t-online.de

Ambiguity in recording *Centaurea* (knapweeds) taxa using MapMate

KEN ADAMS

Now that most people are taking the trouble to record their *Centaurea* (knapweeds) critically, the plethora of alternative names for the same entities is causing real ambiguity in recording them on MapMate. These are set out in the diagram (below) with their alternative names. The problem arises with the names *C. nigra* and *C. debeauxii*. Does the former as a record infer *C. nigra* s.s. as opposed to *C. debeauxii* or does it mean the recorder has not discriminated the two? Since the two appear interfertile anyway, they are probably not worthy of recognition at species level, so in Essex we have resolved the problem by just using the three names in red, making sure that all un-discriminated material is recorded as *C. nigra* agg. That way there is no ambiguity, and we end up with three maps instead of eight! Unfortunately, the only name available on MapMate for the definite intermediate is *C. nigra* x *debeauxii*.

A third taxon *Centaurea jacea* was thought to be absent in the UK by 2015 (Stace & Crawley), but in

Essex we still have populations (with intermediates) at Shoeburyness and Clacton. Since this is inter-fertile with the others, perhaps it should really be called *C. nigra* var. *jacea*, but only *C. jacea* is available on MapMate. The *C. nigra* s.l. x *jacea* hybrid is available as *C. x gerstlaueri*. Distribution-wise, in Essex, *C. nigra* var. *nemoralis* is the usual one, with no apparent preference for chalk, and *C. nigra* var. *nigra* is thinly scattered with very few intermediates.

Reference

Stace, C.A. & Crawley, M.C. 2015. *Alien Plants*. (p.328) William Collins, London.

K.J. Adams

63 Wroths Path, Loughton, Essex IG10 1SH

ken.adams@virgin.net



Phyllaries of the three *Centaurea* agg. taxa from Essex plants. Ken Adams

Epipactis hybrids in the UK with particular reference to *E. x stephensonii*

RICHARD MIELCAREK

Although *Epipactis* (helleborines) species are widespread in the UK, and a number of sites host more than one species, hybrids between them are rare. The recent BSBI *Hybrid Flora of the British Isles* (Stace *et al.*, 2015) mentions only three different combinations: *E. x schmalhauseni*, the hybrid between *E. helleborine* (Broad-leaved Helleborine) and *E. atrorubens* (Dark-red Helleborine); *E. x schulzei*, the hybrid between *E. helleborine* and *E. purpurata* (Violet Helleborine); and *E. x stephensonii*, the hybrid between *E. helleborine* and *E. leptochila* (Narrow-lipped Helleborine).

E. x schmalhauseni was described in Richter (1890), but the first confirmed UK record was not until 2005 from Hutton Roof Crags. It is now confirmed from three sites, with the colony at Hutton Roof Crags currently thriving, see <http://epipactisatorubens.blogspot.co.uk> for details.

E. x schulzei was described in Fournier (1928), with the first UK record shortly afterwards in 1932. During the last three decades, however, the only records have all occurred in the last seven years from four different, widespread sites, with plants at two of those persisting for the last three years. Further details, including the results of DNA analysis from one site, are given in Mielcarek (2017).

Both the above hybrid combinations involve two allogamous parents and the resulting hybrids are also cross-pollinating and apparently fertile, with some evidence of back-crossing. The identification criteria for both of the above hybrid combinations are covered in the BSBI *Epipactis* crib (available as a download from the BSBI website).

E. x stephensonii

The final combination mentioned is *E. x stephensonii*, the hybrid between the allogamous *E. helleborine* and the autogamous *E. leptochila*. This is described in Godfery (1933) based on plants from both Surrey and Gloucestershire, but these records were dismissed by Young in Stace (1975). We therefore have the strange situation of a hybrid described from the UK but with no recognised records from the UK. The flowers of the

Surrey plants were never seen, having been cut, and the identification as a hybrid was based purely on the leaves being like *E. helleborine* but the plant having several stems.

Godfery (1933) describes the Gloucestershire plants as 'generally speaking the hybrids are tall and robust with *latifolia*-like leaves, broader and less acuminate sepals, broader triangular epichile, standing straight out and not recurved at the tip'. Although Godfery attributes this description to Salmon (1921), that article only mentions 'in some specimens the sepals were much broader and less acuminate than one would expect in any form of *viridiflora* (c. 14mm long by 6mm broad); it is possible that these were hybrids with *E. latifolia* which grew with them'. Salmon (1921) is mainly concerned with confirming plants from v.c.c.33, 34 and 35 as being of the recently described *leptochila*, at that time a variant of *E. viridiflora*. Godfery (1933) also quotes Mr T.A. Stephenson's examination as relating to the hybrid, but Salmon (1921) only says that Stephenson examined 'one of the larger examples', so not necessarily one of the possible hybrids.

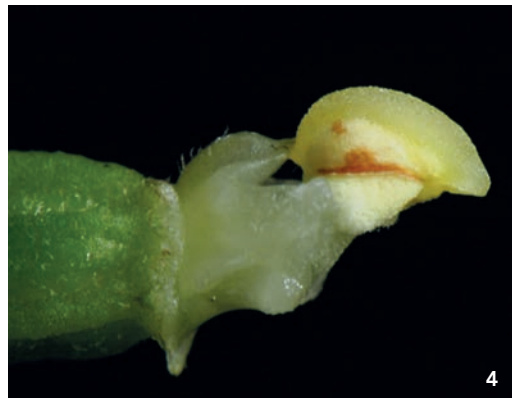
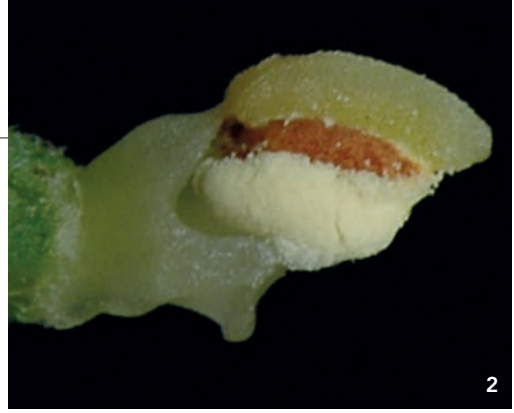
Variability of parents

E. helleborine is well known as being very variable, but maybe less well known is how much variation there is between *E. leptochila* populations. This variability has been studied in Germany, for example, see Reineke & Rietdorf (1989), which concluded that *E. x stephensonii* could not be defined, and Reinhardt & Richter (2006), which included photos of *E. leptochila* with a rudimentary viscidium.

Figs. 1–4 show the differences in lip shape and column structure between two UK populations which are only four miles apart. This level of variability in both potential parents means it is hard to understand where the limits of either parent ends and where any evidence of a hybrid influence might start.

Situation on the Continent

This hybrid combination has been described from Germany: Rube & Heise (1976) reported on three or four plants found in East Hessen in 1973 and present



Figures 1–4. *E. leptochila* from the UK. In the top pair, from one site, note the ‘heart shaped’ lip, the lack of an anther gap and the shape of the rostellum. In the bottom pair, from another site, note the different lip shape, the presence of an anther gap and a different shape to the rostellum. *E.J. Spencer*

in subsequent years. Their short article said the hybrids were intermediate between the parents in size, leaves and flowers, including the perianth segments and colour. A colour photograph of the flowers included as part of the article showed a pink, slightly reflexed epichile, with a dark pink base to the bosses, a reddish hypochile, green sepals and pinkish petals (J. Reinhardt, pers. comm.). In particular, they say the rostellum was partly formed, as in *E. helleborine*, and partly missing, as in *E. leptochila*, although no explanation or illustration as to what it looked like is provided.

Although a later article (Reinhardt, 1986) claimed the hybrid from Eichsfeld in 1985, the author now thinks these plants were more likely to be extreme forms of *E. leptochila* rather than hybrids (J. Reinhardt, pers. comm.).

There are photographs from Germany on the internet labelled as being this hybrid combination: from Bavaria in August 1996 and in July 1998 from a second site, and from Baden-Wurtemberg in July 2016. At least one of the continental field guides has a photo of this hybrid (Kretzschmar, 2013). However, there are no details as to how any of these plants were confirmed as hybrids, and the images are not detailed enough to ascertain the fine detail of the column,

etc., although many of the images show an obvious viscidium.

I also found reference to records from France in 1989, 1996, 1997 (where the difficulty of eliminating *E. leptochila* var. *neglecta* is mentioned), 2007 and 2010–12, while the Kew World Checklist mentions it occurring in Belgium and Austria. The Swiss Orchid Foundation at the Herbarium Jany Renz has a specimen collected at Kt. Bern, Freiberge on 6th August 1975 (reference RENZ 10983).

Identification

If you are lucky enough to find an odd-looking plant in the UK that you think might be the result of this hybrid combination, how could you confirm the identification? With great difficulty, apparently! Unfortunately, no large-scale morphometric data studies have been conducted on *Epipactis* species and I understand that the DNA analysis techniques that are currently readily available are unable to distinguish this combination (R. Bateman, pers. comm.). It is hoped that next-generation sequencing may prove more productive, but this technique is currently too expensive for individual identifications. So you are left with taking plenty of

photographs, notes and measurements, studying the plants over a number of years, and hoping that future studies will allow this combination to be accurately determined.

I would like to thank Jurgen Reinhardt for providing the various German articles and his current thinking on the subject, Les Lewis for providing the English articles and translating from German, and John Spencer for his photos.

References

- Fournier, P.-V. 1928. *Flore complète de la plaine française*. Paul Lechavalier, Paris.
- Godfrey, M. J. 1933. *Epipactis leptochila* × *E. latifolia*. *Monograph and Iconograph of Native British Orchidaceae*.
- Kretzschmar, H. 2013. *Die Orchideen Deutschlands und angrenzender Länder*. Quelle & Meyer Verlag Wiebelsheim.
- Mielcarek, R. G. 2017. Hybrid Helleborines. *Journal of the Hardy Orchid Society* 14(1): 28.
- Reineke, D. & Rietdorf, K. 1989. Der Orchideenbestand in der Naturräumlichen Einheit 121 Baar – Hochmulde. *Mitt. Bl. Arbeitskreise Heimische Orchid Baden-Württ* 21(2): 167–278.
- Reinhardt, J. 1986. Über ein Vorkommen der *Epipactis* × *stephensoni* GODF. im Eichsfeld. *Mitt. Arbeitskreise Heimische Orchid* 15: 59–62.
- Reinhardt, J. & Richter, R. 2006. Bemerkungen zur Variabilität der Schmallippigen Stendelwurz – *Epipactis leptochila* subsp. *leptochila* (Godfrey) Godfrey (Orchidaceae) – in Nordwest- und Nordthüringen. *Ber. Arbeitskreise Heimische Orchid* 22(2): 78–95.
- Richter, K. 1890. *Plantae Europaeae Vol. 1*. Leipzig.
- Rube, G. & Heise, K. 1976. Kurzmitteilungen über europäische und mediterrane Orchideen. *Die Orchidee* 27: 196–198.
- Salmon, C. E. 1921. *Epipactis viridiflora* Reichb.. *Journal of Botany* 1921: 20–21.
- Stace, C. A. 1975. *Hybridization and the Flora of the British Isles*. Academic Press, London.
- Stace, C. A., Preston, C. D. & Pearman, D. A. 2015. *Hybrid Flora of the British Isles*. BSBI Publications, Bristol.

Richard Mielcarek

The Old Barn, Chew Road, Winford, Bristol BS40 8HJ
mail@rmiel1905.plus.com

Chara connivens (Convergent Stonewort), a new East Kent (v.c.15) record from the Dungeness NNR

STEPHEN LEMON

On 8th July 2017 I visited Dungeness National Nature Reserve and searched for *Callitriche truncata* (Short-leaved Water-starwort), a Kentish rarity which has not been recorded at Dungeness for almost 20 years (Kitchener & Kent Botanical Recording Group, 2017). Unfortunately, my search was unsuccessful, but it did produce other botanical finds, including the new discovery described here.

My searching led me to visit the western side of the reserve and the large expanse of wetland created by the RSPB at Denge Marsh. This wetland incorporates older gravel pits, including one known as the Barge Pit (Owen Leyshon, pers. comm.). At the edge of a small inlet on the eastern corner of this pit (TR05881828) I found a small charophyte (stonewort) species growing in clear shallow water. On examination, using Moore (1986), I found the charophyte resembled *Chara globularis* (Fragile Stonewort), with poorly developed spine cells along the stems and poorly developed stipulodes at the base of the branchlet whorls. It also displayed extremely inwardly curved whorls of branchlets and the reproductive

structures along the branchlets (gametangia) comprised of just a female oogonium, without an accompanying male antheridium. This combination of characters, particularly the dioecious habit, suggested it could be *C. connivens* (Convergent Stonewort) rather than *C. globularis*, the latter being a monoecious species. Another character favouring *C. connivens* were the cells forming the coronula (the structure on the top of the oogonium), which were pressed tightly together (connivent).

I emailed details of the discovery to the charophyte referees, Nick Stewart and Claudia Ferguson-Smyth, and a specimen of the charophyte was sent for determination to Claudia. Nick explained that separation of *C. connivens* from *C. globularis* was not always straightforward. Charophytes can be protandrous, when plants of monoecious species like *C. globularis* can have only male or only female gametangia present at certain times. The presence of a single bractlet cell directly below the oogonium would indicate the specimen was a female plant of a dioecious species (Nick Stewart, pers. comm.; Moore, 1986). Claudia subsequently confirmed

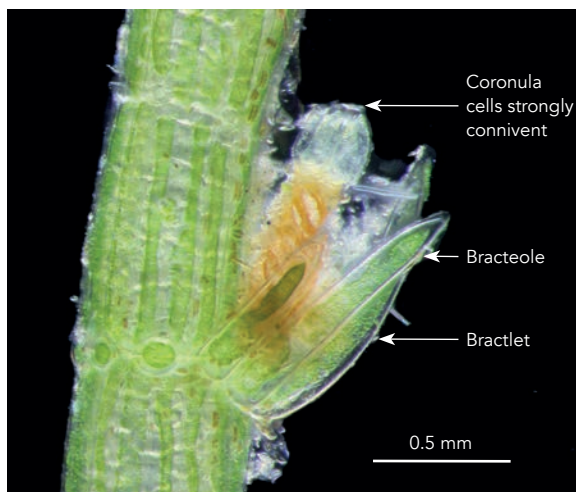
with photographs that the bractlet was present. This evidence, with other characters, was sufficient for her to confirm the specimen as *C. connivens*.

The referees mentioned that it would be useful to confirm the presence of male plants at the site, so I made a return visit on 29th July 2017. I found *C. connivens* common along a narrow 25m strip of shallow open water on the eastern edge of the Barge Pit, running northwards from the location of the earlier discovery. The colony was separated from the bank by a bed of stunted *Phragmites australis* (Common Reed), most likely the effect of grazing by livestock. As well as growing directly on the sand/pebble substrate, I also found *C. connivens* growing less frequently on *P. australis* roots. The associate species in the immediate vicinity of *C. connivens* were *P. australis*, *Crassula helmsii* (New Zealand Pigmyweed), *Potamogeton pectinatus* (Fennel Pondweed), *P. pusillus* (Lesser Pondweed), *Ranunculus circinatus* (Fan-leaved Water-crowfoot), *Elodea nuttallii* (Nuttall's Waterweed) and *Persicaria amphibia* (Amphibious Bistort). A thorough search located only female plants of *Chara connivens*, and no male plants. Although an absence of male plants might suggest the population is using some form of asexual reproduction, Nick Stewart believes a more likely reason for the failure to identify male plants would be that the antheridia had dispersed before my visit. He thought that late May or June might be a more appropriate time to search for male plants (Nick Stewart, pers. comm.).

Other charophyte records from the Dungeness peninsula

There are no charophyte records attributed to the Dungeness peninsula within Hanbury & Marshall (1899), which includes charophyte records reported within earlier publications. This is consistent with the records for the same period listed within Stewart (2006). This era pre-dated the creation of man-made gravel pits on the Dungeness peninsula, a time when there was far less open water habitat for charophytes. Table 1 summarises all the known charophyte records collected from the Dungeness peninsula up to 2016.

There are some notable records in Table 1. *C. virgata* var. *annulata* (Delicate Stonewort) is a variety mostly found in Scotland and Ireland (Moore, 1986: 78), with its records from England confined to the Lake District and this single record from Dungeness (BSBI DDb). *Tolypella glomerata* (Clustered Stonewort), *C. contraria* and *C. aspera* are considered rare in Kent, with *C. aspera*



Branchlet node of *Chara connivens* from Dungeness. Claudia Ferguson-Smyth

(Rough Stonewort) formerly believed to have become extinct in the county (Moyses, 2000: 50–51).

Most of the open water at Dungeness is now in the form of man-made gravel pits, which is reflected by my records and those in Table 1. However, there are at least a dozen natural gravel pits on the peninsula, with a main group known as the Open Pits. These are considered to have formed between 700 to 1,000 years ago (Lewis & Balchin, 1940) and the two largest pits still hold open water.

Conclusions

This is the first v.c.15 record for *Chara connivens* and re-establishes the species in south-east England. The only previous south-east England record was in 1961 by W.H. Spreadbury, when *C. connivens* was found in a concrete trough at Bishopstone, in East Sussex, v.c.14 (BSBI DDb).

C. connivens habitat at Dungeness has statutory protection, falling within the boundaries of the National Nature Reserve and the wider Dungeness, Romney Marsh and Rye Bay Site of Special Scientific Interest. *C. connivens* has an endangered red listing in Great Britain, defined as being at a very high risk of extinction in the wild in the near future. It is a UK Biodiversity Action Plan priority species and is included on a list of species of principal importance for England under section 41 of The Natural Environment and Rural Communities (NERC) Act 2006.

