

BSBI

NEWS

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ADMINISTRATION AND IMPORTANT ADDRESSES

President	LYNNE FARRELL 1 Inglemere Drive, Arnside, Carnforth, Lancashire LA5 0BY	lynneonmull@btinternet.com Tel. 01524 761064
BSBI Company Secretary	STEVE GATER 29 West Farm Court, Broompark, Durham DH7 7RN	steve.gater@bsbi.org Tel. 01913 844686
Hon. Treasurer	SUSANNA REECE	susanna.reece@gmail.com
Membership Secretary (Payment of subscriptions & changes of address) & <i>BSBI News</i> distribution	GWYNN ELLIS 41 Marlborough Road, Roath, Cardiff CF23 5BU <i>Please quote membership number on all correspondence; see address label on post, or Members List.</i>	gwynn.ellis@bsbi.org Tel. 02920 332338
Hon. Field Meetings Secretary (including enquiries about field meetings)	JONATHAN SHANKLIN 11 City Road, Cambridge CB1 1DP	jdsh@bas.ac.uk Tel. 01223 571250
Panel of Referees & Specialists (comments and/or changes of address)	JEREMY ISON 40 Willeys Avenue, Exeter, Devon EX2 8ES	jeremyjison@gmail.com Tel. 01392 272600
BSBI News – Editor	JOHN NORTON 215 Forton Road, Gosport, Hampshire PO12 3HB	john.norton@bsbi.org Tel. 02392 520828
BSBI News – Book Reviews Editor	CLIVE STACE Appletree House, Larters Lane, Middlewood Green, Suffolk IP14 5HB	cstace@btinternet.com Tel. 01449 710087
British & Irish Botany – Editor-in-Chief	IAN DENHOLM 3 Osier Close, Melton, Woodbridge, Suffolk IP12 1SH	bib@bsbi.org
BSBI Head of Operations	JANE HOULDSWORTH 7 Grafton Gardens, Baxenden, Accrington, Lancashire BB5 2TY	jane.houldsworth@bsbi.org Tel. 07584 250 070
BSBI Finance Manager (all financial matters except Membership)	JULIE ETHERINGTON Church Folde, 2 New Street, Mawdesley, Lancashire L40 2QP	julie.etherington@bsbi.org Tel. 07944 990399
BSBI Communications Officer (incl. Publicity, Outreach & Website; British & Irish Botany)	LOUISE MARSH 234 London Road, Leicester LE2 1RH	louise.marsh@bsbi.org Tel. 07725 862957
BSBI Head of Science	KEVIN WALKER Suite 14, Bridge House, 1–2 Station Bridge, Harrogate HG1 1SS	kevin.walker@bsbi.org Tel. 01423 526481 or 07807 526856
BSBI England Officer (& V.c. Recorders – comments and/or changes of address)	PETE STROH c/o Cambridge University Botanic Garden, 1 Brookside, Cambridge CB2 1JE	peter.stroh@bsbi.org Tel. 01223 762054 or 01832 720327
BSBI Scotland Officer	JIM MCINTOSH c/o Royal Botanic Garden, Inverleith Row, Edinburgh EH3 5LR	jim.mcintosh@bsbi.org Tel. 01312 482894
BSBI Wales Officer	BARBARA BROWN Flat No 1, Claremont, East Street, Rhayader, Powys LD6 5DN	barbara.brown@bsbi.org Tel. 07930 608 423
BSBI Ireland Officer	SARAH PIERCE c/o National Botanic Gardens, Glasnevin, Dublin 9, Ireland	sarah.pierce@bsbi.org Tel. 00 353 87 257 8763
BSBI Database Officer	TOM HUMPHREY c/o CEH, Maclean Building, Benson Lane, Crowmarsh Gifford, Wallingford OX10 8BB	tom.humphrey@bsbi.org Tel. 01491 692728
BSBI Book Sales Agents	PAUL O'HARA c/o Summerfield Books, Unit L, Skirsgill Business Park, Penrith, Cumbria CA11 0FA	info@summerfieldbooks.com Tel. 01768 210793

CONTENTS

NEWSLETTER OF THE BOTANICAL
SOCIETY OF BRITAIN AND IRELAND

FROM THE PRESIDENT / EDITORIAL	2	BSBI Annual Exhibition Meeting 2019	
BSBI NOTICES	3	<i>Louise Marsh</i>	56
ARTICLES		NOTES	
Aquatic plants and dredging in the Huddersfield Broad Canal <i>Ray Goulder</i>	5	Panel of Vice-county Recorders <i>Pete Stroh</i>	57
The genus <i>Cymbalaria</i> Hill (Toadflaxes) in Britain and the discovery of <i>C. muralis</i> × <i>C. pallida</i> <i>Michael Wilcox & Markus Ruhsam</i>	13	Short Notes	58
Whatever happened to <i>Crepis mollis</i> ? <i>John Richards</i>	22	OBITUARIES	
<i>Viscum album</i> (Mistletoe) – a preliminary survey in Suffolk <i>Anne Kell</i>	25	<i>Compiled by Chris Preston</i>	
<i>Epipactis atrorubens</i> var. <i>bicolor</i> , a new variety of Dark-red Helleborine from northern England <i>Bryan J. Yorke</i>	29	Marjorie Netta Blamey MBE	59
Archibald Sim Montgomrey and his herbarium <i>Beverley Ronalds</i>	31	Alan George Hill	62
ADVENTIVES AND ALIENS		John Robin Palmer	63
Adventives and Aliens News 19 <i>Compiled by Matthew Berry</i>	34	Thomas Bruno Ryves OBE	65
<i>Brachypodium phoenicoides</i> new to South Devon (v.c.3) and Britain <i>Roger Smith</i>	41	Obituary Notes	67
<i>Malva verticillata</i> in Surrey (v.c.17) <i>George Hounsome</i>	43	REVIEWS	
<i>Pancratium maritimum</i> at Sandbanks, Dorset (v.c.9) <i>David Leadbetter</i>	45	<i>Compiled by Clive Stace</i>	68
COUNTRY ROUNDUPS		LETTERS	76
<i>Notable events and findings from around England, Wales, Scotland and Ireland</i>	46		
MEETINGS REPORTS			
The 2019 Annual Summer Meeting, Malham Tarn, Mid-West Yorkshire (v.c.64), 13–19 July <i>Jonathan Shanklin</i>	54		



Front cover:
Centaurium portense
(Perennial Centaury),
Newport. *Tim Rich*

Contributions for the
next issue of **BSBI News**
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sent to the Editor, John
Norton (john.norton@bsbi.org) by **24th
February 2020**.

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FROM THE PRESIDENT

First of all, I would like to thank all the botanical recorders and contributors for getting out there recording plants and submitting the data for Atlas 2020 so that we can proceed to the next phases of analysis and publication. I hope that all enjoyed taking part, as it is a major part of what BSBI does best. I would also like to welcome two new officers: Susanna Reece, our Treasurer, and Steve Gater, our Company Secretary. Delyth Williams retired as Honorary General Secretary at the AGM in November 2019, and Chris Metherell stepped down as President then, and we thank them for their hard work over the past few years too. Of course, they will still be contributing to the Society in other ways.

During the autumn, two very successful annual meetings were held at the Royal Botanic Gardens, Edinburgh and at the Natural History Museum, London. A new year is beginning and there will be Irish and Welsh meetings too, plus a full field meetings programme, just in case you were thinking of taking a break! The New Year Plant Hunt will have taken place by the time you read this and the

results will have been made available. Will there be more species in flower than last year?

A major project has been in progress since June 2019: the Resilience Strategy, facilitated by Caroline Copeman and Christine Fogg, who are part of the Centre for Charity Effectiveness team (CASS). This will be delivered soon and by April there will be much more to report on this aspect, which should set the BSBI on a structured, well-thought out, positive way forward for the next five years. Don't worry – you will soon hear more about it!

Congratulations to former *BSBI News* Editor and County Recorder for Hertfordshire Trevor James, awarded the British Empire Medal in the New Year's Honours List for his long-term contributions to nature conservation and biological recording. Trevor authored the *Flora of Hertfordshire* (2009) and has long been associated with local museums and many aspects of natural history.

Lynne Farrell
lynneonmull@btinternet.com

EDITORIAL

I am sure that all *BSBI News* readers will join me in thanking Andrew Branson for doing a superb job in editing and producing the magazine over the past two years. I consider myself lucky to have been asked to take over and hope that I can keep up the good standards.

I chose this issue's front cover to publicise the latest addition to the BSBI's excellent series of handbooks: *Gentians of Britain and Ireland*, written by Tim Rich and Andy McVeigh (and in case you were wondering it does also cover all the centauries, Yellow-wort and one or two other related species). It is reviewed in this issue, together with another impressive BSBI publication: *Grassland Plants of the British and Irish Lowlands*, written (amongst others) by our own Peter Stroh and Kevin Walker.

I am very pleased to announce that Clive Stace has agreed to take on the job of coordinating the book reviews, and for this issue we have a bumper selection so that a number of titles published in 2019 but not yet featured could be included.

This issue also features the usual mixture of informative and interesting articles covering a wide variety of botanical topics, as well as the regular Adventives and Aliens News, country round-ups and some important obituaries (Beginner's Corner and Introducing my Vice-county will return in the April issue). Please contact me if you would like to submit an article for publication.

John Norton
john.norton@bsbi.org

BSBI NOTICES

SUBSCRIPTION RATES

At the 2019 BSBI AGM, members voted to increase the membership subscription for the first time since 2015. The new rates are shown below and came into effect at the start of the year. We think this small increase will enable us to support our loyal members even more effectively in 2020. We hope you'll agree that the new rates still offer excellent value for money. See <https://bsbi.org/subscriptions> for further details.

Chris Miles

Chair, Board of Trustees

chris.miles01@btinternet.com

Category	2019 (£)	2020 (£)	2019 (€)	2020 (€)
Ordinary	30	35	38	40
Family	4	5	5	6
Student	12	15	15	18
Senior	22	25	28	28
Ordinary overseas	32	40	40	45
Senior overseas	24	30	30	35

FROM THE MEMBERSHIP SECRETARY

Would all members please take note of the following do's and don'ts regarding payments for subscriptions and publications:

Address changes – When sending change of address details remember to give your membership number or your old address (especially postcode) and include your new phone number if you are content to have it on file. **Cheques** – NEVER make a cheque payable to R.G. Ellis, always assume it should be made payable to BSBI or Botanical Society of Britain and Ireland unless clearly stated otherwise. **PayPal** – do not send PayPal payments to the personal account of Gwynn Ellis, always use the buttons on the BSBI website.

Pre-publication offers – please do not combine payments for different offers (including subscriptions) on one cheque, it makes accounting

that little bit more difficult. *Gentians of Britain & Ireland and Grassland Plants of the British & Irish Lowlands* – All copies ordered through the special offer were sent out in October to December. If you have still not received a copy, please contact the Membership Secretary. *Vegetative Key to the British Flora, 2nd edition* – Publication was due in January 2020 (check website for confirmation). If you have not received your copy by the end of January, contact the Membership Secretary.

Gwynn Ellis

Membership Secretary

gwynn.ellis@bsbi.org

ENGLAND COMMITTEE

Council and Trustees have agreed the formation of an England Committee and this was formally announced at a Special General Meeting held during the BSBI AGM at the Natural History Museum in November 2019. The Committee will look after botanical issues in England, the Channel Islands and the Isle of Man. I have been nominated as the first Chair and will endeavour to set the ball rolling. Mary Dean has agreed to become England Field Meetings Secretary; the Committee currently lacks a Secretary.

The Committee will lead on new BSBI projects that are specifically for 'England', but will encourage devolution to a local level. Such projects might include monitoring plant species of international, national or local importance, monitoring best county sites, preparing local (e.g. town, village or local area) Floras and monitoring sites or habitats of regional significance. A Regional Recorders' Workshop has been arranged in Northamptonshire for the spring, and if successful more will be arranged to cover other regions; the first is at a small venue, so only local vice-county recorders have been invited in the first instance. An England AGM will be held on 1 February 2020 at the Natural History Museum, when there will be a programme of talks

and workshops. The Committee may prepare an 'England' electronic newsletter, though this needs a prospective editor to step forward.