Table 1. Charophyte records from the Dungeness peninsula up to 2016

Date	Species	Site	Recorder, determiner (source)
1899	<i>Chara globularis</i> *	Dungeness	G.C. Druce (Druce, 1902)
27/07/1922	<i>C. vulgaris</i> var. <i>vulgaris</i>	Lydd, ditch	G.R. Bullock-Webster (Moore, 1980)
29/07/1922	<i>C. globularis</i>	Lydd, recently re-dug ditch on the outskirts of the town	G.R. Bullock-Webster, det. N.F. Stewart (Groves & BW Fasc 2)
1953	<i>C. vulgaris</i>	A long artificial lake between the disused Lydd-Dungeness railway and the coast [Long Pits]	F. Rose (Rose, 1953)
06/1977	<i>C. virgata</i> var. <i>annulata</i>	Denge Marsh	A.C. Jermy, det. J.A. Moore (Moore, 1980)
12/05/2003	<i>C. vulgaris</i>	Lade Pit	P.M. Wade, det. N.F. Stewart (BSBI DDb)
12/05/2003	<i>C. contraria</i>	Lade Pit	P.M. Wade, det. N.F. Stewart (BSBI DDb)
12/05/2003	<i>C. aspera</i>	Lade Pit	P.M. Wade, det. N.F. Stewart (BSBI DDb)
17/08/2010	<i>C. aspera</i>	Lade Pit	ENSIS Ltd, det. N.F. Stewart (Nick Stewart, pers. comm.)
18/10/2010	<i>C. aspera</i>	ARC Pit	ENSIS Ltd, det. N.F. Stewart (Nick Stewart, pers. comm.)
18/10/2010	<i>C. contraria</i>	ARC Pit	ENSIS Ltd, det. N.F. Stewart (Nick Stewart, pers. comm.)
01/07/2013	<i>C. vulgaris</i>	ARC Pit	ENSIS Ltd, det. N.F. Stewart (Nick Stewart, pers. comm.)
01/07/2013	<i>C. vulgaris</i> var. <i>papillata</i>	ARC Pit	ENSIS Ltd, det. N.F. Stewart (Nick Stewart, pers. comm.)
17/06/2016	<i>C. vulgaris</i> var. <i>papillata</i>	ARC Pit	ENSIS Ltd, det. N.F. Stewart (Nick Stewart, pers. comm.)
17/06/2016	<i>C. contraria</i>	ARC Pit	ENSIS Ltd, det. N.F. Stewart (Nick Stewart, pers. comm.)
17/06/2016	<i>Tolypella glomerata</i>	ARC Pit	ENSIS Ltd, det. N.F. Stewart (Nick Stewart, pers. comm.)

*Pre-1924 record which may be referable to *C. virgata*.

The spread of the invasive associate species *Phragmites australis*, *Crassula helmsii* and *Elodea nuttallii* is a potential threat to the *C. connivens* habitat along the Barge Pit. These associates aggressively dominate other gravel pits and wetlands in the immediate area, including where *Callitriche truncata* was previously recorded (Owen Leyshon, pers. comm.). It would be interesting to confirm if the stunted form of *P. australis* growing with *C. connivens* is an effect of grazing livestock and whether this is maintaining the open habitat used by *C. connivens*. The RSPB’s management of the site has the potential to provide focused habitat management to directly benefit *C. connivens* and other species vulnerable to competition from invasive plants.

The majority of the charophyte records above, including *C. connivens*, were collected from man-made gravel pits. They demonstrate the importance of these pits for charophytes, both in south-east England and nationally. The excavation of gravel pits at Dungeness started as a relatively small-scale operation during the 1920s, but by the 1980s it had developed significantly, expanding to multiple sites across the peninsula (Findon, 1985: 15–16). Gravel pits are now a recognisable part of the Dungeness landscape and many aquatic plants, including charophytes, have benefitted from their creation. In contrast, the quarrying activity that created the gravel pits also destroyed a significant area of the Dungeness shingle ridge (Fuller, 1985: 38; Laundon,

1989: 106). This has reduced and fragmented the associated plant and animal communities and is perhaps the reason why *Burhinus oedinenus* (Stone-curlew) was lost as a breeding bird at Dungeness (Laundon, 1989: 106).

Acknowledgments

I would like to thank Claudia Ferguson-Smyth and Nick Stewart for determining my charophyte specimens, as well as providing other useful information. Claudia has been particularly helpful in providing and granting permission for the use of her photograph in this report and Nick has greatly assisted checking over the content. I am also grateful for the assistance of Susan Plant, Owen Leyshon, Geoffrey Kitchener, Tony Witts, Louise Marsh and Craig Edwards, the warden of Dungeness RSPB Reserve.



Chara connivens site at Barge Pit, Dungeness NNR, in autumn. Stephen Lemon

References

- Botanical Society of Britain & Ireland, Distribution Database.
- Bryant, J.A., Stewart, N.F. & Stace, C.A. 2002. A checklist of Characeae of the British Isles. *Watsonia* 24: 203–208.
- Druce, G.C. 1902. Some Kentish plants. *Journal of Botany, British and Foreign* 40: 350–353.
- Ferry, B.W. & Waters, S.J.P. 1988. Natural wetlands on shingle at Dungeness, Kent, England. *Biological Conservation* 43: 27–41.
- Findon, R. 1985. Human pressures. In, Ferry, B. & Waters, S. (ed.) *Dungeness – Ecology and conservation, Report of a meeting held at Botany Department, Royal Holloway and Bedford New College, on 16 April 1985, Focus on Nature Conservation* 12: 13–24. Nature Conservancy Council, Peterborough.
- Fuller, R.M. 1985. An assessment of the damage to the shingle beaches and their vegetation. In, Ferry, B. & Waters, S. (ed.) *Dungeness – Ecology and conservation, Report of a meeting held at Botany Department, Royal Holloway and Bedford New College, on 16 April 1985, Focus on Nature Conservation* 12: 25–42. Nature Conservancy Council, Peterborough.
- Groves, J. & Bullock-Webster, G.R. 1920, 1924. *The British Charophyta*. Ray Society, London.
- Hanbury, F.J. & Marshall, E.S. 1899. *Flora of Kent*. Frederick J Hanbury, London.
- Joint Nature Conservation Committee. 2017. *Conservation Designations for UK Taxa* <http://jncc.defra.gov.uk/page-3408>
- Joint Nature Conservation Committee. 2017. *UK priority species pages – Chara connivens version 2*. http://jncc.defra.gov.uk/_speciespages/208.pdf
- Kitchener, G. & Kent Botanical Recording Group 2017. *Callitriche truncata* Guss. (Short-leaved Water-starwort). *Kent Rare Plant Register Draft species accounts C (first part: Ca)*. <http://bsbi.org/kent>.
- Laundon, J.R. 1989. Lichens at Dungeness. *Botanical Journal of the Linnean Society* 101: 103–109.
- Lewis, W.V. & Balchin, W.G.V. 1940. Past sea-levels at Dungeness. *Geographical Journal* 96: 257–285.
- Moore, J.A. 1980. The Forgotten Charophytes. *Transactions of the Kent Field Club* 8(2): 117–120.
- Moore, J.A. 1986. *Charophytes of Great Britain and Ireland*. BSBI Handbook 5. Botanical Society of the British Isles, London.
- Moyse, R. 2000. Stoneworts (pp. 50–53). In, Waite, A. (ed.) *The Kent Red Data Book, a provisional guide to the rare and threatened flora and fauna of Kent*. Kent County Council, Maidstone.
- Rose, F. 1953. *Dungeness*. Nature Conservancy Council, Peterborough (unpublished report).
- Stewart, N.F. 2006. *Stonewort Flora of Kent* (unpublished manuscript).

Stephen Lemon

20 Keele Avenue, Maidstone, Kent ME15 9WU
stephen.lemon3@btinternet.com

BEGINNER'S CORNER

Choosing and using hand lenses

ANDREW BRANSON

It is often said that a field botanist needs only two items of equipment: a good hand lens and a notebook. When I first started looking at plants many years ago I had a simple 10x lens and was quite happy with this, but today the array of equipment seen draped around the necks of keen botanists hints at a more sophisticated world of specialised optics. This short article intends to demystify these essential tools and provide some tips on how to use and look after them.

We have all become a little more demanding when it comes to the critical identification of plants in the field. Rather like birdwatchers, peering down £1,000 plus telescopes to make out the primary feather patterns on distant flocks of gulls, today's botanists need good quality optics to identify fine details such as glandular hairs on the stems of forget-me-nots or branching patterns of veins on the sepals of milkworts. There is nothing more frustrating than trying to see a minute feature on a plant, and just not being able to quite bring it into focus. A good hand lens will quickly reveal this microscopic world. Consequently, one of the most common conversations at the beginning of field meetings is about hand lenses – the latest makes, what magnification to have, why do some keep falling apart or misting up, and how much to spend.

Types of lens

Most hand lenses (sometimes referred to as loupes) have single (singlet), double or triple lenses. Generally, those with multiple lenses (look for terms such as achromatic lenses) are designed to correct most of the aberration as the light moves through the lens, which otherwise may result in the image looking blurred at the edges or having a colour fringe (chromatic aberration). Some of the cheaper, lower magnification lenses are made from plastic (usually acrylic) and whilst they may be suitable for casual use, they tend to give a less sharp image and, although lighter than glass lenses, can be prone to being scratched. I would therefore recommend if

possible buying a lens where the optical elements are made from glass. The housing for the lens also needs to be robust. Most are made from metal and usually consist of a sleeve or housing which protects the lens and from which it can swivel out when in use. Make sure the fixings are secure and well designed, as there is nothing more annoying than finding that the housing has worked its way loose in your pocket and the whole mechanism has come to pieces. Some recommend a dab of super glue or Loctite on the screws, but a well-made lens should hold together without this. Nevertheless, it is an idea to have a small screwdriver handy just in case. Most botanists have their hand lens on a lanyard, which means that the lens is both readily available and unlikely to be dropped or lost.

Magnification

Unless you are going to use your hand lens for looking at very fine detail or other groups, such as



A selection of hand lenses. A. Branson

bryophytes or lichens, a 10x lens is a good all round choice for most situations. At higher magnifications, such as 14x or 20x, the aperture of the lens necessarily becomes smaller. The magnification is dictated by the curvature of the lens, hence the more convex the lens, the smaller its width and therefore the field of view. A good lens diameter to look for is around 20mm or more, but on higher magnifications this can drop to near 10mm. This means that less light is available and also with higher magnifications the depth of field, i.e. how much is in focus when viewing, is considerably less, so observing features in the field becomes more awkward. The working distance (how close you need to hold the object in front of the lens to bring it into focus) is also less with higher magnifications. You can buy lenses which have two lenses with different magnifications attached to the same housing, but these are heavier and often the higher magnification lens is very small, making it especially hard to use. Beware of cheap lenses that profess to have high magnifications. These claims are often wrong and the lenses are of dubious quality.

Lenses with built-in illumination

In recent years, lenses with built-in LED illumination have become available. A good example is the Opticron LED Hand Magnifier (but note that this does not have anywhere to attach a lanyard). These are excellent when working in low light, such as in woodlands in autumn or in the evening, but for most situations they are unnecessary. For those field botanists also looking at bryophytes and lichens the additional lighting becomes more useful as a lot of field work for these groups is carried out in the winter when poor light can be a problem. For them there is the Rolls-Royce of hand lenses, the Lichen Candelaris range, made to order by Erich Zimmermann in Switzerland. However, the price of these superb lenses is ten times that of a more standard lens. At the opposite end of the scale, I have seen a number of very cheap lenses with built-in lights from the Far East, but most have quickly fallen apart and have poor quality optics (often over optimistically described).

Using a lens

The basics are that you hold the lens close to the eye and bring the plant to you, so that it comes into



Holding and using a hand lens correctly. A. Branson

focus, usually only a centimetre or so from the lens (see photograph). For most plants it is easier to pick a small sample, such as a leaf, and hold it to the lens rather than getting down to the plant. If the weather is wet, try to keep the lens dry by tucking it into your clothing. I have recently seen some natty handmade protective covers that slide over the lens. It is also a good idea to have a soft absorbent cloth (those sold for cleaning spectacles are ideal) available to dry and clean the lens. A particular problem in wet or cold weather is the lens misting up. A dry cloth is again useful here. A good lens should have the optics well sealed, so that moisture does not get in between the lenses. People often worry about wearing glasses and using a lens. So far as I'm aware there is no correct answer for this. There is no technical reason for one to remove spectacles to use a lens. Be guided by what is most comfortable for you, but bear in mind that if you use a lens a lot it can scratch the surface of your spectacles, if you are not careful.

Several natural history suppliers, such as Summerfield Books and NHBS, sell hand lenses. Prices range from a few pounds to approximately £30, so compared to birdwatchers, with their binoculars and telescopes, botanists are very fortunate. Hand lenses are little gems that are not only a very useful tool, but provide an intimate view into the plant world which is a wonder in itself.

Andrew Branson
andrew.branson@bsbi.org

IDENTIFICATION

Identifying woody plants (xylophytes) in winter

JOHN POLAND

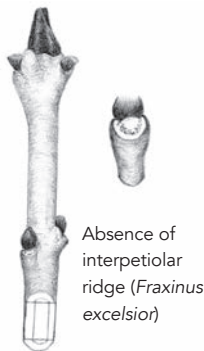
Many botanists retreat indoors in the winter, content with typing up notes and planning the year ahead. But there is a whole world to explore that barely involves leaving the front door: winter twigs! Street trees and planted shrubs are often ignored by botanists yet they provide a great deal of curiosity for those with an interest in the unusual.

Twigs provide one of the understated yet important year-round identification characters. This article incorporates some introductory text taken from our forthcoming *Field Key to Winter Twigs* (in press), illustrated by Robin Walls, covering native and planted woody species found in the British Isles, but originating from all over the world.

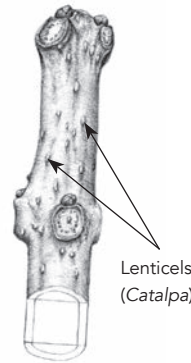
I have already discussed buds in a previous article (see 'Nipping ID in the Bud', *BSBI News* 107 – available as a free download), and I do not wish to repeat the information here, but maybe the keen-eyed can spot the mistake with *Sorbus*?

A twig is defined as the 1st-year shoot (branchlets are defined as shoots that are 2–3 years old and branches are greater than 3 years old). A twig should be examined for its stoutness, colour, presence of any hairs (including the type of hair) or glands, whether it is round or ridged, zig-zagging, curved or straight, rigid or flexible (i.e. can it be tied in a knot?), any armature (prickles, spines or thorns) and whether the bark is splitting or peeling. The colour of twigs (and buds) is influenced by sunlight, often becoming redder on the sunlit side.

Most botanists familiar with vegetative ID will be aware of the interpetiolar ridge, a narrow horizontal ridge connecting two opposite leaf scars. This interpetiolar ridge is absent in *Oleaceae*, e.g. *Fraxinus* (ashes), and from genera in several other families.



The presence of lenticels (breathing pores in the twig bark) can be useful, particularly their shape, colour and whether they are flat or raised. Lenticels

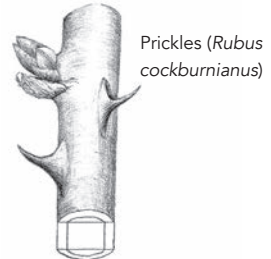


are absent from twigs with peeling bark, and stomata (easily visible as little white dots under a hand lens) may be present instead of lenticels, particularly on species with green twigs. Lenticels are obvious on *Catalpa* (bean-trees), *Robinia* (false-acacias) and *Forsythia* (forsythias).

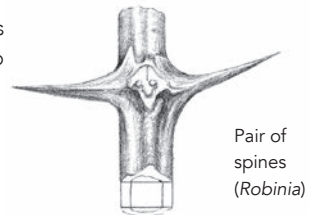
Ouch! Prickles, spines and thorns

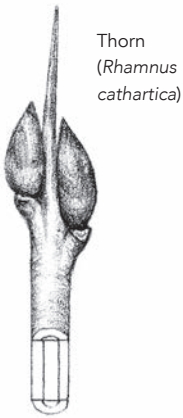
Although they all hurt when you grab them (or if you're a herbivorous animal, when you try to eat them), these precise terms should not be used interchangeably.

Prickles are an extension of the epidermis and can occur anywhere along twig internodes. *Rubus* (brambles) and *Rosa* (roses) are two examples, hence the classic saying 'a rose between two thorns' is wrong!



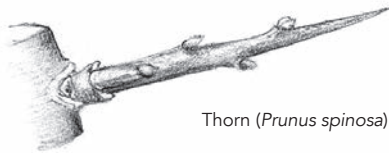
Spines are modified leaves or stipules and usually occur directly **below** a leaf scar or bud. They are occasionally in pairs e.g. *Robinia* or 1- to 3-partite (*Berberis* (barberries) and *Ribes uva-crsipa* (Gooseberry)).





Thorn
(*Rhamnus cathartica*)

Thorns, in contrast, are modified branches and thus usually occur directly **above** a leaf scar or at the end of a short branch, or collateral (adjacent) to lateral buds. They can terminate the main twig or a side twig and may have buds or leaf scars along them. *Rhamnus cathartica* (Buckthorn), *Prunus spinosa* (Blackthorn) and *Crataegus mongyna* (Hawthorn) are three common examples.



Thorn (*Prunus spinosa*)

Cut to the pith

To examine pith, the twig should be cut crosswise (transverse section) and then lengthways (longitudinal section), revealing the soft parenchyma tissue filling the centre. Note the relative diameter



Chambered pith
(*Juglans regia*)

of pith (usually $\frac{1}{2}$ diameter of twig), shape (round, 3-angled, etc.), colour (white, green, orange-brown, etc.), whether solid (most species), chambered (ladder-like; hollow with partitions, e.g. *Juglans* (walnuts)), or diaphragmed (solid but with firmer plates or partitions, e.g. *Liriodendron* (tulip-trees)) or absent (hollow, e.g. *Lonicera* (honeysuckles)). Any angles in the twig are often reflected in the shape of pith.

Some species often have more porous (larger-celled) spongy or fragmenting (disintegrating) pith, e.g. *Ribes* (currants), or dense pith, e.g. *Catalpa*.