If you would like to become involved with the new Committee do contact me. The formal draft Constitution for the Committee and a more informal prospectus will be posted on the BSBI website. The Committee would welcome ideas for projects and other activities that it might become involved in.

Jonathan Shanklin

Chair, Committee for England
 jdsh@bas.ac.uk

FIELD MEETINGS 2020

With this issue of *BSBI News* comes the BSBI Yearbook for 2020. With the end of Atlas 2020 recording there is a shift of emphasis in the field meetings programme. Several meetings have been specifically arranged for beginners, and others take you to see the flowers of special sites. There are several longer residential meetings, which give a chance to socialise as well as to learn about plants. The meetings are all listed in the Yearbook, together with reports from meetings that took place in 2019. Most meetings organisers prefer you to book by email and where necessary pay online. There are links on the field meetings web page (<https://bsbi.org/field-meetings-and-indoor-events>). To help you go straight to the meetings that are of most interest to you, the web team have upgraded the page and it is now possible to select meetings using various criteria.

Do take part in some of our meetings this year – they are fun, educational and contribute to knowledge of the British & Irish flora.

Jonathan Shanklin

Field Meetings Secretary
 jdsh@bas.ac.uk

BRITISH & IRISH BOTANY

The fourth issue of *British & Irish Botany*, BSBI's open access, online scientific journal, has now been published, and completes our first (2019) volume (see box).

You can view or download all these papers free of charge here: <https://britishandirishbotany.org/index.php/bib/issue/view/4>. Issues 1-3 are available to view or download in the British & Irish Botany archive: <https://britishandirishbotany.org/index.php/bib/issue/archive>.

We hope you will consider publishing in, as well reading, British & Irish Botany. Once you've registered as an author (very quick and easy!), you can either use the simple and straightforward online submission system: <https://britishandirishbotany.org/index.php/bib/about/submissions>.

Or send your manuscript to the Editorial Office: bib@bsbi.org and we'll do it all for you. We look forward to hearing from you.

Ian Denholm and Louise Marsh

British & Irish Botany
 bib@bsbi.org

British & Irish Botany 4: Table of Contents

Temporal changes in distributions and the species atlas: How can British and Irish plant data shoulder the inferential burden? – *Oliver L. Pescott, Thomas A. Humphrey, Peter A. Stroh, Kevin J. Walker*

Recording plant status and regeneration during single visits – *Kevin J. Walker, Simon J. Leach, Christopher D. Preston, Thomas A. Humphrey, Trevor J. James, David A. Pearman, Paul A. Smith*

Birdseed aliens originating from Niger (*Guizotia abyssinica*) wild bird food – *C. Gordon Hanson*

Spatial and temporal vegetation analysis of Amberley Wild Brooks over two decades – *Damien Hicks, Frances Abraham, Louise Bardsley, Mags Cousins, Elaine Webster, Janet Whitman*

Symphytum caucasicum × *S. orientale* (Boraginaceae) in East Norfolk and Isle of Wight – *Bob Leaney*

Alchemilla sciura (Rosaceae), a new species of Lady's-mantle – *Mark Lynes*

The saga of a pink bindweed (*Calystegia*) from Arthog, Meirioneth (v.c.48) with additional evidence – *E. Ivor S. Rees*



Aquatic plants and dredging in the Huddersfield Broad Canal

RAY GOULDER

Dredging of navigable canals inevitably leads to short-term damage and destruction of aquatic plants. However, a longer-term perspective is likely to allow a better assessment of the impact of dredging. This article uses records from publications and grey literature, as well as my own observations, and attempts a long-term assessment of the effects of dredging on the aquatic flora of the Huddersfield Broad Canal.

This canal is in v.c.63 (South-west Yorkshire) and runs for c.6km from Huddersfield, roughly north-eastwards down the Colne Valley, to the River Calder at Cooper Bridge. It was built in the late eighteenth century and has nine locks. Commercial traffic ceased in the 1950s and the waterway became a resource for leisure boating. The canal has mixed environs – urban, industrial, post-industrial, semi-rural and rural. Around the millennium it needed

Floating leaves of *Luronium natans* (Floating Waterplantain) (centre) with *Lemna minor* (Common Duckweed) and the larger leaves of *Potamogeton natans* (Broad-leaved Pondweed), Huddersfield Broad Canal, August 2017. Ray Goulder

dredging to allow navigation to continue – a full dredge had not been undertaken since perhaps as long ago as the 1920s (Butterworth, 2002). The canal was therefore dredged throughout in 2002.

This article considers only plants that feature on the JNCC (2005) checklists of native aquatic plants and non-native aquatic vascular plants that occur or are liable to occur in UK canals. Wetland and riparian plants, often encountered but not on the checklists, are excluded. To help presentation and interpretation, water plants are separated into (1) submerged and floating-leaved plants, and (2) emergent plants. Nomenclature follows Stace (2019).

Aquatic plants in the Broad Canal before dredging

In summer 1980 Lucas & Morphy (1985) recorded water plants at 31 sites at 200m intervals along the whole canal. Aquatic plants were diverse and abundant throughout. They found 11 submerged/floating-leaved plants. Three pondweeds *Potamogeton natans* (Broad-leaved Pondweed), *P. berchtoldii* (Small Pondweed) and *P. crispus* (Curled Pondweed), were widely distributed along the canal, as was *Elodea nuttallii* (Nuttall's Waterweed) and the duckweeds *Lemna minor* (Common Duckweed) and *L. gibba* (Fat Duckweed). An interesting find was *Luronium natans* (Floating Water-plantain), a plant with Europe-wide protection which has colonised canals in northern England and possibly appreciates a modicum of disturbance by boat traffic (Willby & Eaton, 1993). It appears to have been relatively sparse, being found at only two of 31 sites, although the submerged

form of this plant is easily overlooked. The alien *Lagarosiphon major* (Curly Waterweed) was found at one site.