Pith is positioned centrally within the twig, with the exception of *Tamarix* (tamarisks) where it is off-centre (eccentric).

Any odour from the inner bark should be noticeable once the twig is cut or snapped, although the bark can be scratched as a less intrusive method. Odours are described as aromatic (pleasant), fetid (unpleasant) or odorous (either category depending on the olfactory sense of the person). Notable examples include *Ailanthus altissimus* (Tree-of-heaven) which smells of mice, *Sorbus aucuparia* (Rowan) of stewed cherries and *Prunus mahaleb* (St Lucie Cherry) of coumarin (fresh hay).

Latex may also be visible around the edge of the pith in the outer wood of twigs (contained within ducts called lactifers). However, latex is often sparse in winter, unlike during the main growing season. Latex is white in all of our species, but dries black in *Rhus* (stag's-horn sumach) and the best-avoided *Toxicodendron vernicifluum* (Chinese Lacquer-tree) of which the sap can be toxic to touch.

In some genera, very short shoots, called woody spurs or spur shoots (or, technically, brachyblasts), can be present on branchlets or branches. These are stubby shoots with extremely short internodes that often grow only a few millimetres per year so the internodes are tightly congested and topped with a terminal bud. Woody spurs are characteristic of several genera including *Betula* (birches), *Fagus* (beeches), *Ginkgo* (ginkgo), *Larix* (larches) and some rosaceous genera, e.g. *Malus* (apples), *Prunus* (cherries and plums). Remarkably, long shoots can change to short shoots and back again to long shoots (and vice-versa), especially in *Prunus avium* (Wild Cherry).



Woody spur
(*Prunus avium*)

Leaf scars

The leaf scar is a mark left on the twig by a leaf after it falls. The leaf scar should be examined for shape, size (including width relative to bud width), whether it is raised or not, colour (pale or dark), and any bundle scars. The width of the leaf scar is normally equal to the bud width but there are exceptions, e.g. *Betula* have the leaf scar narrower than the bud width while *Rosa* have the leaf scar much wider than the bud width. Leaf scars sometimes run down the twig (usually from the sides and occasionally the

centre of leaf scars), resulting in a ridged or angled twig. This is termed a decurrent leaf scar. Some species have unusual and occasionally amusing shapes, such as the 'monkey faces' in *Juglans*.

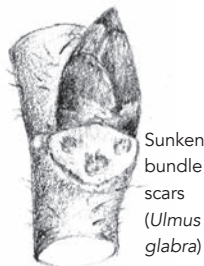
Leaf scar in *Juglans*, showing 'monkey face'



Bundle scars

Bundle scars represent the severed ends of the vascular bundles which previously connected the leaf petiole with the twig prior to abscission (a remnant of the plant's plumbing system). The number, arrangement, shape, whether protruding or sunken, are all essential characters. The majority of species have three bundle scars, although the number is often influenced by the leaf size and complexity, e.g. the leaf scars of *Aesculus* (horse-chestnuts, buckeyes), *Catalpa* and *Fraxinus* are larger and have more bundle scars, because the leaves are larger and/or compound and require more vascular tissue to function efficiently.

The shape of bundle scars may consist of arcs, dots, lines, C-shapes and U-shapes. The arrangement of bundle scars is often dictated by the leaf-scar shape, e.g. more or less circular leaf scars will have the bundle scars in a ring or scattered, while shield-shaped or U-shaped leaf scars will have them arranged in a line around the margin (resembling horseshoe nails). Some species, most notably *Ulmus* (elms), have sunken bundle

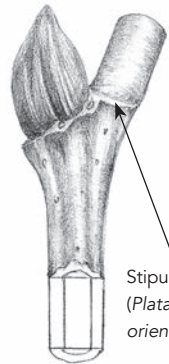


Sunken bundle scars (*Ulmus glabra*)

scars rather than the more typical protruding scars.

Stipule scars

Stipule scars are left on the twig when the stipules fall off. However, many species of Rosaceae have stipules attached to the petiole not the twig, so no stipule scar is left on the twig when the leaf falls. Stipules normally exist only to protect the young unfurling leaf so are soon redundant and have usually dropped by mid-summer. Determining the presence, or absence, of stipule scars is perhaps one of the most daunting steps for a newcomer. Although initially difficult, it becomes very easy with practice. Stipule scars are normally small and situated adjacent to the upper edge of the leaf scar (either adjoining the leaf scar or slightly separate from it). Stipule scars, although in pairs, are often unequal in size or shape. Occasionally, stipule scars form a ring around the twig, e.g. *Platanus* (planes) and *Fagus*, which may not be immediately recognised as a stipule scar. In some species, the stipules or their remnants may persist e.g. *Quercus cerris* (Turkey Oak).



Stipule scar (*Platanus orientalis*)



Persistent stipules (*Quercus cerris*)

To register for a special pre-pub offer (inc p&p) for the Field Key to Winter Twigs, please email your name to twigkey@hantsecology.co.uk (please note your email will not be used for any other purpose - we respect your privacy).

John Poland

13 Grasmere Close, Southampton, Hants SO18 3NP
jpoland197@yahoo.co.uk
 All drawings: Robin Walls

ADVENTIVES AND ALIENS NEWS 13

COMPILED BY MATTHEW BERRY

One record of an unusual species does not necessarily herald another dozen or so in the near future. It certainly did not when *Bromus arvensis* (Field Brome) was found as an arable weed in adjacent tetrads of v.c.13 (W. Sussex) in 2006 (see below). But the sheer ordinariness of the site in which George Hounsom found his plants, might encourage us to double check any roadside bromes with the right jizz (see v.c.17).

One of the most fascinating 'alien stories' of 2017 was undoubtedly that provided by Paul Stanley, who, spurred on by the example of Filip Verloove's experiences in Belgium, discovered large populations of *Cotula australis* (Annual Buttonweed) and *Soliva pterosperma* (Jo-jo) at caravan sites and holiday parks in scattered vice-counties in the southern half of the country (vcc.25 & 27 below). As a communal resting place from ceaseless international travel, the modern caravan site could prove to be a new and somewhat unexpected Mecca for the alien hunter.

Perovskia 'Blue Spire' (Russian Sage) or *P. atriplicifolia* (there is some doubt about the correct specific epithet) is all the rage as a bedding plant just now, and, as I have mentioned before, seems to produce remote, non-flowering growth of two types: one which represents vegetative spread of the mature plant, and another which corresponds to immature plants derived from dispersed seed. The second is far rarer in my experience. To gauge how rare they might be more generally, I would ask members to make a point of looking out for genuine seedlings, and even small, self-perpetuating populations. The latter would require a far more *laissez-faire* approach than exists in any Eastbourne street of my acquaintance.

I have included some more records of *Dittrichia graveolens* (Stinking Fleabane) to remind members that this species not only persists, but has continued its northward expansion. Paul Stanley, who must be one of the country's most mobile, well-travelled botanists, has recently spotted it growing along trunk roads in S. and W. Lancashire (see vcc.59 & 60). I would be particularly grateful for records from sites/vice-counties lying still further north, although this Mediterranean species must surely now be approaching its latitudinal limit in this

context. Did it occur further north as a wool alien?

For those who like their aliens to be very rare or even novel, do read about Mary Smith's remarkable find in a Thurrock gutter (see v.c.18).

Finally, I am once again pleased to be able to include some 'woody' records in this issue's compilation to make up for an historical imbalance. Many thanks!

V.c.6 (N. Somerset)

Verbena hastata L. (American Vervain). South-west of Champflower (ST65673401), 7/8/2017, J. Poingdestre (det. F. Rumsey): one plant in weedy area between field and River Brue. A North American native which has possibly occurred only as a garden escape in this country (Clement & Foster, 1994), but has historically been a wool (processing) alien elsewhere in Europe. The paired, petiolate stem leaves are lanceolate with serrate margins, and well-grown plants (up to c. 1.8m) have a kite-shaped, terminal inflorescence of spire-like branches, bearing closely arrayed, pink-coloured flowers, c. 6mm across. White-flowered plants are also grown. See *BSBI News* 122: 41 for details of a Sark (v.c.113) record, and the inside of that issue's front cover for images.

V.c.9 (Dorset)

Convolvulus cneorum L. (Shrubby Bindweed). Swanage (SZ0291779302), 18/3/2017, D. Leadbetter: pavement, Walrond Road. An evergreen shrub recognisable by its silvery, oblanceolate leaves, funnel-shaped, cream and pink-striped corollas, yellow-eyed, and c. 40–50mm across (and about as deep). The corollas also have hairy outer surfaces, the hairs being confined to the pink 'veins'. There are very few records as yet for this Mediterranean species, which is popular in southern gardens, both public and private. It is grown for its pleasing foliage and long, if interrupted, flowering period.

Mentha requienii (Corsican Mint). Brownsea Island (SZ01848840), 22/6/2017, D. Leadbetter: in old tip area, many plants; (SZ01158770, 01176765), 22/6/2017, D. Leadbetter: path near south shore, many plants; Brownsea Island (SZ02538762), 15/7/2017, D. Leadbetter: large patch by track to Scriven Copse;

(SZ02308772), 15/7/2017, D. Leadbetter: large patch on track in Hardey Wood. David speculates that the tyres of (forestry?) vehicles might be spreading it on Brownsea, as some of these sites are not much visited by members of the public. A southern European native, used as an aromatic ground cover in gardens, it has the potential to be an invasive species in warmer climates.

Perovskia atriplicifolia Benth. (Russian Sage). Swanage (SZ0212078528), 4/10/2015, D. Leadbetter: pavement on east side of Panorama Road. See v.c.14.

Argyranthemum frutescens (L.) Schultz-Bip. (Paris Daisy). Swanage (SZ02807936), 1/1/2016, D. Leadbetter: one plant on bank on east side of Northbrook Road. A widely grown evergreen shrub, with daisy-like capitula (with no receptacular scales and no pappus hairs), c. 40mm across, and, usually frosted, somewhat succulent, pinnately lobed leaves. A native of the Canary Islands, it has become a fixture in other parts of the Northern Hemisphere, including Italy and southern California.

Paulownia tomentosa (Foxglove Tree). Brownsea Island (SZ0236088251), 22/6/2017, D. Leadbetter: one seedling from a planted tree, Venetia Park. See Poland & Clement (2009), and p. 147 of Stace & Crawley (2015) for a photo of a seedling. Possibly increasing.

V.c.10 (Isle of Wight)

Ceratachloa staminea (Southern Brome). East Cowes (SZ510951), 9/2016, P. Stanley (conf. E.J. Clement): on roadside lawn. See Stace (2010).

V.c.11 (S. Hants)

Hypericum xylosteifolium (Turkish Tutsan). New Forest (SU350021), 2/7/2017, E.J. Clement & J.A. Norton: large colony extending for 80m alongside edge of old concrete roadway, part of Second World War facility, Hawkhill Inclosure. The flowers were not quite open, in contrast to those of associated *H. androsaemum* (Tutsan), which were. The monoclonal stands it can form through its rhizomes are striking, and see Stace (2010).

Solanum nigrum ssp. *schultesii* (Black Nightshade). Gosport (SU608009), 26/8/2017, J. Norton: in Gore Road Recreation Ground, under trees where there had been disturbance as a result of clearing of undergrowth. With *Chenopodium album* (Fat Hen), *Urtica dioica* (Stinging

Nettle) and *S. dulcamara* (Bittersweet). I think John is right to wonder if this is not sometimes mis-recorded as *S. physalifolium* (Green Nightshade) as both taxa have glandular hairs and white corollas. The non-accrecent fruiting calyx distinguishes it. While the patent stem hairs of this taxon are possibly always obvious, the glands themselves can be rather few in number and obscure (cf. Stace, 2010), as in this case. The prominently toothed leaves of the Gore Road plants might not be typical. Before the berries change colour, it can usually be reliably distinguished from *S. villosum* ssp. *villosum* (Red Nightshade) as it frequently has greater than five flowers per inflorescence.

Osmanthus heterophyllus (G.Don) P. Green (Chinese Holly). Highcliffe (SZ2098793650), 13/10/2015, D. Leadbetter (det. J. Poland): one plant at woodland edge, Jesmond Avenue. The second British record. As both English name and synonyms (e.g. *O. ilicifolius* and *O. aquifolium*) indicate, the leaves of this shrub/small tree resemble those of *Ilex aquifolium* (Holly). However, they are exactly opposite (cf. alternate in Holly).

V.c.12 (N. Hants)

Allium trifoliatum Cirillo (Hirsute Garlic). Basingstoke (SU618517), 19/5/2017, M. Hackston (det. A. Mundell): one plant in shrubbery beside St Peters Road; Basingstoke (SU6124752389), 23/5/2017, M. Hackston: a 50 x 20cm patch, which on closer inspection at a later date turned out to extend for some 5m, base of shady bank, Winklebury. It is good to see that this



Hypericum xylosteifolium at Hawkhill Inclosure, v.c.11. J. Norton



Solanum nigrum ssp. *schultesii* showing stem hairs (top) and toothed leaves (bottom), Gosport, v.c.11. J. Norton

species is being recognised and recorded in vice-counties outside Sussex.

V.c.13 (W. Sussex)

Anemanthele lessoniana (New Zealand Wind-grass). Bognor (SZ9378398960), 2/8/2016, O. Leyshon: 20 immature plants along base of low wall, near to flower beds where planted. This species could establish itself widely, particularly under any sort of tree cover. Vegetative identification is a must, for which see Poland & Clement (2009). For a detailed write-up of this species (plus photos), see *BSBI News* 126: 26–27.

Bromus arvensis (Field Brome). Tillington (SU9546720658, SU9562221736), 8/7/2006, F. Abraham: a few plants in broad arable margin and elsewhere in open vegetation of fallow field; south of Tillington (SU9609921253),

17/7/2009, M. Shaw: western edge of field. First seen here in July 2006 by Frances Abraham, Paul Harmes and Alan Knapp, when there were many plants. The only post-2000 Sussex records.

V.c.14 (E. Sussex)

Dryopteris cycadina (Franch. & Sav.) C. Chr. (Shaggy Shield-fern). Horam (TQ58051766), 8/2008, J. Reynolds (det. M. Berry): sporlings by footpath at back of gardens (Herb. MCB). See *BSBI News* 128: 54–55.

Hibiscus trionum (Bladder Ketmia). Newhaven (TQ4430601859), 20/8/2017, M. Berry & J. Reynolds (det. M. Berry): one plant on earth bank of newly dug culvert, Riverside Park. A garden annual and bird-seed impurity (Malvaceae), with both sources equally plausible in this case. See the front cover of *BSBI News* 32 for Trevor Evans' eerily accurate portrait of a 'typical' plant.

Perovskia atriplicifolia Benth. (Russian Sage). Eastbourne (TV6077497819), 18/7/2017, M. Berry: two apparently genuine seedlings in paving, bottom of Mount Road. Sprayed soon afterwards.

Digitalis lutea (Straw Foxglove). Eastbourne (TV6015697978), 10/6/2017, M. Berry: established (rather typically) on very steep, man-made bank below footpath, Meads Road. Very few Sussex records, either historical or extant.

Anthemis austriaca (Austrian Chamomile). Eastbourne (TQ6288700313), 26/5/2017, M. Berry (conf. E.J. Clement): in recently landscaped area of Princes Park. An annual from central and eastern Europe, which seems to have replaced *A. arvensis* (Corn Chamomile) in wildflower seed mixtures in towns and parks, etc., but not yet as an arable weed in the farmed landscape, where the latter species is now extremely rare. The mature fruiting head of stiffened, spiky receptacular scales is especially diagnostic.

Asphodeline lutea (L.) Reichb. (Yellow Asphodel). Eastbourne Sovereign Harbour (TQ64280258), 21/4/2017, M. Berry: about ten seedlings in grass of verge, Pacific Drive, one of which flowered. Plants in cultivation nearby produce numerous swollen capsules. From the Mediterranean, this tall, unbranched former member of the Liliaceae, has yellow *Gagea*-like flowers

(2–5cm across), with very narrow, tapering, glaucous leaves in whorls right up to the base of the raceme. *A. liburnica* (Jacob's Rod) is much less commonly planted. It differs in having narrower leaves (c. 1mm at their widest rather than c. 6mm) with rough margins (smooth in *A. lutea*) and an obvious gap between the inflorescence and uppermost stem leaves. It might also start flowering later, in June rather than May. *A. lutea* in cultivation might have flowers that are somewhat larger and leaves that are somewhat narrower than in the 'wild type'.

V.c.17 (Surrey)

Anemanthele lessoniana (New Zealand Wind-grass). Camberley (SU87006173), 27/3/2017, G. Hounsome: one small tuft in woodland between houses and county boundary stream, Barossa Common.

Bromus arvensis (Field Brome). Staines (TQ03177112, 03297102, 03277104), 3/7/2017, G. Hounsome: small patches in three places on the unmown north verge in a housing estate, Wapshott Road. Keyed in Stace (2010) and well described and illustrated in Cope & Gray (2009). The combination of very lax panicle and large anthers (c. 4mm) is what particularly sets it apart.

Ceratochloa marginata (Western Brome). Blackheath (TQ02884602), 12/7/2017, E.J. Clement & G. Hounsome (det. T. Cope): a few plants near a shallow ditch on the north verge, Blackheath Lane.

Ceratochloa staminea (Southern Brome). North Sheen Cemetery, 14/7/2017, C. Bateman & G. Hounsome (det. T. Cope): casual by path in cemetery. *C. cathartica* (Rescue Brome) is still the most frequently encountered species, with *C. carinata* (California Brome) a distant runner-up. Are the others, including *C. brevis* (Patagonian Brome), overlooked/misrecorded, or have they been as rare as records suggest? And might this be about to change?