Lucas & Morphy also recorded 13 emergent plants. Of these, *Glyceria maxima* (Reed Sweet-grass) and *Juncus effusus* (Soft-rush) were most widely distributed, while *Acorus calamus* (Sweet-flag), *Iris pseudacorus* (Yellow Iris), *Oenanthe crocata* (Hemlock Water-dropwort), *Phalaris arundinacea* (Reed Canary-grass) and *Sparganium erectum* (Branched Bur-reed) were frequently encountered. Both *Alisma plantago-aquatica* (Water-plantain) and *A. lanceolatum* (Narrow-leaved Water-plantain) were recorded, the latter being the more widely distributed.

Approaching 20 years later there were two further surveys of aquatic vegetation in the Broad Canal. These were in 1996 by A.R. Barker for the West Yorkshire local authorities (Ecological Advisory Service, 1996) and in 2000 for British Waterways in anticipation of dredging (Philip Parker Associates, 2001). Abundant and diverse water plants continued to thrive. The 1996 survey found rich submerged/floating-leaved communities. Dominant, abundant or frequent plants included *Elodea canadensis* (Canadian Waterweed), *Elodea nuttallii*, *Lemna minor*, *Potamogeton crispus*, and *P. natans*. The emergent vegetation was dominated by *Glyceria maxima*, although *Acorus calamus* and *Sparganium erectum* were frequent.

The 2000 survey reported a submerged/floating-leaved flora dominated by relatively few species. These were recognised as plants that are associated with eutrophic waters, i.e. *Callitriche* spp. (Water-starworts), *Elodea nuttallii*, *Lemna minor*, *Potamogeton natans* and *Sparganium emersum* (Unbranched Bur-reed). The emergent marginal vegetation was dominated by *Glyceria maxima*, but also important were *Sparganium erectum* and *Acorus calamus*. Less abundant were *Alisma lanceolatum*, *Nasturtium officinale* (Water-cress) and *Typha latifolia* (Bulrush). It is noteworthy that *Luronium natans* was found to persist in the canal in both the 1996 and 2000 surveys.

The water plants found during the pre-dredging surveys are listed in Table 1. Most of the plants found by Lucas & Morphy in 1980 were still there around 20 years later; that is in 1996 and/or 2000.



Nymphoides peltata (Fringed Water-lily), here out of its native range, with reddish fronds of the alien *Azolla filiculoides* (Water Fern). Huddersfield Broad Canal, August 2019. Ray Goulder

Species no longer found were the alien submerged plant *Lagarosiphon major* and the emergent plants *Ranunculus sceleratus* (Celery-leaved Buttercup) and *Solanum dulcamara* (Bittersweet). Seemingly new submerged/floating-leaved plants recorded were *Azolla filiculoides* (Water Fern), *Ceratophyllum demersum* (Rigid Hornwort), and *Sparganium emersum*. New emergent plants were *Equisetum fluviatile* (Water Horsetail) and *Typha latifolia*.

There are also brief accounts of aquatic plants in the Broad Canal in July 1997 (Ferguson, 1997) and September 1998 (Tebbutt, 1998), written by British Waterways staff from the perspective of water plants being a hindrance to navigation. Ferguson (1997) suggested that weed control by harvesting might be appropriate since this would not adversely affect *Luronium natans*. Information from these accounts is not included in Table 1 because although broadly the plants mentioned also featured in the 1996 and 2000 surveys, interpretation is difficult because only generic names are given for some plants.

Dredging of the Broad Canal in 2002

The dredging aimed to restore the channel to its required dimensions (depth 1.3m across a width of at least 7.6m). The dredging work and its impact on aquatic vegetation are described by Butterworth (2002) – the emphasis of that report is on *Luronium natans*. It describes how prior to dredging the distribution of *L. natans* along the Broad Canal was surveyed and mapped by British Waterways' ecologists Karen Butterworth and Jonathan Hart-Woods. They found that the plant had a patchy distribution and was concentrated on shallow marginal shelves, although in places it extended across the channel. Additionally, loose floating plants were often seen.

Several strategies were adopted to conserve this plant:

- Stands growing on shallow marginal shelf were, as far as possible, left undisturbed.
- On-line reserves for the plant were installed along the offside of the canal. These were 2m wide and extended to a total length of 490m; they were constructed using wooden

posts and vertical geotextile curtain. The ends of the reserves were left open to encourage recolonisation of the canal.

- Two additional temporary reserves (90m × 1.5m and 36m × 1.5m), bounded by geotextile curtain, were established to conserve two of the larger populations on marginal shelf. These were removed after dredging.
- Plants that formed stands across the channel were collected before dredging began and were transferred to the reserves.
- During dredging, uprooted and disturbed plants were removed from the canal and transferred to the reserves.
- Plants transferred to reserves were encouraged to root by being held down to the silt by weighted loose-weave biodegradable hessian cloth.
- Some dislodged plants were rooted in plastic trays containing silt and water from the canal. Once established, these were returned to parts of the canal not already occupied by the plant.

Other aquatic plants were also conserved during dredging. To achieve this, areas of tall emergent fringe with high species richness and ecological value were identified and preserved during the dredging work.

Butterworth (2002) reported on the success of the measures taken to conserve *Luronium natans*. It was apparent by the time of her report in September 2002 that plants left undisturbed on marginal shelves had survived the dredging operations. Plants transferred to the on-line reserves had quickly established themselves. Within two months of planting, flowering plants with floating leaves were observed within the reserves. The populations within the two temporary reserves survived the dredging work and soon developed numerous floating leaves and flowers.

It is clear from the September 2002 account that a substantial population of *Luronium natans* had survived dredging. The key to this appears to be that plants survived well in shallow areas that were spared dredging; i.e. on marginal shelves and in the temporary reserves. In retrospect, it is not clear to

Table 1. Records of aquatic plants in the Huddersfield Broad Canal 1980–2019.