V.c.18 (South Essex)

Leptochloa panicea (Retz.) Ohwi (Mucronate Sprangletop). Thurrock (TL6681), 21/8/2017, M. Smith (det. & comm. K. Adams): one plant in a gutter on Southfields Estate. 'Probably a bird seed alien.' The spikelet architecture resembles that of a *Poa* (indeed, the basionym for the species is *Poa panicea* Retz.). According to the online *Flora of China*, the inflorescence consists of a brush-like arrangement of 5–35 very slender,

one-sided racemes, with 1.5–2mm spikelets of 2–4 florets, somewhat compressed laterally; the lanceolate lower glume c. half the length of the spikelet. It has membranous, often torn ligules and spreading-hairy sheaths. The English name derives from the mucronate upper glume. A weedy annual grass species from temperate and tropical Asia, which favours habitats that are periodically inundated, so a gutter would seem to be the perfect 'choice' in an urban context. Appears to be new to the U.K.

V.c.22 (Berks)

Dittrichia graveolens (Stinking Fleabane). (SU8590485957), 13/9/2017, D. Morris: along central reservation of A404.

V.c.23 (Oxon)

Dittrichia graveolens (Stinking Fleabane). (SP502123), 3/3/2012, P. Stanley (comm. D. Morris): on verge of A34; (SP4956611276), 30/10/2016, D. Morris: on verge of A34.

V.c.24 (Bucks)

Dittrichia graveolens (Stinking Fleabane). (SU8621586750), 30/10/2016, D. Morris: all along central reservation and western verge of A404 for several hundred metres.

V.c.25 (E. Suffolk)

Cotula australis (Annual Buttonweed). Great Yarmouth (TG4787204367), 2017, P. Stanley: huge number of plants, Braden Water Campsite.

Soliva pterosperma (Jo-jo). Kessingland (TM533877), 2017, P. Stanley: in small quantity, Heath Beach Campsite. See front cover of *BSBI News* 76 for an admirably clear drawing of a plant which is quite likely to confuse when first encountered.

V.c.27 (E. Norfolk)

Cotula australis (Annual Buttonweed). Great Yarmouth (TG515089), 2017, P. Stanley: thousands of plants, Vauxhall Holiday Park, with *Soliva pterosperma* (Jo-jo) in small quantity.

V.c.38 (Warwickshire)

Datura ferox (Longspine Thorn-apple). Salford Priors Gravel Pit (SP076532), 13/9/2016, R. Maskew: several plants on an arable margin close to a game-food strip. First county record. Previously known as a wool-alien



Datura ferox from Salford Prior Gravel Pit, v.c.38.
R. Maskew

in market gardens in the neighbouring district of south-east Worcestershire (v.c.37), where it was last seen in a bean crop near Evesham in 1958.

V.c.59 (S. Lancs)

Ditrichia graveolens (Stinking Fleabane). Winwick area (SJ624929), 9/2017, P. Stanley: at the Croft Interchange.

V.c.60 (W. Lancs)

Ditrichia graveolens (Stinking Fleabane). Catterall (SD511438, 551414), 9/2017, P. Stanley: along the M6.

References

- Clement, E.J. & Foster, M.C. 1994. *Alien plants of the British Isles*. BSBI, London.
- Cope, T. & Gray, A. 2009. *Grasses of the British Isles*. BSBI, London.
- Poland, J. & Clement, E.J. 2009. *The vegetative key to the British flora*. John Poland, Southampton.
- Stace, C.A. 2010. *New Flora of the British Isles*. 3rd ed. Cambridge University Press, Cambridge.
- Stace, C.A. & Crawley, M.C. 2015. *Alien Plants* (New Naturalist, no. 129). William Collins, London.

Matthew Berry

Flat 2, Lascelles Mansions, 8–10 Lascelles Terrace, Eastbourne, East Sussex BN21 4BJ
m.berry15100@btinternet.com

Epilobium tetragonum ssp. *tournefortii* naturalised near Luton Airport (v.c.30)

STEVEN SQUIRES

In August 2016, I was recording in the vicinity of Luton Airport when I encountered some willowherb plants that I did not immediately recognise. These were growing in two separate sites close to the airport perimeter, one a roadside verge and the other an arable field margin. The flowers were large (petals 13–15mm), bright rose-pink, and strikingly similar to those of *Epilobium hirsutum* (Great Willowherb), except that the stigmas were club-shaped rather than cross-shaped. The remaining characters were completely unlike *E. hirsutum*, and much more like those of *E. tetragonum* (Square-stalked Willowherb). The stems were square in section with short, appressed non-glandular hairs, and the small leaves were glabrous, with short petioles and toothed margins. Most of the plants were 50–80cm in height.

I was not aware of any *Epilobium* other than *E. hirsutum* with such large flowers, and my immediate assumption was that I had found a hybrid between *E. hirsutum* and *E. tetragonum*, especially as these were also growing nearby at both sites. However, the description of the *E. hirsutum* × *E. tetragonum* hybrid in the BSBI *Hybrid Flora* did not accord with the sample I had taken, especially with regard to the typical flower size and degree of hairiness found in the hybrid.

The sample was sent to Geoffrey Kitchener, BSBI referee for *Epilobium*, who identified it as *Epilobium tetragonum* ssp. *tournefortii* (Michalet) Lévillé, rather than a hybrid. Key characters confirming the identification were the large flower size, claviform stigma, appressed non-glandular hairs and square stem with four distinct lines. The absence of any long or glandular hairs



Epilobium tetragonum ssp. *tournefortii* naturalised near Luton Airport (v.c.30). S. Squires

helped to rule out the possibility of a hybrid with *E. hirsutum*. Indeed, full seed-set suggested that any sort of hybrid was unlikely.

E. tetragonum ssp. *tournefortii* is not native to Britain, but is widely distributed in the Mediterranean region, from France, Spain, Portugal and Tunisia in the west to Turkey, Syria and Lebanon in the east. It was first found in Britain by Alan Leslie in 2007 at two sites on the A505 Royston by-pass in Hertfordshire (v.c.29 Cambs), where the identification was confirmed by Geoffrey Kitchener. It has subsequently been found on one occasion in an arable field margin between Royston and Cambridge (Alan Leslie, pers. comm.).

I re-visited the area near Luton Airport in July 2017 and found *E. tetragonum* ssp. *tournefortii* at four separate sites, all within 500m of the perimeter fence. Three of the sites were roadside verges directly beneath the path of aircraft landing at or taking off from the airport. The fourth was an arable field margin alongside the perimeter fence, about 250m from the side of the runway. Luton Airport serves many destinations in the Mediterranean region, and the aircraft have their landing-gear lowered just before passing over the sites where the *Epilobium* was found. It therefore seems reasonable to propose that seed could have been blown into the wheel bays or become stuck to the tyres of an aircraft at a Mediterranean airport, only to be blown out again when landing at Luton Airport.

Interestingly, the sites near Royston and Cambridge where *E. tetragonum* ssp. *tournefortii* was first recorded in Britain are only about 15 miles from Stansted Airport. This airport also serves many destinations in

the Mediterranean region, and some of the landing approach routes overfly the Cambridge and Royston area. In their report in *Watsonia*, Alan Leslie & Geoffrey Kitchener (2008) could not explain the appearance of *E. tetragonum* ssp. *tournefortii* at Royston, but suggested the seeding of roadbanks or carriage by vehicles as possibilities. The finding of the colonies close to Luton Airport, and the proximity of Royston to Stansted Airport, suggest that 'introduction by aircraft' may be another possible route for the arrival of this alien taxon.

Acknowledgments

Many thanks to Geoffrey Kitchener, BSBI specialist referee, for confirming the identity of the plant as *E. tetragonum* ssp. *tournefortii*, and to John Wakely, VCR for Bedfordshire, for encouraging me to submit this report.

References

- Kitchener, G.D. & Leslie, A.C. 2008. *Epilobium tetragonum* subsp. *tournefortii* naturalised in Britain. *Watsonia* 27(1): 65–67.
- Stace, C.A. 2010. *New Flora of the British Isles*. 3rd ed. Cambridge University Press, Cambridge.
- Stace, C., Preston, C. & Pearman, D. 2015. *Hybrid Flora of the British Isles*. Botanical Society of Britain and Ireland, Bristol.
- Wilcox, M. 2010. *Epilobium tournefortii* Michalet. *BSBI News* 116: 70–76.

Steven Squires

270 Old Bedford Road, Luton, Bedfordshire LU2 7EQ
shsquires270@gmail.com

Stylophorum lasiocarpum (Chinese Celandine Poppy) in North Shields

GORDON YOUNG

On 11th July 2017, I found a small group of *Stylophorum lasiocarpum* (Chinese Celandine Poppy) at the foot of an old cast-iron drain-pipe in a busy street in North Shields (v.c.67; NZ353685). The stigma, seed-pod and orange sap reminded me of *Chelidonium majus* (Greater Celandine). I sent some photographs to John O'Reilly, who identified the plant as *Stylophorum lasiocarpum*, a woodland native of central and eastern China. It is also known as 'Human Bloodwort' because of the coloured sap. This appears to be the first British record of this alien, which is an occasional garden plant. I returned to the site a few days later to collect a mature seed-pod, only to find that the municipal weed-killers had been in action and nothing was left. Nevertheless, considering where they were found, there may be plants growing in the gutter above, so I will be checking next year.



Gordon Young

81 Lynn Road, Billy Mill, North Shields NE29 8HP

S. lasiocarpum leaf and seed-pod. G. Young



S. lasiocarpum from North Shields. G. Young

I shot an arrowhead in the air, it fell to Earth in *Sagittaria graminea*

GEORGE HOUNSOME

In August 2017, the Surrey Botanical Society (SBS) had a meeting at Lakeside Park, near Ash, in Surrey (v.c.17). The park features a number of lakes, some provided with ‘swims’, i.e. platforms for anglers. By one swim, at SU88915173, near the car park, were two patches of a plant that, from the flowers, was clearly a *Sagittaria* (arrowhead) but did not have arrowhead-shaped leaves; spearhead-shaped would be more accurate in this instance. A description of this plant might be: rhizomatous aquatic emergent to 80cm; leaves all basal, erect, long-petiolate; petioles to c. 70cm, sharply triquetrous; blades elliptical, to 20 x 8cm; flowering stems shorter than leaves; flowers 2–3cm diameter. in terminal whorls, petals white with no basal blotch, male above, female below with fruiting pedicels to 40mm. The key in Stace (2010) did not give a satisfactory outcome, the nearest being *S. rigida* (Canadian Arrowhead), but this was a poor fit with descriptions from other sources as there were no floating leaves and the fruits had pedicels to 40mm



S. graminea in flower. G. Hounsome



S. graminea at Lakeside Park (inset shows the sharply triquetrous petiole). G. Hounsome

instead of being sessile. Discussions with Eric Clement ensued, and he suggested that *S. graminea* (Grass-leaved Arrowhead) would be a much better fit. Information on the web is a bit patchy, but the description in Gleason (1968) matches the Lakeside Park plants. It seems that it should have strap-shaped submerged leaves, hence the name, and emergent ones just as we saw. There is a named variety ‘*platyphylla*’, with broader blades, up to 15cm wide, and that is probably our plant.

It is presumably an amenity planting that has persisted, being first seen at this site in 2003 but recorded as *S. rigida*. A 1988 record for *S. latifolia* (Duck-potato) from the same place may be an error for it, so it could have been there for 30 or more years. There is a 1977 record for *S. graminea* from a gravel pit near Sandhurst (v.c.22), referenced in Clement & Foster (1994) and two on the BSBI Distribution Database, from a fishing lake at Cadover Bridge (v.c.3), at least until 2007, and from Ballydchob-Skull in south-western Ireland (v.c.H3). The plant is available commercially,

unlike *S. rigida*, and is just the sort of thing that might be planted to beautify the angling environment.

There are a few records for *S. rigida* scattered around the country, apart from the classic sites along the Exeter Ship Canal (v.c.3). I would be interested to know if they are, indeed, that species or errors for *S. graminea*. The two are easily distinguished by the length of the fruiting pedicels.

Acknowledgements

I would like to thank Eric Clement for helpful discussions and information, and Bill Stanworth, Steve Mellor and Ann Sankey of the SBS for their contributions.

References

- BSBI Distribution Database, accessed 4/9/2017
 Clement, E.C. & Foster, M.C. 1994. *Alien Plants of the British Isles*. Botanical Society of the British Isles, London.
 Gleason, H.A. 1968. *The New Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada*. Hafner Publishing Company, New York and London.
 Royal Horticultural Society. *RHS Plantfinder 2011–2012*.
 Stace, C.A. 2010. *New Flora of the British Isles* (3rd ed.). Cambridge University Press, Cambridge

George Housome

14 St John's Rise, Woking, Surrey GU21 7PW
george.housome@btinternet.com

Allium cristophii (Star of Persia) – a plant on the up?

MATTHEW BERRY

I first recorded *Allium cristophii* Trautv. (Star of Persia) (spelling in accordance with that given in The Plant List, but often misspelt *A. christophii*) on the 5th June 2008: two plants hidden from view on Nettle-covered bank by a road opposite houses, East Dean (v.c.14) at TV5628198029. They had gone by the following year. I recently (30/4/2016) found a single plant growing on rough ground in Fort Lane at the end of a row of terraced houses in the Seaside district of Eastbourne (v.c.14), at TQ6265300780. In 2015, I came across leaves of what is almost certainly this species on a verge of South Lynn Drive, in the Upperton district of Eastbourne, but so far the local mowing regime has not allowed the plant to flower. There is one other record for Sussex: Hangleton (v.c.13) (TQ2727807681), 26/5/2009, A. & K. Knapp; one large plant in full flower in long vegetation, north side of footpath.

The plants could have arisen from dispersed seed or discarded bulbs. According to the relevant BSBI distribution map, it has been recorded from some 30 hectads in Britain and Ireland (the great majority in south-east England), all post-1987, with the majority for the period from 2010 to the present. It is too early to conclude that it is anything other than a casual, with even the oldest records being relatively recent, and first vice-county records still being logged. For the reason given below (and alluded to above) it might be the case that it is somewhat under recorded.

A popular garden plant originating in West Asia, the following description (based on personal observation)

could be used in conjunction with the plate in *Curtis's Botanical Magazine* (Volume 130, series 3, number 60, plate 7982 as *Allium albopilosum*), and fortuitously reproduced on the relevant Wikipedia page:

‘a bulbous perennial to c. 60cm; inflorescence an umbel of greater than 50 flowers, often globose; pedicels 4.0–11.5cm long; flowers stellate; tepals patent to somewhat reflexed/reflexed-arcuate, very narrow, very acute, c. 11–23 × 2–3mm, a metallic pinky-grey colour, becoming stiff and persisting in fruit; six stamens c. two thirds length of tepals, filaments simple, dark pink, anthers (undehisced) pale pink/lilac; stigma simple, more or less linear; seeds 6–8 per capsule, black when ripe, dull, rugose/reticulate-rugose, finely papillate, roughly ovoid, c. 3.0–4.0 × 1.0–2.0mm; spathe opening by two to five valves; stem robust terete; leaves all basal, numbering about six (up to 12), more or less strap-shaped, of variable width, at least some withered by flowering, channelled proximally and often cucullate at the tip.’

Given that as a casual it might have a preference for marginal ground close to gardens in residential areas, it could prove especially vulnerable to the strimmer and not always attain flowering dimensions. Fortunately, it is rather distinctive when in the vegetative state. The most distinctive thing about the leaves is the distribution of their hairs. They are strongly ciliate at first, the retrorse (although perhaps not invariably so) marginal hairs (c. 0.5–0.8mm) forming an almost continuous fringe which becomes sparser and more crisped with time. The

upper surfaces are grey-green and glabrous. The lower surfaces are noticeably, if rather sparsely, hairy; the hairs following the lines of the numerous longitudinal veins. They have a somewhat rubbery texture, and are almost, if not completely, unkeeled. When bruised the leaves have, to my mind at least, a peppery/cress-like odour, rather than the usual one of onion/garlic. They are rather variable in length and width, with a typical leaf being about 2cm to 3cm across at its widest, but leaves which are narrower (down to *c.* 1cm) or much wider (4–6cm?) can occur. This combination of characters should mean they are not likely to be mistaken for the leaves of any other petaloid monocot currently found growing in Britain and Ireland.

It is probable that the situation has been complicated somewhat by the availability of garden

hybrids, the precise parentage of which is unknown, but which have *A. cristophii* as one certain parent (pers. comm. E.J. Clement).

As a coda, I would draw attention to the pale, ‘vertical’ flecks on the upper and lower surfaces of the leaf depicted in the Curtis plate, which are clearly too broad to be appressed hairs. I have never seen markings of this sort in any Sussex material of *A. cristophii*. Does anyone have any clues as to how they might best be interpreted?

Matthew Berry

Flat 2, Lascelles Mansions, 8–10 Lascelles Terrace,
Eastbourne, East Sussex BN21 4BJ
m.berry15100@btinternet.com

Senecio minimus Poir. (Toothed Fireweed) arrives in Co. Dublin (v.c.H21)

ALEXIS FITZGERALD

Senecio minimus (Toothed Fireweed) is a native species of disturbed woodland margins and wet sclerophyllous forest in coastal to montane regions of New Zealand, Australia and Tasmania (Clement, 2004; Webb *et al.*, 1988). It has also been introduced and is becoming invasive in California, in North America (Clement, 2004). In Britain, Clement & Foster (1994) and Stace (2010) refer to the plant as being formerly a rare wool casual, arriving with imported wool from New Zealand and Australia.

It has been reported only recently from the Isles of Scilly and the Isle of Wight (Botanical Society of Britain and Ireland, 2017; Clement, 2004). On the Isles of Scilly, it is now steadily and unstopably becoming a ‘pernicious weed’ in dunes, woodland glades/clearings and wasteground, very much unlike its behaviour as a rare casual alien in previous decades (Parslow & Bennallick, 2017). It was first discovered here in 2000 by A.A. Butcher (Clement, 2004). To date, it has been recorded from the isles of Trecco, Bryher, St Mary’s and the uninhabited island of Samson (R. Parslow, pers. comm., 10th August 2017). It was also discovered in one location on the south side of the Isle of Wight in 2009 (Botanical Society of Britain and Ireland, 2017).