Species	1980 ¹	1996 ²	2000 ³	2012 ⁴	2017–19 ⁵
Submerged and floating-leaved plants					
<i>Azolla filiculoides</i> Water Fern	0	+	0	+	+
<i>Callitriche</i> spp. Water-starworts	+	+	+	+	+
<i>Ceratophyllum demersum</i> Rigid Hornwort	0	+	0	0	0
<i>Chara/Nitella</i> Stonewort	+	0	+	+	+
<i>Elodea canadensis</i> Canadian Waterweed	+	+	0	0	0
<i>Elodea nuttallii</i> Nuttall's Waterweed	+	+	+	+	+
<i>Lagarosiphon major</i> Curly Waterweed	+	0	0	0	0
<i>Lemna gibba</i> Fat Duckweed	+	+	0	0	+
<i>Lemna minor</i> Common Duckweed	+	+	+	+	+
<i>Luronium natans</i> Floating Water-plantain	+	+	+	+	+
<i>Nymphoides peltata</i> Fringed Water-lily	0	0	0	0	+
<i>Potamogeton bercholdii</i> Small Pondweed	+	+	0	0	0
<i>Potamogeton crispus</i> Curled Pondweed	+	+	+	+	0
<i>Potamogeton natans</i> Broad-leaved Pondweed	+	+	+	+	+
<i>Potamogeton obtusifolius</i> Blunt-leaved Pondweed	0	0	0	+	+
<i>Potamogeton trichoides</i> Hairlike Pondweed	0	0	0	+	+
<i>Sparganium emersum</i> Unbranched Bur-reed	0	+	+	+	+
<i>Stuckenia pectinata</i> Fennel Pondweed	0	+	0	+	0
Number of submerged and floating-leaved plants	11	13	8	12	12
Emergent plants					
<i>Acorus calamus</i> Sweet-flag	+	+	+	+	+
<i>Agrostis stolonifera</i> Creeping Bent	0	0	0	+	+
<i>Alisma lanceolatum</i> Narrow-leaved Water-plantain	+	+	+	+	+
<i>Alisma plantago-aquatica</i> Water-plantain	+	+	0	+	0
<i>Butomus umbellatus</i> Flowering-rush	0	0	0	+	+
<i>Equisetum fluviatile</i> Water Horsetail	0	+	0	+	+
<i>Glyceria maxima</i> Reed Sweet-grass	+	+	+	+	+
<i>Iris pseudacorus</i> Yellow Iris	+	+	+	+	+
<i>Juncus effusus</i> Soft-rush	+	+	+	+	+
<i>Mentha aquatica</i> Water Mint	0	0	0	0	+
<i>Myosotis scorpioides</i> Water Forget-me-not	+	+	0	0	0
<i>Nasturtium officinale</i> Water-cress	+	+	+	+	+
<i>Oenanthe crocata</i> Hemlock Water-dropwort	+	+	+	+	+
<i>Phalaris arundinacea</i> Reed Canary-grass	+	+	+	+	+
<i>Ranunculus sceleratus</i> Celery-leaved Buttercup	+	0	0	0	0
<i>Rumex hydrolapathum</i> Water Dock	0	0	0	0	+
<i>Solanum dulcamara</i> Bittersweet	+	0	0	+	0
<i>Sparganium erectum</i> Branched Bur-reed	+	+	+	+	+
<i>Typha latifolia</i> Bulrush	0	0	+	+	+
<i>Veronica beccabunga</i> Brooklime	0	0	0	0	+
Number of emergent plants	13	12	10	15	16
Total number of water plants	24	25	18	27	28

The canal was dredged in 2002. Records are from: ¹Lucas & Morphy (1985); ²Ecological Advisory Service (1996); ³Philip Parker Associates (2001); ⁴Goulder (2012) and Goulder & Morphy (2013); ⁵Goulder (unpublished): c.2.5km of canal from Lock 7 to Colne Bridge were surveyed in both 2017 and 2018; the c.3km of canal from lock 1A in Huddersfield to Lock 7 were surveyed in 2019.

what extent the permanent reserves were needed. The 2002 report noted that continuing maintenance of the reserves would be needed to keep them free of encroaching emergent plants, to remove rubbish, and prevent shading by tree growth. It was envisaged that, in the long term, gaps might be made in the geotextile curtain to allow *L. natans* to spread back into the canal, or the curtain might be removed.

Aquatic plants in the Broad Canal ten years after dredging

Aquatic plants in the Broad Canal were surveyed in June/July 2012 (Goulder, 2012; Goulder & Morphy, 2013). Plants were recorded in twelve 0.5km lengths along the whole canal. Submerged plants were retrieved for identification using a grapnel (beds of the protected *Luronium natans* were carefully avoided); emergent plants on the offside were, when necessary, identified using binoculars.

Ten years after dredging, water plants were diverse and abundant. Twelve principally submerged or floating-leaved plants were recorded (Table 1). *L. natans* was found in nine of twelve 0.5km lengths and was recorded as having >5% whole-channel cover in three of these. Its floating leaves and flowers were often seen growing against the wash wall on the towing path side of the canal. Other conspicuous submerged/floating-leaved plants that were found along most of the canal were *Elodea nuttallii* (>5% in four lengths), *Potamogeton natans* (>5% in six lengths) and *Sparganium emersum* (>5% in two lengths).

Fifteen emergent aquatic plants were also recorded in 2012 (Table 1). The marginal vegetation continued to be dominated by *Glyceria maxima* which was found along the whole canal and achieved >5% cover in 10 out of 12 lengths. No other emergent plant reached 5% cover in any length, although 0.1–5% cover was recorded for *Sparganium erectum*



A marginal reserve for *Luronium natans* constructed on the Huddersfield Broad Canal c.2002 using geotextile curtain and wooden posts. Seen here in August 2019, it has been colonised by *Glyceria maxima* (Reed Sweet-grass). Ray Goulder



A raft of *Potamogeton obtusifolius* (Blunt-leaved Pondweed) between a moored boat and the wash wall. Huddersfield Broad Canal, August 2019. Ray Goulder

in three lengths, for *Oenanthe crocata* in two lengths and for *Acorus calamus* and *Alisma lanceolatum* each in one length.

Recent surveys

During 2017–2019 (15–17 years after dredging) the 11 most westerly of the 12 0.5km lengths that had been recorded in 2012 were re-surveyed in July–August. Twelve submerged/floating-leaved plants and 16 emergent plants were found (Table 1). The most conspicuous submerged/floating leaved plant in 2017–2019 was *Elodea nuttallii*. This often occupied much of the channel and was recorded as having >5% cover in 10 out of 11 lengths. The floating leaves of *Potamogeton natans* also continued to be conspicuous; it was recorded in 10 lengths and reached >5% cover in five of them. *Luronium natans* was observed in eight lengths; its cover was estimated as >5% in one length and as 0.1–5% in three lengths. Rooted plants with linear-leaved

underwater rosettes and with floating elliptical leaves were easily seen from the towing path, against the wash wall. In addition, free-floating stolon-linked rosettes, probably dislodged by boats, were to be seen. The trailing underwater and floating ribbon-like leaves of *Sparganium emersum* also persisted, being observed in eight lengths, although never reaching 5% cover.

In 2019, submerged beds and rafts of *Potamogeton obtusifolius* (Blunt-leaved Pondweed) were a striking feature in the six most south-westerly lengths, with >5% cover in four lengths. Also notable in 2019 was *Azolla filiculoides* (Water Fern). The red-tinged floating fronds of this alien plant, accompanied by *Lemna minor* and sometimes *Lemna gibba*, were in five of the six lengths surveyed in 2019 and reached >5% cover in one of them.

Glyceria maxima was, as ever, the most abundant emergent plant. Although vertical margins often discouraged emergent plants, this species readily

colonised silt that had accumulated against the wash wall. It was recorded at >5% cover in six out of 11 lengths. The second most conspicuous emergent plant was *Sparganium erectum* which was recorded in seven lengths although it never exceeded 5% cover. *Oenanthe crocata* was recorded at 0.1–5% cover in one length; no other emergent plant achieved >0.1% cover.

Discussion

In the long term, aquatic plants in the Broad Canal appear to have been sufficiently resilient to overcome the disruption of dredging. This is shown by the limited change in species composition over the nearly 40 years from 1980 to 2019. Most plants found before dredging between 1980 to 2000 were still there afterwards, in 2012 and/or 2017–2019 (Table 1). Thirty species were recorded before dredging in 2002 and 24 of these were found afterwards.

No longer found were the submerged plants *Ceratophyllum demersum*, *Elodea canadensis*, *Lagarosiphon major* and *Potamogeton berchtoldii*, and emergent plants *Myosotis scorpioides* and *Ranunculus sceleratus*. None of these apparent losses is of much significance to conservation. Two of them, *E. canadensis* and *L. major*, are aliens. The others do not feature on the provisional vice-county Red Data List (Wilmore, 2013) and are not threatened in v.c.63. If *P. berchtoldii* is really lost, this is regrettable, although it is a plant that is easily missed. The loss of *E. canadensis* is probably a reflection of the general trend towards its replacement in Yorkshire canals by the more competitive *E. nuttallii* (Goulder, 2019). It is reassuring that *Luronium natans* continues to thrive, although I suspect that it may recently have suffered through competition with *Elodea nuttallii*.

Some of the plants found after dredging are apparently new to the canal. These were the submerged/floating-leaved plants *Potamogeton obtusifolius*, *Potamogeton trichoides* (Hairlike Pondweed) and *Nymphoides peltata* (Fringed Water-lily), and the emergent plants *Butomus umbellatus* (Flowering-rush), *Mentha aquatica* (Water Mint), *Rumex hydrolapathum* (Water Dock) and *Veronica beccabunga* (Brooklime). Of these, *P. obtusifolius* and *P. trichoides* were both regarded

by Wilmore (2013) as very rare in v.c.63. It is likely, however, that they are under-recorded in Yorkshire canals. I have elsewhere found *P. obtusifolius* in the New Junction Canal and *P. trichoides* in the Calder & Hebble Navigation, the Leeds & Liverpool Canal and the Knottingley & Goole Canal (Goulder, 2019). *Nymphoides peltata*, although native only in the Thames Valley and East Anglia (Preston & Croft, 1997), is extending its range and has become established in several canals in Yorkshire (Goulder, 2019); it was in the Huddersfield Narrow Canal (which flows into the Broad Canal) by 2012 (Goulder & Morphy, 2013). The appearance of *R. hydrolapathum* is interesting; this plant was described by Lavin & Wilmore (1994) as having a limited distribution in West Yorkshire, centred in the Castleford area. I have found it elsewhere in Yorkshire canals in the Knottingley & Goole Canal, the Leven Canal, the New Junction Canal and the South Yorkshire Navigations (Goulder, 2019) and it may be increasing its range. *Agrostis stolonifera* (Creeping Bent) was also not recorded before dredging but may have been overlooked; it is included on the JNCC checklists for canals but was likely not regarded as an aquatic plant by the earlier surveyors.

The question of whether there has been notable change in the abundance and distribution of plants along the Broad Canal can also be addressed. The records suggest that they have not greatly changed. Several submerged/floating-leaved plants were widespread and abundant along the canal both before and after dredging; e.g. *Elodea nuttallii*, *Luronium natans*, *Potamogeton natans* and *Sparganium emersum*. Similarly, *Glyceria maxima* continued to be the dominant emergent plant. The most striking change is perhaps the post-dredging appearance of *Potamogeton obtusifolius*. Not found before dredging, this plant was sparse in 2012 but abundant in 2019. Also notable is the appreciable cover of *Azolla filiculoides* in 2019. This is a plant that tends to occur intermittently (Preston & Croft, 1997); it was locally frequent in 1996 and sparse in 2012.