On 9th August 2017, whilst tending to one of my potted plants in the garden border at Coliemoire Apartments (Irish Grid (IG) reference O27165.26694), Coliemoire Road, Dalkey, Co. Dublin (v.c.H21), I noted at the back of the border a rather unusual looking weed species that I had evidently never seen before. However, it quickly struck me as being an Asteraceae species and probably of the genus *Senecio*. Sure enough, upon keying out the plant, the name *Senecio minimus* emerged. Some doubt was initially sown when I read in Stace (2010) and Sell & Murrell (2006) that the species is essentially ‘glabrous’. This description, however, could be misleading, as the stems are in fact ‘sparsely and minutely coarse-hairy’ below the mid-stem, and the lower surface of the leaves is ‘sparsely’ arachnoid hairy, as was observed with this plant (New Zealand Plant Conservation Network, 2017).

The plant was subsequently confirmed by Rosemary Parslow (VCR, Isles of Scilly, v.c.114) on 10th August 2017 using photographs. A specimen was pressed and later donated to the National Botanic Gardens, Glasnevin (DBN). This would appear to be the first recent mainland British/Irish record and the first Irish record for this alien.



Senecio minimus showing whole plant. A. FitzGerald

Associated ‘weed’ species in the garden border included *Cardamine hirsuta* (Hairy Bitter-cress), *Sonchus oleraceus* (Smooth Sowthistle), *Epilobium montanum* (Broad-leaved Willowherb) and *Cymbalaria muralis* (Ivy-leaved Toadflax).

It is not entirely clear how this species managed to smuggle its way here. Perhaps it arrived with one of the litany of exotic planted species which are found in the rocky garden borders in the apartments? Indeed, these include the New Zealand native *Phormium tenax* (New Zealand Flax). Certainly, garden nurseries are the suspected route of introduction of the species on the Isles of Scilly (R. Parslow, pers. comm., 10th August 2017). It is also possible that it was carried here by a human visitor returning from either the Isles of Scilly, New Zealand/Australia or California! Perhaps this species will become an ever more familiar weed on the Irish and British mainland in the coming years, unlike the former casual wool-alien arrivals of previous decades. Only time will tell.

Acknowledgments

Many thanks to Rosemary Parslow for confirming the Co. Dublin plant and providing very useful information on the species on the Isles of Scilly.



S. minimus close-up of leaf. A. FitzGerald



S. minimus in flower. A. FitzGerald

References

- Botanical Society of Britain and Ireland, 2017. BSBI Distribution Database. Worldwide web electronic publication. Available at: <https://database.bsbi.org>. Searched on: 11/08/2017.
- Clement, E.J. 2004. *Senecio minimus* – a new weed on the Isles of Scilly. *BSBI News* 97: 48.
- Clement, E.J. & Foster, M.C. 1994. *Alien Plants of the British Isles*. Botanical Society of the British Isles, London.
- New Zealand Plant Conservation Network, 2017. *New Zealand Plant Conservation Network – Senecio minimus*. Worldwide web electronic publication. Available at: http://www.nzpcn.org.nz/flora_details.aspx?ID=2258. Searched on: 11/08/2017.
- Parslow, R.E. & Bernallick, I.J. 2017. *The New Flora of the Isles of Scilly*. Parslow Press.
- Sell, P. & Murrell, G. 2006. *Flora of Great Britain and Ireland. Volume 4. Campanulaceae – Asteraceae*. Cambridge University Press, Cambridge.
- Stace, C.A. 2010. *New Flora of the British Isles* (3rd ed.). Cambridge University Press, Cambridge.
- Webb, C.J., Sykes, W.R. & Garnock-Jones, P.J. 1988. *Flora of New Zealand Volume IV*. DSIR, Christchurch.

Alexis FitzGerald

Apt. M, Coliemore Apts., Coliemore Road, Dalkey, Co. Dublin, Ireland
alexisfitzgerald434@gmail.com

COUNTRY ROUNDUPS – ENGLAND

PETE STROH

Welcome to the first of what will be a regular, England-centric feature. Although the largest country in Britain and Ireland, there is no BSBI Officer support for England (if you do not count my allocated 0.5 day per week!). But, clearly undeterred, VCRs across the 57 Vice-Counties of England have succeeded in organising themselves and their multitude of volunteers into a formidable recording force, collating millions of records, organising hundreds of field meetings, and teaching countless wildflower enthusiasts the finer points of field identification. This first roundup will focus solely on notable (local and national) discoveries, but I will also hope to publicise conferences, identification workshops, etc. in future reports, so this is also a general call for you please to get in touch and let me know about what's happening in your part of England.

I am unashamedly going to start in one of the most underrated and beautiful parts of the country, north-east Northamptonshire; and yes, I do live there. Although this part of England is no different from any other lowland county in that it has suffered a considerable loss in biodiversity over the past 60 years, there are still discoveries to be made, not least three fields down from the back garden of our new house, where I found *Eleocharis uniglumis* (Slender Spike-rush) this spring whilst

exploring the area. This species was thought to be extinct in the county, but there it was, amongst hundreds of *Oenanthe fistulosa* (Tubular Water-dropwort) plants in a flood meadow by the River Nene. We have the farmer and his predecessors to thank for this, by continuing traditional grazing, avoiding the use of herbicides, and having a real appreciation of the land – more like him, please! Some might say this doesn't quite top the discovery by Sean Karley of the slightly more glamorous *Himantoglossum hircinum* (Lizard Orchid), a first for the county, at Swaddywell Pit, near the picturesque village of Helpston, where the poet John Clare lived for many years (by the by, *A John Clare Flora* by Molly Mahood is certainly worth reading). This reserve, managed by volunteers, is a local gem, and also holds the only Northamptonshire population of *Spiranthes spiralis* (Autumn Lady's-tresses), newly discovered last year.

Sticking with first county records, there have been some amazing range-extensions reported for some of our native flora this summer. The rather dull common name given to *Carex limosa* (Bog Sedge) does not do justice to this delicate plant, with its nodding flowering spikes. It is always, to my mind, associated with first-rate habitat. Remarkably, this species, with a predominantly north-western distribution in England (with biogeographic exceptions in

Dorset and Hampshire), has been discovered for the first time in south-west England by Ian Diack, whilst visiting an SSSI on Bodmin Moor, East Cornwall. It was found growing in an open runnel surrounded and obscured by rank *Molinia* grassland. This is hot on the heels of Mike Wilcox's discovery in 2016 of *Myosotis stolonifera* (Creeping Forget-me-not) on Exmoor – a first for southern England – just a bit further east. Conversely, a plant that is almost exclusively associated with the mild, wet climate of south-west England, *Sibthorpia europaea* (Cornish Moneywort), has been found by Stephen Lemon in



Carex limosa. Pete Stroh

a Kent woodland not far from the Sussex border. This species has a rather odd distribution in England, with outlier records in Dorset and the Sussex Weald. You can read more about the species in the dedicated species account available on the BSBI website (<http://bsbi.org/species-accounts>).

Physospermum cornubiense (Cornish Bladderseed), another south-west specialist, also appears to be on the up, with one plant found by Mary Breeds, John Day and Hilary Marshall on a road verge at Blaxton, south Devon. This is the first Devon record for 40 years, and, rather typically, was found just after the publication of the excellent *Flora of Devon*.

I feel I should move northwards, if for no other reason than to show that I have no intrinsic south-north bias (I was born in Devon, my roots are in Yorkshire, and I live in the Midlands!). And what better excuse than a new population of *Carex flava* (Large Yellow-Sedge) in North Lancashire? Or at least that was the first impression when this very rare British native was found at Little Hawes Water in June this year by Ros Tratt and colleagues, whilst undertaking a site survey. Cue much excitement, followed by a tinge of disappointment when we learnt it was in fact a hitherto unheralded introduction site, with mature plants translocated from Roudsea Wood by Natural England in 1999. But the fact that this population has persisted for 18 years is in itself very encouraging. This conservation introduction appears to be 'ecologically self-sustaining',



Carex flava, Roudsea Wood.
Kevin Walker

and could therefore be included in any future assessment of threat. There are vanishingly few examples of successful long-term introductions of rare species, and Rob Petley-Jones, who oversaw the translocation, clearly has an excellent understanding of its ecology. Now that the 'forgotten introduction' has been refound, an eco-hydrological study comparing the two native sites with the Little Hawes Water site could certainly yield interesting and useful results for the future management of this Nationally Rare sedge.

After a short foray up north, I'm heading back down south, stopping off very briefly in Leicestershire to report on John Mousley's record of *Artemisia maritima* (Sea Wormwood) from the A6 central reservation at Quorn (one of the very few

inland records for this species), and ducking under water to report on two notable aquatic plant discoveries. Aquatics are sometimes perceived as difficult, and some are, but we have three excellent BSBI Handbooks (*Pondweeds*; *Water Starworts*; *Stoneworts*) to help with identification, and I really enjoy throwing a grapnel into a river in order to find what lurks beneath the surface. In Kent, at Little Oakley, Ken Adams did just that, and hauled out *Zannichellia obtusifolia*, new to Great Britain and Ireland. And in the River Thames (straying into both Oxfordshire and Berkshire), the very rare *Potamogeton nodosus* (Loddon Pondweed) has been found by Frank Hunt. This species was thought extinct in the Thames (although it later emerged that the EA held a few post-1999 records for the Berkshire-side), so many congratulations to Frank for



Potamogeton nodosus. Frank Hunt

both for finding the plant and for realising what he had found. As usual, the *Pondweeds Handbook* gives an excellent account of its distinguishing characters and ecology.

Completing the circle, back to spike-rushes, this time it is the resurrection of *Eleocharis quinqueflora* (Few-flowered Spike-rush) in Kent, last seen at Ham Fen in 1839, but refound this year at the same site by Sue Buckingham and Stephen Lemon.

The emergence of this species after so long a gap coincides with efforts by the Kent Wildlife Trust to restore the site from rank grassland to fen/marshland conditions by scraping off the soil to expose the underlying peat. We should also acknowledge the help of Beavers, whose introduction to the area in 2001 has resulted in increased water levels. It is a remarkable find, and clearly demonstrates both a long-lived seed bank and

the potential for the recovery of many threatened species if informed, targeted action is taken.

Thank you to all who sent me records of interest, and I apologise for not having room to include them all – please do keep the information coming!

Pete Stroh
BSBI Scientific Officer
peter.stroh@bsbi.org

COUNTRY ROUNDUPS – SCOTLAND

JIM McINTOSH

Scottish Annual Meeting 2017

We had a record attendance of 150 at last year's Scottish Annual Meeting at Royal Botanic Garden Edinburgh (RBGE), possibly making it the biggest meeting of botanists in Scotland. This is quite remarkable given that the BSBI's membership in Scotland is just 336, although, to be fair, quite a few Botanical Society of Scotland members also participated! The highlight for me is, as always, the exhibition. It is really central to the day, as so many members put so much effort into it, and their exhibits are *the* talking points. It is heartening to see such a great diversity of botanical research, recording, education and conservation work going on in Scotland. However, judging from the feedback forms, the highlights for many others were the main talk and mini-workshops. Michael Scott gave us a fascinating and beautifully

illustrated talk on mountain flowers and we held seven mini-workshops (in parallel) on ferns, pondweeds and willows, in the classrooms, and conifers and winter trees, out in the gardens. Pete Stroh led a discussion in the library on BSBI projects post *Atlas 2020*, while another group looked at species pairs and hybrids, in the herbarium. The workshops were repeated so everyone could attend two. However, this did mean that, along with a full talks programme, there was less time left to look at exhibits and I worry that this detracts from the main event. We will adjust the programme to achieve a better balance next year.

You can see abstracts of the exhibits and pdf versions of all the talks that were given on the BSBI website, which is useful if you were not able to attend, or even if you did, and would like a refresher.

Scottish Annual Meeting 2018

After much deliberation, we have decided to return to the RBGE in 2018 (on 3rd November). We apologise to those in the north of Scotland who find it difficult to travel there and back in a day. However, whenever we hold the meeting in Edinburgh more than 140 members attend, and when it is held in Perth we only get 110, so Edinburgh does seem to suit more members.

Scottish Recording Conferences

I am also organising two one-day recording conferences in 2018: one on 14th April at RBGE and another on 28th April at Strathpeffer Community Centre. The same programme will be repeated (more or less), so folk can choose whichever is easier to travel to. These events are not just for Scottish Recorders. All recorders *and* members

interested in recording (north or south of the border) are very welcome. Mark the dates in your diaries now!

Recording weeks

Over the past ten years we have organised a recording week in Scotland to help with *Atlas 2020* recording in remote and under-recorded areas. More recently, we have organised two a year, thanks to help from Angus Hannah in organising a second event in the west. In 2018, we are planning three recording weeks, so in addition to Angus' week in the west (in Argyll this year) we are planning one in Wigtownshire and another north-west of Fort William in a remote part of Westernness. These weeks are a great way to improve your botany and are great fun and very sociable!

See the Yearbook for dates and booking details.

Atlas 2020

For the first time ever, a quarter of a million records were collected in Scotland in 2016 by BSBI recorders and members. This is an amazing achievement, and is likely to be exceeded in the remaining years of recording for *Atlas 2020*, not only because recorders and members are doing a huge amount of work north of the border, but also because we are sharing records with partner organisations such as the National Trust for Scotland and Local Recording Centres. These additional records have helped push our totals over a quarter of a million in all years from 2014, and are helping to fill gaps in many under-recorded parts of the country.

Five million BSBI records to NBN

In spring, the BSBI supplied five million BSBI Scottish records to the NBN. So, when the new NBN Atlas Scotland website went live on 1st April, our records were made available, complete with full details of sites, grid references and recorders. They are provided under licence, which requires the BSBI to be credited wherever they are used and prevents commercial use. This is a great step forward in making our data freely available to conservationists, researchers, land managers and other botanists. Many thanks to all the Scottish recorders who agreed to this.

Jim McIntosh
BSBI Scottish Officer
jim.mcintosh@bsbi.org

COUNTRY ROUNDUPS – IRELAND

MARIA LONG

In this first section on news from Ireland in the new-look *BSBI News*, I'm going to cheat a bit, as I'm going to steal some of my news from information I have already presented in a couple of places.

Botanists have had a busy season in Ireland in 2017. We had 13 field meetings in our core programme (amounting to 23 field days), as well as countless others which were undertaken by local groups, the rough crew, or organised after the cut-off date for making it to the core list. We had a series of workshops (e.g. *Atriplex* ID, using ID keys, willow ID, polypody ID, *Veronica*

ID, rush ID), and a number of indoor events, such as our spring conference, the Irish AGM and the new Irish VCR day.

We have 206 BSBI members in all of Ireland. We have 40 vice-counties, 43 vice-county recorders and 1,008 hectads (10x10km squares). The small number of members, compared to England, for example, gives you an idea of the scale of the challenge involved in recording for *Atlas 2020* in Ireland. It is huge. In order to help us spread our effort, and to help us target areas most in need of support, our Committee for Ireland Chairperson, Robert Northridge,

came up with a simple yet genius idea. Late in 2016 he looked at the DDb and checked how many hectads had more than 200 taxa recorded since 2000. This is a bare minimum to aim for, but in vast areas of wild countryside, often with no botanist within 50 to 100 miles (I'm not exaggerating), this might be all that can be achieved with the resources, people and time available. And 200 species is infinitely better than a blank square! At that stage, Robert discovered that over 400 of Ireland's 1,008 hectads fell below this threshold, which was a shock. However, we have used this information to plan

our field meetings and spread our effort, and Robert is absolutely delighted to report that in just 12 short months we have reduced the number of hectads with less than 200 taxa to around 140. And they are in our sights for the next two recording seasons.

We have already set our core field meetings programme for 2018 and there are 14 listed events, with the combined number of days totalling 34. This includes, to name but a few, two two-day Charophyte workshops and a five-day recording event in Mayo. There are a number of other really exciting trips, with islands featuring prominently this year. There will also, of course, be multiple other trips with local groups, etc. For our botanical friends across the water, please do consider coming to a field meeting in Ireland this year. You are bound to have a good time, and your help would be really appreciated.

I had better mention some nice plant finds of the past year – so below are just a few interesting notes from across the BSBI recorder network in Ireland in 2017.

The botanical season of 2017 kicked off with a tremendously successful five-day recording event on the Dingle peninsula, in June. This attracted over 45 participants, who collectively gathered almost 6,000 records, from across 17 hectads – a great achievement. For me, my first finding of *Trichomanes speciosum* (Killarney Fern) sporophytes turned out to be a new location for this species, and so was made doubly exciting. Jessica Hamilton, active member and joint leader of the Kerry BSBI Local Group, noted the following upland plants as standing out for her: *Oxyria digyna* (Mountain sorrel), *Sedum rosea* (Roseroot), *Alchemilla alpina* (Alpine Lady's-Mantle), *Polystichum lonchitis*

(Holly Fern), *Carex bigelowii* (Stiff Sedge), Ireland's smallest tree, *Salix herbacea* (Dwarf Willow), and *Persicaria vivipara* (Alpine Bistort).

In the lowlands, and also in early June, BSBI member Eamonn Delaney made an exciting find of *Viola persicifolia* (Fen Violet) near Shrulle, in Mayo, at only its fifth known site in the county. Well done to Eamonn for finding that.

In July, Lisa Dowling, Carlow recorder, spotted an unusual plant in her front yard. It was *Plantago coronopus* (Buck's-horn Plantain), and in Ireland, at least, it is usually confined to coastal areas.

Paul Green (and now a host of others whom he has enthused) has been blazing a trail around the Irish coast recording *Atriplex* (orache) species. These are mainly coastal plants, though some grow inland, and late in the season is the best time to record them. Not only has Paul helped increase recording of this tricky group in general, and, in particular, by recording little known hybrids, but he has also found a species new for Ireland: *A. praecox* (Early Orache) (see pages 27–28 for a full account).

Please remember that this is far from a comprehensive roundup. Rather, it gives a flavour of the interesting plants that people encountered. Thanks to all for sharing their finds. Please get in touch any time if you have finds to report and I'll be happy to mention them here.