The extensive steps taken to ensure the preservation of *Luronium natans* during the dredging operation in 2002 were very successful. The

provision of on-line marginal reserves was a success in the short term, in that the plant thrived in the reserves immediately after its transfer to them. The long-term role of the reserves is unclear. Several of the reserve areas, along the offside of the canal behind geotextile curtain, were still in place in 2017–2019. They are now largely occupied by emergent vegetation – mostly *Glyceria maxima* but with some *Impatiens glandulifera* (Himalayan Balsam). They may have contributed to the survival of *L. natans* immediately after dredging but are no longer relevant. Today this plant is doing well, but largely on the opposite, towing path side of the canal. However, Jonathan Hart-Woods tells me that the retained geotextile curtain has a positive role in preventing the spread of *G. maxima* into the navigable channel. The dredging project was expensive in terms of input from ecological staff. The dredging contractors were intensively supervised, and more than 600 hours of field work were put in by ecologists over the dredging project (Butterworth, 2002). It is perhaps unlikely that such resources would be available today.

The rich post-dredging vegetation of the Broad Canal supports conclusions, made in a report by the former Inland Waterways Advisory Council (IWAC, 2008), that although dredging has short-term adverse impacts upon aquatic plants, these can be mitigated by good practice, including retention of marginal strips of vegetation. The IWAC report also suggests that, in the longer term, dredging may have benefits for aquatic plants, including limiting plant succession through restoration of open water, so allowing greater species richness and favouring early-succession plants – such as *Luronium natans* possibly.

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Ray Goulder

5 Bishops Croft, Beverley, East Yorkshire HU17 8JY
r.goulder@kategoulder.karoo.co.uk



The genus *Cymbalaria* Hill (Toadflaxes) in Britain and the discovery of *C. muralis* × *C. pallida*

MICHAEL WILCOX & MARKUS RUHSAM

The genus *Cymbalaria* Hill (Toadflaxes), was revised by Sutton (1988) in which he lists nine species and ten subspecies with various lower taxa. Bigazzi & Raphaelli (2000) made a name change to one species and split it to create two subspecies. Recent studies involving macro- and micro-morphological characters coupled with molecular data (Carnicero, 2017; Carnicero et al. 2017) have significantly increased the number of taxa in this genus (Table 1). Currently only three *Cymbalaria* species (and two subspecies) have been recorded in Britain and Ireland. These are *C. muralis*, *C. pallida* and *C. hepaticifolia* and the two subspecies of *C. muralis* (Sell & Murrell, 2009; Stace, 2019). However, there are some at the variety or forma level (see below). Additionally, *C. longipes* has been recorded (Clement & Foster, 1994) but there is doubt about its occurrence in Britain. All species mentioned above are native to Europe (except one, see Table 1). However, over the last 10–12 years I have noticed that there are some taxa in Britain

Hybrid of *Cymbalaria muralis* and *C. pallida*, Simonstone (see Figure 5). Michael Wilcox

which do not fit these species and a putative hybrid taxon was speculated. Preliminary molecular work at the Royal Botanic Garden Edinburgh (RBGE) has shown that some of these oddities are likely to be putative hybrids between *Cymbalaria muralis* and *C. pallida*, which have not been recorded or described before.

The taxa in Britain

C. muralis P. Gaertn., B. Mey. & Schreb. – Ivy-leaved Toadflax

In Britain, this has been a long established species in the wild since 1640 (Stace & Crawley, 2015) and has been in cultivation since 1602 (Preston et al., 2002). It is a common and widespread, trailing species which varies very little in morphology (Figure 1a). However, its range is much extended from the natural range due to its spread over much of

Western Europe and is the most widespread species of the genus (Carnicero, 2017). Subspecies *visianii* (Kümmerle ex Jáv) D.A. Webb has only been known in the wild since 1970 (Stace & Crawley, 2015). Subspecies *muralis* is typically glabrous, whereas ssp. *visianii* is quite hairy (Figure 1b). Both subspecies have a short, broad-based triangular 2.5(3)mm long

spur (Figure 1c), which can be up to 4mm, however this is extremely rare (my measurements suggest an average length of 2.6mm). A third subspecies, ssp. *pubescens* (J. & C. Presl) D.A. Webb, is similar to ssp. *visianii* but generally has pedicels greatly exceeding the subtending petiole after anthesis and a capsule equalling (or scarcely exceeding) the sepals. In

Table 1. Comparison of the taxonomy of the genus *Cymbalaria* Hill from Sutton (1988), Bigazzi & Raffaelli (2000) and the proposed taxonomy of the genus in Carnicero (2017) & Carnicero et al. (2017). The new hybrid is added for completeness.

*Taxa used by Carnicero (2017) & Carnicero et al. (2017) from Sutton (1988).	Proposed taxonomy for the genus (incl. nominate subspecies) from Carnicero (2017) & Carnicero et al. (2017) [with minor additions]
<i>C. aequitriloba</i> ssp. <i>aequitriloba</i> *	<i>C. aequitriloba</i>
<i>C. aequitriloba</i> ssp. <i>fragilis</i> *	<i>C. fragilis</i>
<i>C. hepaticifolia</i> *	<i>C. hepaticifolia</i>
<i>C. longipes</i> *	<i>C. longipes</i>
<i>C. microcalyx</i> ssp. <i>acutiloba</i> *	<i>C. acutiloba</i> ssp. <i>acutiloba</i>
	<i>C. acutiloba</i> ssp. <i>paradoxa</i>
<i>C. microcalyx</i> ssp. <i>ebelli</i> *	<i>C. ebelli</i>
<i>C. microcalyx</i> ssp. <i>microcalyx</i> *	<i>C. microcalyx</i> ssp. <i>microcalyx</i>
	<i>C. microcalyx</i> ssp. <i>heterosepala</i>
<i>C. microcalyx</i> ssp. <i>minor</i> *	<i>C. minor</i> ssp. <i>minor</i>
<i>C. microcalyx</i> ssp. <i>dodekanesi</i> *	<i>C. minor</i> ssp. <i>dodekanesi</i>
<i>C. muelleri</i> *	<i>C. muelleri</i> ssp. <i>muelleri</i>
	<i>C. muelleri</i> ssp. <i>villosa</i>
<i>C. muralis</i> ssp. <i>muralis</i> *	<i>C. muralis</i> ssp. <i>muralis</i>
<i>C. muralis</i> ssp. <i>visianii</i> *	<i>C. muralis</i> ssp. <i>visianii</i>
<i>C. muralis</i> ssp. <i>pubescens</i> *	<i>C. pubescens</i>
	<i>C. muralis</i> × <i>C. pallida</i> . Previously undescribed [Wilcox & Ruhsam, 2020]
<i>C. pallida</i> *	<i>C. pallida</i>
<i>C. pilosa</i> (*)	<i>C. glutinosa</i> ssp. <i>glutinosa</i> [Bigazzi & Raffaelli 2000]
<i>C. pilosa</i> (*)	<i>C. glutinosa</i> ssp. <i>brevicalcarata</i> [Bigazzi & Raffaelli 2000]
<i>C. pluttula</i>	<i>C. pluttula</i> not incl. in Carnicero (2017)
	<i>C. spetae</i> : new species
9 species	14 species
10 subspecies (incl. nominate ssp.)	12 subspecies (incl. nominate ssp.)
For varieties and forms see the relevant literature cited.	1 new hybrid
	+ <i>C. pluttula</i>
Total = 16 recognisable taxa	Total = 22 recognisable taxa¹