Maria Long
BSBI Irish Officer
maria.long@bsbi.org



Botanists gather around *Salix herbacea* (Dwarf Willow) amongst great scenery at the Kerry Recording Event in June 2017. Robert Northridge



Annual Summer Meeting Holywell (v.c.51), 5th–9th June 2017

JONATHAN SHANKLIN

The Annual Summer Meeting was based at the Stamford Gate Hotel in Holywell, Flintshire.

It is a small family-run hotel, and was really proactive in helping the meeting to run smoothly. Wales welcomed us with its wet side, which rather influenced the afternoon options as attendees arrived for the ASM. A small party did venture out, recording a host of urban species, including *Deutzia cf. scabra* (*Deutzia*), which was identified using John Poland's vegetative key and later confirmed by John himself as the correct deduction on the basis of its stellate hairs and hollow stem.

The indoor session turned into a talk by Jonathan Shanklin on Scientific Discovery from the Great War to the Antarctic Ozone Hole. The first part featured botany in nearby Llandudno, whilst the second part covered climate change, as well as the ozone hole. The botanical section was extended almost at the last minute, with the discovery of a family album of pressed flowers, which recorded the plants growing in the neighbourhood of Llandudno between about 1890 and 1905. Even a quick glance at the album has shown that many are the earliest records for Wales!

Several exhibits were on view in 'our' area of the hotel, along with secondhand and antiquarian books from John Edmondson of Acanthophyllum Books, who lives locally. Polly Spencer-Vellacot had a display about her grandfather A.G. 'Geoffrey' Spencer, who had inspired her interest in botany, and on the Welsh

View from Graig Fawr. *John Crellin*

Rare Plant Registers. Martyn Stead had a display on polypodies, which helped many to understand the differences between the species. Jeremy Ison had a poster about the flora and vegetation of Ramsey Island/Ynys Dewi, whilst Jonathan Shanklin had one showing excerpts from some diaries from the Great War which mentioned flowers from around Llandudno.

After dinner we re-convened, first to have a short briefing on recording and safety in the field, then to hear David Earl on brambles. He had specially focused on Flintshire species and took us through some of the commoner ones, then showed us a new key that he had been developing. It required a bit of trial and error for an imaginary specimen, but got us to *Rubus armeniacus* ('Himalayan Giant') for a real one, and very quickly took us to *R. effrenatus*, only found in Flintshire on Hope Mountain, which had been sampled the day before.

Tuesday 6th June

The weather forecast changed overnight, and, leaving Cheshire in the morning, things looked ominous for our excursion: lashing rain and strong winds. In the event, we had one sharp shower during the day, and it lasted only a few minutes, but the strong winds continued throughout the day.

Our first destination was Gronant dunes, midway between Prestatyn and the Point of Ayr. The party split into two groups, one going west led by Emily Meilleur, the vice-county recorder, and the other going east, led by Jonathan Shanklin. The latter group had a short walk before they were allowed to start recording in the monad, but then set to with gusto, eventually recording around 150 species. Notable for the environment was *Filipendula vulgaris* (Dropwort), but there were plenty of more expected species such as *Vulpia fasciculata* (Dune Fescue), *Eryngium maritimum* (Sea Holly) and *Oenanthe lachenalii* (Parsley Water-dropwort), to name but a few. We could have found many more but had to return to the coach in time to get to our afternoon destination.

Graig Fawr, a limestone escarpment, was our target, with three groups, Emily Meilleur taking one along the disused railway line, now a foot/cycle path, Polly Spencer-Vellacot taking a group to the top, and Jonathan Shanklin taking a group to the middle ground. This was the less interesting area as the others had *Epipactis atrorubens* (Dark-red Helleborine), *Veronica spicata* (Spiked Speedwell), *Juniper communis* (Juniper), *Helianthemum oelandicum* (Hoary Rock-rose) and other goodies. The middle group did find some nice grassland species, with *Briza media* (Quaking-grass), *Helianthemum nummularium* (Common Rock-rose) and others now under threat in England but still common enough in Wales.

The evening meal included a toast to John Topp, who a few years ago had made a bequest to the

Welsh Committee for the purposes. After dinner, the Welsh AGM started with a surprise announcement from the President, John Faulkner. He explained how the President's award was made for a major contribution to the understanding of the flora and that it could be awarded for a book, paper or other piece of research. He noted how useful the BSBI DDb was for exploring the flora at all scales and said that he was delighted to award the prize to Tom Humphrey, BSBI Database Officer. The Welsh AGM had reports from the chair, Welsh Bulletin editor and Welsh Officer amongst others, and the business was quickly finished.

Wednesday 7th June

Wednesday was the first day where carloads went out to record tetrads in small groups. Making sure that each group had a driver, an expert and an interesting destination took some organising, but was ultimately successful on each of the three recording days. For the first, we had the nicer side of Welsh weather, as although it was still breezy there were sunny intervals and no rain. With botanists scattered over the county, it is difficult to say what they all did (and for convenience and brevity, this account details only the excursions of the organiser), but usually they progressed quite slowly, sometimes simply thoroughly covering one monad. Many groups made interesting finds, though what constituted as unusual differed from group to group. An unknown umbellifer found by one group was quickly identified as *Sison amomum* (Stone Parsley) by Jonathan Shanklin as it is a common plant in v.c.29, but a scarce one in v.c.51 and more northerly counties. One group found *Catapodium marinum* (Sea Fern-grass) along the A55 where it now loves the salted road verges, but was previously a rare plant in the county. Another halophyte rarity, *Erodium marinum* (Sea Stork's-bill), was found in its more normal seaside setting by another group.

Many identifications were made back at the hotel, in the short gap between return and dinner. After dinner we had a wonderful talk from Goronwy Wynne, the Emeritus Vice-county Recorder for Flintshire. There were no pictures, although he did have a few props. He took us through the history of botanical recording in the county, for example, linking Thomas Pennant with Charles Darwin, and recounting the tale of how Darwin's children had



Graig Fawr. John Crellin



Trefoils and orchids at Talacre Dunes. Laura Gravestock

drawn moustaches on the faces of monkeys in the book on quadrupeds written by Pennant, and sent to Darwin whilst he was voyaging on *The Beagle*. He also commented on the commonest species in Flintshire and some of the notable ones, such as *Spartina anglica* (Common Cord-grass). This was deliberately introduced to the Dee Estuary to stabilise mudflats and eventually changed the course of the main river channel.

Thursday 8th June

On Thursday, Jonathan Shanklin opted for a day at the seaside with Laura Gravestock and Debbie Wallace. We went to the Talacre Dunes just to the west of where the meeting had gone on Tuesday. There we found all sorts of goodies – first *Dactylorhiza incarnata* (both ssp. *incarnata* and *pulchella*) (Early Marsh-orchid), then a *Dactylorhiza* which keyed out to *D. majalis* (although now called *D. purpurella* var. *cambrensis*) (Northern Marsh-orchid). A dune slack gave us *Centaureum littorale* (Seaside Centaury), *Carex oederi* (Small-fruited Yellow-sedge) and *Euphrasia confusa* × *tetraquetra* (Eyebright). A little later we found *Vulpia fasciculata* and *Phleum arenarium* (Sand Cat's-tail). Lunch was taken and there was *Vicia lathyroides* (Spring Vetch) by our feet. In the afternoon we continued meandering through the dunes, eventually coming to a pond where we heard a Natterjack Toad calling. On the path around the enclosure for the pond we spotted a tiny clover: *Trifolium ornithopodioides* (Bird's-foot Clover).

Friday 9th June

Our first day had the promise of being fine, and it duly turned out to be just about right for botanising. The remaining groups were orchestrated with their destinations, and then my group set off for Moel y Crio, on the south side of Halkyn Mountain. The area had just over 100 post-2000 records, with a re-find rate of 52%, so we were certain to make some

additions, along with some possible re-finds of rarer species.

We were highly successful, recording over 260 species, possibly because of a reasonable mix of wild habitat – lanes, ponds, marshes, common land and a wood, with a mix of basic and acidic rocks, as well as mineral workings. Our first scarce plant was *Ranunculus peltatus* (Pond Water-crowfoot), growing in profusion in a pond. At the side of a track we found *Aconitum napellus* (Monk's-hood), taking care not to touch it, whilst in the middle of the track was *Alchemilla filicaulis* ssp. *vestitus* (Common Lady's-mantle). We were taking a roughly circular route, and on our return leg along a winding lane spotted a farm track to a wider area that looked interesting – and it was, with sheets of *Minuartia verna* (Spring Sandwort) on old mine diggings. Our final detour was to a spot marked 'springs' on the map. The springs proved worth the detour, with *Valeriana dioica* (Marsh Valerian), *Sanguisorba officinalis* (Great Burnet) and *Dactylorhiza maculata* (Heath Spotted-orchid).

After the ASM was over, more than 7,400 records were digitised, which required many hours of typing. Several people assisted in this task – a big thanks to you all. Most cards had at least one post-2000 hectad record, and quite a few included plants rare in the county. Some had new post-2000 county records, but how many actual county records were made will require further verification by the county recorder.

The 50 participants between them made records of 836 species from 30 tetrads. The most frequently reported species was *Urtica dioica* (Common Nettle), followed by *Dactylis glomerata* (Cock's-foot) and *Ranunculus acris* (Meadow Buttercup). Species with a MapMate 'status' seen during the week included *Dactylorhiza purpurella* (Rare, Scarce), *Hypericum montanum* (Pale St John's-wort) (NT, scattered across the county), *Viola canina* (Heath Dog-violet) (NT, scattered), *Platanthera chlorantha* (Greater Butterfly-orchid) (NT, Scarce), *Silene nutans* (Nottingham Catchfly) (NT, Rare), *Minuartia verna* (NT, Scarce), *Cynoglossum officinale* (Hound's-tongue) (NT, Scarce). Some finds were quite strange, for example, *Convallaria majalis* (Lily-of-the-valley) on the dunes; there are only two other locations in the county shown in the Flora. Some relatively common species, such as *Petasites hybridus* (Butterbur), were not seen at all, although this plant seems to be generally confined to the southern half of the county.

Thanks to all the participants, the ASM made a huge contribution to recording in Flintshire for *Atlas 2020* and brought other benefits too. It allowed the participants to learn from each other, and to see species that were new to them. There was the opportunity to socialise, particularly over the evening meals. Using BSBI record cards printed onto waterproof paper certainly made recording on the days with wet or windy conditions much easier. It was clear that everyone sees things in different ways, and what is obvious to one person may be

obscure to another. The DDb shows that there are some plants that get treated differently in different counties – possibly a topic for a future Recorders Conference? The 2018 ASM is in the Isle of Man, so will you be there to contribute?

Jonathan Shanklin

Hon. Field Meetings Secretary, 11 City Road,
Cambridge CB1 1DP
jdsh@bas.ac.uk

News from the Hon. Field Meetings Secretary – Jonathan Shanklin

Many vice-county recorders and local groups are busy preparing plans for the 2018 season. Details of the meetings are in the *2018 BSBI Yearbook*. However, it is often the case that not everything is available by the publication deadline. The BSBI website will continue to show any updates and details of additional meetings, and the online meetings diary will include local group meetings where possible. The *Yearbook* also contains reports of meetings that have taken place, and these reports aim to give a feel for how enjoyable and successful they have been. A lot of hard work goes into organising all of these events, and on behalf of members I would like to extend a big ‘thank you’ to everyone who has contributed to the organisation of our field meetings.

Arrangements for the 2018 BSBI Summer Meeting in the Isle of Man in July are progressing well. King William’s College, Castletown, will be our base, and the meeting runs from July 16th to 23rd. Travel to the Isle of Man can be quite expensive, and we have some options posted on the Annual Summer Meeting web page. It should be possible for some of those planning to travel by ship as foot-passengers to team up with car-drivers to reduce costs. As compensation for the expense of getting there, the accommodation is much cheaper than in recent years, at B&B rates of £28 per night, so the overall cost may be similar. The meeting is a joint one with the British Bryological Society, and the plans are that both groups will

travel to the same sites, but may then move at different speeds across the terrain. We will have a flier for the meeting in the next *BSBI News*, although one should be available on the ASM web page early in the New Year. Further information about the Isle of Man flora is on the v.c.71 web page. The Isle of Man national flower is ‘Cushag’ *Senecio jacobaea*, but I hope we will see *Coincya monensis* (Isle of Man Cabbage) and other scarce species.

Plans for the 2018 Annual Exhibition Meeting are also progressing. Our usual practice is to alternate between a London venue and an ‘out-of-London’ venue, ideally moving this around to locations within easy reach of the majority of members. Unfortunately, it is becoming increasingly difficult to find venues that charge a ‘volunteer’ rate for a daily hire. We are therefore considering re-visiting hosts that are willing to accommodate us on an actual cost basis, rather than having to pay commercial rates. If you do know of a suitable venue that could accommodate around 200 people and would be prepared to host the event on a ‘volunteer’ basis, please let us know.

If you have not yet taken part in a BSBI field meeting do consider going on one during 2018. Everyone, from beginners to experts, makes a contribution, and they are a great place to learn tips on identification. I hope to see some of you in the Isle of Man.

Jonathan Shanklin

OBITUARIES

MARGARET BARRON (1925–2016)

Margaret Barron, who died on 16th December 2016, was best known to BSBI members as the long-serving Recorder for v.c.96, East Inverness-shire, a position which she occupied for 28 years (1979–2007). In addition to this role, she was an active participant in many other societies local to her home town of Inverness, not least the Inverness Botany Group, for which she served as secretary for 31 years.

Born on 8th March 1925, Margaret was the youngest of three children born to Marion (née Cornet) and Llewellyn Jones, a Chartered Accountant in Inverness. The young Margaret was a sporty girl, excelling at swimming and hockey whilst at school at Inverness Royal Academy. Her interest in botany seems to have developed later in life. It was also during her school years that she met her future husband, Hugh Barron, a fellow pupil at IRA (as it is known locally) whose mother was a friend of Margaret's mother.

On leaving school in wartime 1943, Margaret immediately joined the Auxiliary Territorial Service (ATS – the women's branch of the Army) as a Wireless Operator, serving until 1947. Following her discharge from the Service, she enrolled at Edinburgh University to study for a Bachelor of Commerce (B.Com.) degree, graduating in 1950. During her time at university she also resumed playing badminton, another sport at which she excelled. After graduating she spent a year working for an insurance company in London. These years were the only significant period of time that Margaret spent away from her natal town.

On her return to Inverness, she and Hugh (who by then had also been demobbed from the Royal Marines) were married in July 1951, and settled into life on his family farm at Charleston, near Dunain, which was then on the outskirts of town. Here they initially kept dairy cattle, but later converted to beef production. It was during this period that Margaret's interest in botany developed, and she became active in the Inverness Botany Group. This local society had been set up in 1955 in response to a lecture given by Grant Roger of the Committee for the Study of the Scottish Flora (CSSF) (Barron *et al.*, 2010).

Margaret was the mainstay of the Group for many years, and was largely instrumental in its development as a very successful local society, serving as Secretary from



Margaret Barron leading a field trip up from the River Findhorn at Ardoch, 2004. Sue Murray.

1975 to 2006. During this time she organised the winter programme of indoor lectures and arranged and led the summer programme of field meetings. She instigated a quarterly newsletter, wrote most of the articles, edited each issue and was responsible for the production and distribution of what was then a 'hard-copy only' communication. These functions are now carried out by a committee of eight people!

Having joined the BSBI in 1971, Margaret also joined the Botanical Society of Edinburgh (now the Botanical Society of Scotland) and for many years acted as Local Secretary for their annual Inverness lecture which was (and still is) held in conjunction with the Inverness Botany Group.

The production of *A Map Flora of Mainland Inverness-shire* (Hadley, 1985) was a joint project between these two societies (BSBI and BSE). This book was the culmination of many years' work by the then Vice-County Recorders for East and West Inverness-shire and many other botanists. The fieldwork was carried out between 1970 and 1975, before Margaret was appointed v.c. recorder, but she receives an acknowledgement for her contribution, as do many other members of both societies. The book consists of distribution maps of all the plants found across

this huge area of Scotland on a 5×5km (quadrant) basis, and represents a milestone in our knowledge of Highland botany.

In taking on the Recordship for East Inverness-shire (except Nairnshire) in 1979, she succeeded Miss E.R.T. Conacher. On the death of the redoubtable Mary McCallum Webster, author of the *Flora of Moray, Nairn and East Inverness-shire*, in 1985 she added Nairnshire ('v.c.96b') as well, so that she then covered the whole of v.c.96. This is the largest vice-county in Britain, and includes extensive areas of mountainous and otherwise inaccessible terrain, from the head of Glen Affric to the summit of Cairngorm, and from Fort Augustus to Nairn. Margaret kept meticulous records of plant distribution, on individual cards for each outing by herself, by the Botany Group on their regular field trips, and by visiting botanists. These were then collated according to 10-km squares for inclusion in the *New Atlas of the British and Irish Flora* (2002). She also surveyed tetrads for the BSBI Monitoring Scheme (1987–88) and the repeat Local Change survey (2003–04) during this period.

Margaret was active in several other environmental groups locally. She co-ordinated a survey of *Leucanthemum vulgare* (Ox-eye Daisy) for Highland Biological Recording Group in 1995 (Barron, 1996), and served on the Committees of the local Scottish Wildlife Trust members' group and Inverness Field Club for several years. She was also involved in the Highland Biodiversity Project management group, and for a short time in the early 1990s was a member of the Forestry Commission's Inverness, Ross and Cromarty Environmental Advisory Panel. With more than a passing interest in birds, Margaret was also a member of the local Scottish Ornithologists' Club and RSPB groups.

In the late 1970s Inverness was expanding rapidly, and the farm at Charleston was a prime target for

development. Most of it was sold to the Council for use as a cemetery, and Margaret and Hugh retired to 'The Granary', a barn conversion on the opposite side of the River Ness, where they spent the next 40 years.

All who knew her will remember Margaret not only for her unparalleled knowledge of local plants and their distribution, but for her enthusiasm in communicating her love of the subject to those less knowledgeable, and for her infinite patience in responding to beginners' questions. She leaves a legacy of hundreds of meticulously completed recording cards, now in the custody of the BSBI, and numerous hand-written notes on index cards and small pieces of paper, replying to queries, which those of us who received them will treasure. Unfortunately, in later years, after two hip replacement operations, declining mobility gradually curtailed her activities and she was less able to participate in field trips and meetings. It is fitting that she is now laid to rest in the very cemetery which used to be part of Charleston Farm.

Inverness Field Club has instituted a 'Margaret Barron Memorial Lecture' and Margaret's assemblage of Highland botany books has been deposited in Inverness Reference Library as a special collection.

I am grateful to Hugh Barron and Andy Amphlett for help in writing this obituary.

References

- Barron, M. 1996. Ox-eye daisy *Leucanthemum vulgare*. 1995 Project Reports. *HBRG Newsletter* 9: 2.
- Barron, M., Hulse, V. & Mackay, S. 2010. *Inverness Botany Group: the First Fifty Years*. For the Right Reasons, Inverness.
- Hadley, G. (ed.) 1985. *A Map Flora of Mainland Inverness-shire*. Botanical Society of Edinburgh and Botanical Society of the British Isles.

Ro Scott

DALTON ROWELL GLENDINNING (1931–2017)

Dalton Glendinning was a botanist specialising in plant breeding, latterly at Pentlandfield, outside Edinburgh, where he was at the forefront of developing the Pentland series of potato cultivars.

Born in Newcastle upon Tyne on 21st January 1931, and spending his early years in Durham, Dalton studied botany at Durham University. His postgraduate studies on *Polygala* (milkworts) involved both Durham University and the University of Neuchâtel, in Switzerland. Dalton joined the BSBI in 1953 and was *Polygala* referee for many

years. His thesis on *Polygala* was never submitted as he was called for national service in 1956. To satisfy his service requirements he took a post as a plant breeder at the Cocoa Research Unit, in Ghana, West Africa, breeding new varieties of cocoa. He was very excited by this opportunity and breeding crops became his life's work. His wife and family of four spent their early years in Ghana, staying on after Dalton's national service was completed.

There is a letter I understand to be in the Archives at the John Hutton Institute which makes very interesting

reading about his research during this period. I quote a short section, almost word for word:

'It is believed that, during the last ice age, rain forest was restricted to the valleys of the Andes; what is now rain forest stretching from mountains to coast was then dry savannah land. But in the down-stream spread of the forest, self-incompatible cocoa would be at a disadvantage; to set seed it requires that cross-compatible cocoa is growing close by, which would rarely be the case. Only self-compatible cocoa reached the shore. The Portuguese took this cocoa to islands in the Gulf of Guinea, whence it got into West Africa and became a major export crop. But a disease of cocoa known as witches-broom was causing trouble in Trinidad and a man called Pound was sent up the Amazon to look for resistant stocks; he got some from 3 different localities. They were self-incompatible. Then during the war, such cocoa was introduced to the Gold Coast (Ghana) by a man called Posmette, with the help of the American air force flying between Trinidad and the Gold Coast. This cocoa greatly out-performed the cocoa already in the Gold Coast, e.g. cropping at 3 yrs instead of 6, and giving higher yields. It was this sort of cocoa and crosses between it and pre-existing stocks that I (Dalton) was working with.'

Dalton's first post in Britain was with the Welsh Plant Breeding Institute, near Aberystwyth, where he worked on various varieties of clover.

HUGH ALBERT PUGH INGRAM (1937–2017)

Hugh Ingram died suddenly on 18th March 2017 in his 80th year. Hugh was born in Rugby on 29th April 1937; his father, A.W.K. Ingram, was a teacher and the author of physics textbooks. Both his parents left Rugby during the Second World War and he spent much of his childhood on his grandfather's farm in Abergele, returning to Rugby when he was nine. He then went on to study botany at Cambridge University, where he graduated in 1960 in spite of the loss of a leg through illness. He completed a Ph.D. at Durham, working on *Trichophorum cespitosum sens. lat.* (Deergrass), with David Valentine as his supervisor. He also met his future wife, Ruth Hunter, in Durham; they married in 1962.

After spells of teaching botany, initially at the University of North Wales and then at Bristol as an extramural tutor, he moved to Dundee with Ruth in 1966. Here, Hugh was Lecturer and then Senior Lecturer in Plant Ecology for the rest of his working life. He

In 1967, Dalton moved to Edinburgh. Here he found his calling, breeding potatoes at the Scottish Plant Breeding Station at Pentlandfield, where he was in charge of the collection. If you have enjoyed eating Pentland Javelin or Pentland Crown potatoes, you have Dalton to thank. Dalton worked at Pentlandfield for 20 years, rising to the level of Principal Scientific Officer, and leaving his legacy in the kitchens and gardens of potato lovers everywhere.

In 1999, Dalton and his wife, Anne, moved to Comrie where I met him for the first time. I was happy to take Dalton to the Perthshire Society for Natural Sciences Botanical Section meetings and to BSBI Scottish Annual Meetings while he was able. He was great company. Because of the spell the family spent in the tropics, Dalton's house was a very colourful one, full of parakeets, cockatiels and parrots. Anne was an artist, who latterly specialised in stained glass, and her bright artworks decorated their rooms.

Dalton died on 9th August 2017. He was a very keen botanist and an unassuming gentleman, whose dedication to plant breeding leaves a lasting legacy.

I am indebted to Dalton's family for providing me with information about his botanical career, and giving me access to the letter quoted above.

Dot Dahl



Hugh Ingram with his son Alasdair.

developed an interest in mire ecosystems and did much research on the hydrology of peatlands and raised bogs. This resulted in many publications and he organised an international conference on peatlands at Dundee in 1989. He also gave advice in the UK and overseas.

Hugh was a botanist of the old school, now so rare in our universities. He was a popular teacher and research supervisor at the university, leading many field outings where he climbed mountains vigorously in spite of his artificial leg. I first met him at botanical lectures organised by the Botanical Society of Scotland in the Dundee Department of Biological Sciences. I remember an inspiring visit to an Angus raised bog with a group from the Scottish Wildlife Trust, and his remarkable agility.

Hugh joined the BSBI in his student days in 1957 and regularly attended the Scottish Annual Meetings. In his early years in Dundee, he owed much to friendship and tutelage from Ursula Duncan, with whom he took part in field recording work, which was later used for the *New Atlas*. He made a major contribution to the *Flora of Angus* (1981) by Ruth Ingram and Henry Noltie, writing the introductory chapters on physical background and ecological history. He also helped to secure funding for the publication.

In a wider field of activity, Hugh was Botanical Editor for the *Journal of Applied Ecology* for six years. He was also a member of the Scottish Museums and Galleries Commission and then, for seven years, a Trustee of the National Museum of Scotland. He was also deeply involved with the Scottish Wildlife Trust (SWT) for many years and was chairman of the Trust from 1996 to 1999. He presided over the Trust at a time of change

and I remember him skilfully steering the council through some tricky decision-making, on one occasion using his casting vote in a particularly difficult matter.

Hugh played a part in setting up the Angus and Dundee Branch of the SWT, and, during my time as chairman, I valued his wise contributions. He helped to secure the important Balgavies SWT reserve in Angus and was chairman of its management committee for many years. He also played a part in the setting up of some other SWT reserves, including Montrose Basin, Loch of the Lowes and Loch of Lintrathen. In 2001, he was awarded the Christopher Cadbury medal for outstanding services to nature conservation by the Royal Society of Nature Conservation.

Hugh was also involved in setting up the University of Dundee Botanic Garden and later, the establishment of the Friends of the University of Dundee Botanic Garden, an organisation which has played a key role in promoting the importance of the Garden in the wider community. His role became particularly important when the existence of the Garden appeared to be under threat. Hugh was a skilled and dedicated campaigner. He was instrumental in promoting the formation of a Garden Endowment Trust which was set up as a means of securing its future. He will be greatly missed both locally and further afield.

Hugh is survived by his wife Ruth, his son Alasdair and daughter Gwyneth. I am very grateful to Ruth and others for help with this account.

Brian Ballinger

OBITUARY NOTES

Since the publication of *BSBI News* 136, we regret to report that the news of the deaths of the following members has reached us, three of very long standing. We send regrets and sympathies to all the families.

An obituary of those marked * will appear in a future issue of *BSBI News*.

Mr J.K. Butler* of Thurso, Caithness, a member for almost 50 years

Dr M.C.F. Proctor* of Sidmouth, Devon, a member for almost 68 years

Mrs R. Smith of Worksop, Nottinghamshire, a

member for almost 55 years

Mr E.L. Birse & Mrs E.M. Birse of Aberdeen, members for over 30 years

Mr H.B. Wenban-Smith of London, a member for over 20 years

Ms J. MacKintosh of Penicuik, Midlothian, a member for almost 5 years

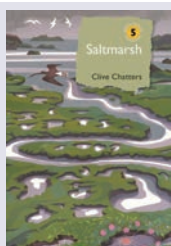
Chris D. Preston, Obituaries Editor

19 Green's Road, Cambridge CB4 3EF

cdpr@ceh.ac.uk

assisted by the Membership Secretary, Gwynn Ellis

REVIEWS

**Saltmarsh**

Clive Chatters

Bloomsbury, London, 2017

384 pp. £35.00 h/b

ISBN 978-1-4729-3359-1

S*altmarsh* is the fifth volume of Bloomsbury's 'British Wildlife Collection', which has many similarities to the Collins 'New Naturalist' series. As such, and as its title implies, it covers the diversity of the saltmarshes and their wildlife around Britain. Rather than being a dry, salty textbook, it is an informative celebration of saltmarshes and the part that they have played, and continue to play, in our culture.

There are 21 chapters, interspersed with numerous colour photographs and a few tables and maps. The brief introduction sets out the historical concepts of what a saltmarsh is, and the basic variables of tides, herbivory, halophytes and vegetation. We are then taken on a tour of major saltmarshes around Britain, cleverly starting with the inland ones to which there is so much more than I ever thought (Appendix A is, surprisingly, the first national inventory of our inland saltmarshes). There are eight chapters covering these major saltmarshes, from the Solent and its saltworks (so that is one source

of Gypsum salts, probably purified with help from the brine shrimps) to the stoneworts at Baile Sear, each with its own context and narrative. This part is an engaging read with a wealth of local information, such as the prehistoric Brigg boat sewn together with yew withies, to the broader geographic perspectives, such as Svalbard's Barnacle Geese migrating to Caerlaverock and browsing on the marshes.

There are also eight chapters on the conservation of saltmarshes. This is more than one would expect, but given Chatters' background in nature conservation they, too, are very informative. The accounts of the development of protection of saltmarshes are given in parallel to the national context of nature-conservation thinking, and the detailed case studies of species, such as Fisher's Estuarine Moth or the Lower Test, give evidence of practice. Chatters also covers managed retreat, creation of new saltmarshes and stresses the role herbivores must play in the future.

The stories Clive Chatters tells are based on decades of first-hand experience and extensive research, and he is to be congratulated on a superb read. There are lots of relevant side-tracks and marvellous information from obscure sources melded together in an engaging way. Occasionally, these side-tracks are a bit tenuous: to me the Shriill Carder-bee metapopulations on the Gwent Levels can hardly be bound together by the sea wall, but I enjoyed reading about them anyway. The only error I have spotted is that only *Cochlearia danica* (Danish Scurvygrass) is an annual (the other *Cochlearia* species are biennial to perennial).

This book is hard to put down and you cannot finish it without a deeper appreciation of saltmarshes. You also learn so much more than just about saltmarshes, and I haven't enjoyed reading a book such as this as much since my two all-time favourite New Naturalists, *Mountain Flowers* and *Wild Flowers of Chalk and Limestone*.

This will appeal to general naturalists from all over Britain (and probably Ireland, though this is only mentioned in passing) and is an excellent all-round introduction to saltmarshes. For botanists there is much of interest throughout, including the chapter on *Spartina* (cord-grasses) or the account of the discovery of *Najas marina* (Holly-leaved Naiad). It should be compulsory reading for anyone involved in coastal nature conservation.

T.C.G. Rich

tim_rich@sky.com

**Blooming Marvellous – A Wildflower Hunter's Year**

Zoë Devlin

Collins Press, Cork, 2017

336 pp. £14.99, €16.99 h/b

ISBN 978-1-84889-327-6

When this book landed on my desk, my first thoughts were 'What a lovely looking and feeling book.' It is nice to hold in your hand, feels weighty, but not too

much, and the covers are stylish and aesthetically pleasing. But the question was: would I enjoy the contents as much?

The first thing I did was to flick through the book. It is filled with photos (there's barely a page without one), and is laid out in 12 chapters, one for each month of the year. A few of the photos really jumped out for me. There are photos of small flowers that we don't often see, for example, *Hydrocotyle vulgaris* (Marsh Pennywort) and *Viscum album* (Mistletoe). There are photos of uncommon species, such as *Filipendula vulgaris* (Dropwort), *Neottia cordata* (Lesser Twayblade) and *Pyrola rotundifolia* (Round-leaved Wintergreen). Sometimes, it is simply Zoë's talent at taking beautiful shots of commoner species that is striking. While the photographs are a joy in this book, a few of them lack clarity.

This book is absolutely full of personality, and it is as quirky as it is charming. It is also an extremely personal book, and one can feel Zoë's emotions on every page. It is focused on plants, but is about much more than that, too.

Zoë introduces her family; she tells us what butterflies are on the wing each month; she presents the stories of a few historical figures; and even presents tried and tested recipes. The book is very easy to read. Zoë achieves this through limiting the space dedicated to each plant or subject matter to one or two paragraphs. And yet the book is highly informative, and this is one of its great achievements. One thing that was slightly hard to get used to was the sometimes abrupt

jumps in topic, but the beige bands, giving plant names in English, scientific and Irish, signify a change in topic.

One of the things I loved most was Zoë's ability to communicate her enthusiasm and excitement; see, for example, her description of going in search of *Pinguicula grandiflora* (Large-flowered Butterwort), or the delight as a young child of sneaking out to visit a rock pool. She also has a great turn of phrase. This, in relation to *Scilla verna* (Spring Squill), is a favourite: '... scattered sparsely, like so many pale blue stars, across the short turf', as is her description of Dropwort as a 'designer species'. And she's funny too: 'Our waterproofs were not living up to their name...'

Reading this book was quite poignant at times. I look around now at children who never play outdoors (apart from playgrounds) and who are rarely, if ever, allowed out on 'adventures'. Zoë talks of

times when she and her siblings 'basked in the utter freedom of being completely unsupervised', while playing in the fields and streams near their home in Dublin. She also mentions what a shame it is that nature no longer forms a significant part of the curriculum in our primary schools. Zoë, however, is an optimist, and while these things bother her, as well as the general decline in nature she's seen over the decades, she still takes every opportunity to pick out positive stories, and give credit where it's due, e.g. Kerry County Council's efforts to protect *Simethis mattiazii* (Kerry Lily) during road works.

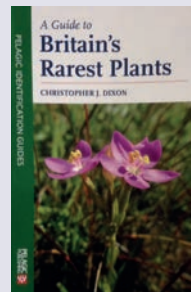
And so, to answer the question I posed earlier, yes, I really did enjoy reading this book. I highly recommend it, and it's not just for botanists.

Maria P. Long
maria.long@bsbi.org

BOOK NOTES

A Guide to Britain's Rarest Plants

Christopher J. Dixon
Pelagic Publishing, Exeter. 2017
153 pp. £19.99 p/b
ISBN 978-1-78427-146-6



The author previously wrote an interactive key to the flora of the British Isles, but here he focuses on the rarest species, including their discovery, reasons for rarity, and current conservation work in progress. The book is nicely illustrated with colour photographs of plants and habitats; localities of the rarest examples are imprecise.

John Edmondson
a.books@mac.com

NOTES

FROM THE COMPANY SECRETARY

CLIVE LOVATT

Annual General Meeting of Botanical Society of Britain and Ireland – 25th November 2017

About 140 members attended the fourth AGM of the Botanical Society of Britain and Ireland, held in the Flett Lecture Theatre at the Natural History Museum, London, in association with the 2017 Annual Exhibition Meeting. Ian Denholm chaired the AGM, with contributions from David Pearman, John Faulkner, and Delyth Williams. The Chair welcomed Delyth Williams, who earlier in the year had been appointed by the Board as Honorary General Secretary in succession to Chris Metherell, and thanked the officers, staff and especially the very many volunteers for their support of BSBI and its work during the year under review. The minutes of the 3rd AGM were approved.

A summary of the formal business of the AGM is given below. The full minutes (draft until approval at the next AGM) are available for download on the BSBI website.

Annual Report and Accounts – 31st March 2017

The financial report and accounts distributed as part of the Annual Review in the membership mailing with the September 2017 edition of *BSBI News* were in a summarised format. The full Annual Report and Accounts, from which the summary was compiled, were distributed in paper form at the AGM after publication on BSBI's website two months earlier.

The Annual Report and Accounts had been approved by

the Board and by the Independent Examiners, without qualification, on 25th September 2017. BSBI had net assets of £1,003,319 as at 31st March 2017 (prior year: £966,802). David Pearman presented the accounts, drawing attention to the significant contribution to this year's net surplus from market gains on our investments, and noting that although expenditure had fallen, income had decreased even more, after failure to secure annual funding from one of the national agencies.

The members present adopted the accounts and re-appointed the Independent Examiners, WMT of St Albans, and authorised the Trustees to fix their remuneration.

Board of Trustees

At the AGM, David Pearman retired from the Board after continuous service in major roles with the Society for some 25 years. Chris Metherell, President-elect, retired from the Board in order to take up his Presidency. Ian Denholm retired by rotation and was re-elected to the Board to serve for a further term.

Five new Trustees were elected by the members: John Faulkner, Alastair Fitter, Sandra Knapp, Christopher Miles and Anthony David Thomas. Brief profiles are included in the 2017 AGM agenda and minutes. As a result, the Board now has eleven members who

serve as Company Directors and Charity Trustees. The Chair noted that the remaining place on the Board is held for an incoming Treasurer.

BSBI President

The Chair noted that Chris Metherell had been approved as President-elect at the 2016 AGM to serve a two or three-year term as President commencing after the 2017 AGM.

Council

Martin Godfrey, Trevor James and Matt Parratt retired by rotation as members of Council at the AGM. All three were elected to serve a further term. Mark Duffell and Anne Haden were elected as new members of Council. Brief profiles are included in the 2017 AGM agenda and minutes.

Honorary Members

Bob Ellis and Trevor James were proposed and elected as Honorary Members of the Society. Commendations are included in the September 2017 edition of *BSBI News*.

By Order of the Board

Clive Lovatt
BSBI Company Secretary
3rd December 2017

Clive Lovatt

57 Walton Road, Shirehampton,
Bristol BS11 9TA
01173 823 577; 07851 433 920;
clivemlovatt@gmail.com

LONG-STANDING MEMBERS

We would like to offer our congratulations to the following who joined the BSBI in 1957 and who will therefore have been members for 60 years by the end of 2017: Mrs S.E. Erskine, Mr D.G. Hewett, Dr J. Hodgson, Dr J.A. Kiernan, Mr H.J. Killick, Mr H.W. Smith.

BSBI PHOTOGRAPHIC COMPETITION 2017

We are pleased to announce the winners of the 2017 BSBI Photographic Competition. There were two categories: 1) Archaeophytes and 2) Plants in the Landscape. Forty-two members contributed a total of 117 entries – 40 Archaeophyte images and 77 Plants in the Landscape. Natalie Harmsworth, the competition organiser, did a great job in printing and mounting the photographs. They formed a dazzling display at the Scottish Annual Meeting in Edinburgh in November, where the two winning images were chosen by a popular vote of those attending.

The winner chosen in the Archaeophyte category was *Hyoscyamus niger* (Henbane) at Lindisfarne by Chris Jeffree, and the winner in the Plants in the Landscape category was *Centaurea scabiosa* (Greater Knapweed) on the Fife coast by Heather Kelly. Interestingly, there was much duplication of the species chosen to photograph. The winners each received a book token kindly donated by BSBI to Summerfield Books.

The display was also mounted at the BSBI Annual Exhibition Meeting at the Natural History Museum in London. Interestingly, the vote on the day for the two categories produced exactly the same result.

We are very grateful to all those who entered or voted in the competition, BSBI Summerfield Books who provided the prizes, and to Natalie Harmsworth

for organising the competition. You can scroll through all the entries for this year and the previous two years on the BSBI's flickr account (search for BSBI flickr).

BSBI Photography Competition 2018

Once again, we are calling on you to take your cameras and seek out the most striking images you can find to help us capture the beauty and interest of our flora. This year the BSBI Photography Competition's categories will be (1) Plants and People, and (2) Plants and Pollinators.

Normal BSBI recording rules apply – the species may be of any native or alien flowering plants, conifers, ferns, horsetails, club-mosses or stoneworts growing in the wild (anywhere outside private gardens). The competition is open to all amateur photographers. Photographs must be taken in Britain or Ireland but do not have to be taken in 2017. You may enter up to two images per category; however, you do not have to enter both categories. The winners will be selected by a popular vote by those attending the Scottish Annual Meeting.

1. The competition is now open for entries and will run until **Saturday 20th October 2018**.

Please send your entries to Natalie Harmsworth (natann29@freeuk.com) before that date.



Hyoscyamus niger, Lindisfarne. Chris Jeffree



Centaurea scabiosa, Fife coast. Heather Kelly

2. Please submit the largest possible file sizes – though files over 10Mb should be sent via Dropbox and not by email.
3. Please entitle photographs using this format exactly: Common name (*Scientific name*), location, photographer's name and competition category (PPe or PPo), e.g. 'Cornflower (*Centaurea cyanus*), Strathmore, Angus by John Smith_PPe.jpg'
4. Copyright of images will remain with the photographer.
5. The BSBI, however, claims the right to exhibit the entries, and to use them to further its aims generally and to promote the BSBI and its photographic competition. This includes publishing them in its publications, on the BSBI website or social media (photographs will be credited).
6. The BSBI also claims the right to edit or use images in combination with others.
Good luck!

Jim McIntosh, BSBI Scottish Officer
jim.mcintosh@bsbi.org

BSBI DIARY 2018

Saturday 20 January	Committee for Ireland	Dublin
Wednesday 24 January	Board of Trustees	London
Tuesday 30 January	Records and Research	London
Thursday 1 February	Meetings and Communications	London
Tuesday 6 February	Training and Education	Shrewsbury
Thursday 8 February	Publications	London
Saturday 24 February	Committee for Wales	Aberystwyth
Wednesday 14 March	Committee for Scotland	Perth
Saturday 24 March	Ireland Spring Conference	Dublin
Wednesday 25 April	Board of Trustees	London
Saturday 5 May	Committee for Ireland	Dublin
Wednesday 16 May	Committee for Scotland	Perth
Monday 16 – Monday 23 July	Annual Summer Meeting	Isle of Man
Friday 10 – Sunday 12 August tbc	AGM Wales and Summer Meeting	Aberystwyth
Wednesday 12 September	Committee for Scotland	Perth
Friday 21 – Sunday 23 September tbc	Recorders' Conference	Shrewsbury
Saturday 22 September	AGM Ireland	Dublin
Tuesday 2 October	Records and Research	London
Saturday 6 October	Committee for Ireland	Dublin
Saturday 20 October	Ireland Recorders' Conference	Dublin
Saturday 3 November	AGM Scotland	Perth

Delyth Williams, Honorary General Secretary

BSBI ANNUAL EXHIBITION MEETING 2017: REPORT FROM THE COMMUNICATIONS OFFICER

LOUISE MARSH

On Saturday 25th November 2017, 237 botanists descended upon the Natural History Museum, London, for BSBI's Annual Exhibition Meeting.

The exhibits

There were 38 exhibits to enjoy and we welcomed several first-time exhibitors: Leif Bersweden, author of *The Orchid Hunter*; PhD students Ellen Goddard, who exhibited on kin recognition and communication in *Glechoma hederacea* (Ground-ivy), and Thomas Siôn Jones on British garden plants which may, as a result of climate change, pose a threat to the natural environment; there was also a display about *New Nature* magazine, written by and aimed at naturalists under 30.

Entries to the BSBI Photographic Competition 2017 were displayed and visitors enjoyed browsing Summerfield Books' pop-up bookshop and taking part in John Poland's Winter Twig ID Quiz.

The BSBI stand featured a poster about the new Code of Conduct, by BSBI's Sarah Whild and the Natural History Museum's Fred Rumsey, which can be downloaded from the BSBI website. Fred also led two very popular tours of the NHM's Sloane Herbarium and displayed a 'herbarium news' poster.

There were displays on regional floras (Cambridge, Upper Teesdale and Ramsey) and on national projects and outreach activities, such as the National Plant Monitoring Scheme, Wild Flower Hour, the New Year Plant Hunt and, of course, *Atlas 2020*.

The talks

Visitors enjoyed talks from eight speakers, starting with Field Meetings Secretary, Jon Shanklin, on the BSBI Summer Meeting and Alex Mills about NHM's 'ID trainers for the future' programme. Dr Margaret Bradshaw MBE told us about the decline of the rare flora of Upper Teesdale, and BSBI's Head of Science, Kevin Walker, talked about BSBI's Threatened Plants Project and the newly-published book, *Threatened Plants in Britain and Ireland*, which analyses the results of the project.

The afternoon session opened with *BSBI News'* incoming editor, Andrew Branson, on the revamp of this newsletter and

then BSBI Irish Officer, Maria Long, talked about building and supporting Ireland's botanical network. Eighteen-year-old member, George Garnett, offered suggestions on 'Growing the next generation of botanists', and, finally, Mark Duffell of BSBI's Training & Education Committee explained how BSBI supports botanical training.

If you missed the meeting...

All these presentations and many of the exhibits are available to download from the Annual Exhibition Meeting page on the BSBI website: <http://bsbi.org/annual-exhibition-meeting>. You can read more about them on the News & Views blog



Orchid Hunter Leif Bersweden talks to outgoing BSBI President John Faulkner; you can also see the *New Nature* stand next to Leif's stand. W. Arshad



Hands up for botany! The Flett Lecture Theatre full of botanists. *J. Mitchley*

<http://bsbi.org/news-views>, and you can find out what some of the visitors to the Annual Exhibition Meeting had to say about the event here: <https://twitter.com/search?f=tweets&vertical=default&q=%23BSBIExhibitionMeeting&src=tyah>.

Thanks go to members of BSBI's Meetings &

Communications Committee for organising such a successful event, particularly Jodey Peyton and Kylie Jones, who also chaired the two talk sessions, and Ryan Clark and Waheed Arshad for sterling work throughout the day. We are also indebted to our hosts, the Natural History Museum,

who very kindly made the venue available to us free of charge, and to Sandy Knapp, Fred Rumsey and Mark Carine for advance help with organising, as well as on the day; and to all our exhibitors, speakers and visitors who contributed to the day's resounding success.

NEW YEAR PLANT HUNT

By the time you read this, the 2018 New Year Plant Hunt will be all over and we hope that it will have proved an even bigger success than last year (see *BSBI News* April 2017) when we received 460 species lists from groups or individual botanists. Between them they submitted 7,123 records and spotted 492 taxa in bloom across Britain and Ireland during the 2017 New Year Plant Hunt.

Preliminary results from this year's New Year Plant Hunt will be published on our webpage: www.bsbi.org/new-year-plant-hunt. The recording app which we launched last year will be used again and we are hoping to see even more records on the interactive map here: www.nyph.bsbi.org.

A full report on the 2018 New Year Plant Hunt will follow in the next issue of *BSBI News*, but for now you can read how it went on the following pages:

- BSBI News & Views blog: <http://bsbi.org/news-views>
- Facebook pages: <https://www.facebook.com/BSBI2011> and <https://www.facebook.com/IrishSectionBSBI/>
- BSBI Twitter account: <https://twitter.com/BSBIbotany> #NewYearPlantHunt

If you do not use Twitter but you would like to see images of the plants recorded, visit: <https://twitter.com/search?f=tweets&vertical=default&q=%23newyearplanthunt&src=savs>. You can also email the New Year Plant Hunt Team here: nyplanthunt@bsbi.org.

Louise Marsh, Communications Officer
234 London Road, Leicester
LE2 1RH
louise.marsh@bsbi.org

PANEL OF VICE-COUNTY RECORDERS

PETE STROH

Jay MacKinnon has been appointed as VCR for **West Lothian**, following the retirement of Jackie Muscott in 2016. Jay is a lecturer at Napier University, and has been a regular attendee at Scottish Recording Weeks for many years, as well as helping out with the Scottish Plant Families workshops. Situated between Glasgow and Edinburgh, West Lothian is a small county, all the better for exploring! If you live close by and are interested in becoming more familiar with some of the countryside on your doorstep, then please get in touch with Jay (j.mackinnon@napier.ac.uk).

There are currently vacancies for eight vice-counties. In England, **East Gloucestershire** has been without a VCR since the retirement of Clare and Mark Kitchen in 2014. Both continue to record actively, but I'm certain that there must be someone out there who shares their enthusiasm for plant-recording and who might want to consider stepping forward for the role of VCR. If that person is you, please do get in touch with me, as we urgently require someone to represent this lovely county. The imminent publication of a *Flora of Sussex* means that the vast majority of surveying for the atlas project has been taken care of, but from Christmas onwards we will require new VCRs to assist Matt Berry for both counties (**East Sussex** and **West Sussex**) following the retirement (again) of Paul Harmes. This is a great opportunity for getting to know the county at your leisure, and supported by a flourishing local flora group. If you're interested in any of the above, please contact me for a chat. I've said it before, but it bears repeating that the role of VCR is one open to all members, and enthusiasm is the key

quality of a county recorder – and it's a fantastic way of improving your field skills.

In Scotland, there is still a vacancy in **Berwickshire** after Michael Braithwaite's retirement three years ago, and we would love to hear from members who might be interested. Also, the recorder for **Stirling**, Phil Sansum, is moving to Devon shortly to take up work with the Devon Wildlife Trust. While he is happy to continue as point of contact, manage the county records and record in Stirlingshire for a week or two in the Summer during his holidays, we need a joint recorder more locally. Please contact the Scottish Officer, Jim McIntosh (jim.mcintosh@bsbi.org), for more details.

In Ireland, there are currently three vacant vice-counties – **Leitrim**, **Longford** and **Louth**. Longford is a small county in central Ireland with an abundance of semi-natural habitats, including fine raised bogs, species-rich canals and wet grasslands. Louth is also small, and nestled on the border between Ireland and Northern Ireland. It boasts a range of coastal and mountain habitats, along with large areas of agricultural ground. Leitrim is a stunning county on many fronts – and we're glad to report that we have trainee recorders working away here, so it's only 'technically' vacant! Get in touch with the Irish Officer, Maria Long (maria.long@bsbi.org) if you have any interest in these vacant counties, or would like to know more.

As ever, thank you to all VCRs, past and present, for your dedication, help and expertise.

Pete Stroh

c/o Cambridge University Botanic Gardens,
1 Brookside, Cambridge CB2 1JE
peter.stroh@bsbi.org

PANEL OF REFEREES AND SPECIALISTS

JEREMY ISON

Please note my change of email address below.

Tim Rich has taken on the role of referee for *Fumaria*, and **Helena Crouch** for *Geranium*. **Tim** already appears in the list of Referees and Specialists and **Helena** is listed as recorder for v.c.6 (N. Somerset).

Alex Prendergast has taken on *Rubus* for the eastern counties (v.cc 18–20, 25–30, 53–56) following the retirement of **Alec Bull**. His contact details are: Bramble Cottage, Low Road, Lower Tasburgh, Norwich, Norfolk NR15 1AR, mushroom_alex@hotmail.com.

Michael Braithwaite has retired as referee for *Trichophorum*. **Jeremy Roberts** is now the

sole referee and his correct email address is fjr@edencroft2.co.uk. Please note the change from the 2017 Yearbook.

Mark Duffell, referee for Garden Shrubs, has a new email address. It is mark@arvensisecology.co.uk.

The postal address for **Nigel Blackstock**, referee for *Carex flava* agg. (Cyperaceae), is incorrect in the 2017 Yearbook. It should be: 37 Leighton Drive, St Helens, Merseyside WA9 3GS.

Also, the email listed in the Yearbook for **Geoffrey Halliday**, referee for *Erigeron*, is no longer valid. The correct address is geoffreyhalliday@btinternet.com.

Jeremy Ison

40 Willeys Avenue, Exeter, Devon EX2 8ES
01392 272600; jeremyjison@gmail.com



J. Mitchley

FROM THE WELSH OFFICER

PAUL GREEN

This is a short note as, at time of writing, I have only been back in post as Welsh Officer for four weeks. It only feels like yesterday that I last wrote for this spot. In fact, it was in the April 2015 issue of *BSBI News*.

I'm sure that, by the time you read this note, most of you will have heard on the grapevine that Polly Spencer-Vellacott resigned as Welsh Officer and finished in the post in October. Polly and her family have moved to Perthshire, a very lovely area of Scotland.

Last time, I was based in Cardiff and had an office space in the National Museum Wales. This time, I am going to work from home, at Pembroke Dock (see address below). I plan to work from Wednesday to Friday one week and from Monday to Wednesday the next, then repeat.

Finally, I would like to take this opportunity to thank everybody who has wished me well on my return as Welsh Officer.

Paul Green

11 Co Op Lane, Pembroke Dock, Pembrokeshire
SA72 6XL
0777 211 1113; paul.green@bsbi.org

ADVERT

**ANDALUCIA, Spain,
Alpujarras.**

Village house to let.

Sea view. Wild countryside.
Wonderful botany.
Walks 4692 to 4695 on
walkingworld.com.

£230.00–£270.00 p/w.

More details from
scarapiet@hotmail.com

BSBI JOURNALS

I currently have custody of nearly-complete back-runs of the following journals which belonged to the late Margaret Barron:

BSBI Proceedings (back to 1926)

BSBI News

BSBI Scottish Newsletter

BSBI Abstracts

Watsonia

New Journal of Botany

I am keen to find a suitable home for them because they take up so much room. I would prefer them to go to a good home if there is any person or library out there who might want them, or anyone needing the odd issue to make up a complete run.

Anyone interested can e-mail me at ro.scott@care4free.net to say what they want. I'm afraid the recipient will have to pay postage or carriage, unless they are somewhere near Inverness, in which case I can probably deliver. I will hold on to them until the end of February 2018.

Ms Ro Scott

Peddinston Cottage, Cromarty, Ross-shire
IV11 8XX

BOTANICAL RESEARCH FUND

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

Grants are available to amateurs, professionals and students of British and Irish nationality. Where appropriate, grants may be awarded to applicants in successive years to a maximum of three.

Most awards fall within the range of £200–£1000. The next deadline for applications is **28th February 2018**.

For further details, potential applicants should contact: **Mark Carine**, Hon. Secretary, The Botanical Research Fund, c/o Department of Life Sciences, The Natural History Museum, Cromwell Road, London SW7 5BD
m.carine@nhm.ac.uk



Naturetrek

Group & Tailormade Wildlife Holidays

AFRICA | ASIA | AUSTRALASIA | EUROPE | THE AMERICAS

- 32 years of expert-escorted botany, birding & wildlife groups worldwide
- Tailormade wildlife & cultural holidays crafted by experts
- Wildlife cruises on exclusive Naturetrek charters
- The best wildlife holidays available
- All at unbeatable prices



Spring flowers in Namaqualand, South Africa



For our brochure, or more information, call our wildlife travel experts
01962 733051 www.naturetrek.co.uk
Naturetrek, Mingledown Barn, Wolf's Lane, Chawton, Hampshire GU34 3HJ