¹ For authorities and keys see Carnicero (2017). Carnicero et al. (2017) states 'We sampled 34 individuals of *Cymbalaria*, representing all species and subspecies recognised in the last taxonomic treatments (Sutton, 1988; Bigazzi & Raffaelli, 2000)'. However, technically not all taxa were included as *C. pluttula* in Sutton (1988) was excluded as it is not a Mediterranean taxon (SW Asia, Iraq, Iran?) and the main aim of the paper was based on 'speciation in Mediterranean taxa'. Though similar to *C. longipes*, *C. pluttula* requires more study as it is thought to be more closely related to the *C. microcalyx* group (Sutton, 1988).

contrast, ssp. *visianii* has pedicels more or less equal to the subtending petiole and a capsule which ‘greatly exceeds the sepals’ (Tutin et al., 1972). Of the two, only ssp. *visianii* has been found in Britain, which has been naturalised on waste ground at Wisley in Surrey since 1970 (Sell & Murrell, 2009) but was also known from Woodside Quarry in Leeds, SE2538, 1999, M. Wilcox (see Abbott, 2005). *C. muralis* ssp. *pubescens* is now treated as a species, *C. pubescens* (J. & C. Presl) Cufod., (Bigazzi & Raphaelli, 2000; Carnicero, 2017; Table 1).

There are white-flowered forms of ssp. *muralis* found in wild situations in Britain, which have been recorded under different variety names. One with all white flowers is often called ‘Alba’ and a similar one that has white flowers with a yellow boss, is often called ‘Nana Alba’ (see Figure 1f). There are records for *C. muralis* ‘Pallidior’, e.g. TQ3081, 2017, M. Crawley (BSBI DDB) and see Leslie (2019), for white-flowered plants with pale-leaves; the variety name is under investigation by Armitage & Phillips (unpublished). White flowered plants are often sold as ‘Kenilworth White’ or ‘Albiflora’ as well. The validity of these names needs further investigation.

Within *C. muralis* there is also a form which is known as ‘forma *toutonii* (A. Chev.) Cufod.’ The leaves are more digitate (Figure 1d), and often the flower lobes are narrow (Figure 1e). It is said to produce this form due to a virus in the seed coating and may not always fully keep this form over time (McClintock, 1982). In Britain it is only known from Cambridge Botanic Gardens (Coombe, 1992) and is listed in Clement & Foster (1994). McClintock (1982) suggested it would be useful to include it in any genetic studies, however it has not been found in the wild in Britain.

C. pallida (Ten.) Wettst. – Italian Toadflax

Known from the wild in Britain since 1924 (Stace & Crawley, 2015). This is an endemic alpine species from Italy which is restricted to a small area of the Apennines (Tutin et al., 1972; Sutton, 1988; Carnicero, 2017; Carnicero et al., 2017). However, like *C. muralis* it has been introduced to many countries (perhaps mainly via the horticultural

trade). In Britain it occurs on and spreads mainly along garden walls (Figure 2a, 2c). With its larger bluish-mauve flowers, grey-green leaves and glandular hairy parts, it is usually a very distinctive taxon but there is some variation in these characters. It is more common in the north and west of Britain (Stace, 2019); for example it is widespread on garden walls in the Bradford district. White-flowered plants have been called var. ‘Alba’ (or ‘Albiflora’) – and occur rarely (see Figure 2c). This species has the largest flowers (up to 20(25)mm) and the largest spur of all taxa, (5-9mm). The spur is usually straight and broader compared to the other species (see Figure 2b).

A glabrous or almost glabrous form, var. *beguinotti* (Cufod.) Cufod. (Cufodontis, 1936; Sutton, 1988) occurs on one garden wall in Bradford (v.c.63) which is the only record in Britain. Originally, this was found in 2009 by the author and B.A. Tregale and identified as this variety by Eric Clement. The plant is usually almost glabrous in some years but seems more glandular hairy in others and is still present.

C. hepaticifolia (Poir.) Wettst. – Corsican Toadflax

This species has been recorded from the wild since 1965 (Stace & Crawley, 2015) and considered to be marginally naturalised (Sell & Murrell, 2009). It can be a very distinctive species with reniform (kidney-shaped) leaves, which have pale greyish to distinct greyish-silver veins (markings) on the upper surface (Figure 3a). However, when it is grown in a pot and becomes crowded, the leaves become much smaller, slightly lobed and the veins much less distinct (Figure 3b). The literature (e.g. Sutton, 1988) does not mention the distinctive leaf veining, which suggests it might be a cultivated sport that reverts back to a less distinct form when crowded, and it is not certain what it looks like in its native habitat. All individuals on walls in the open seen in Britain have the kidney-shaped leaves and the distinctive markings. According to Sutton (1988) the flowers are 11–15mm long with a spur 2.5–5mm long. The key in Stace (2019) and Sell & Murrell (2009) place this species with *C. pallida* for flower size (15–25mm) and

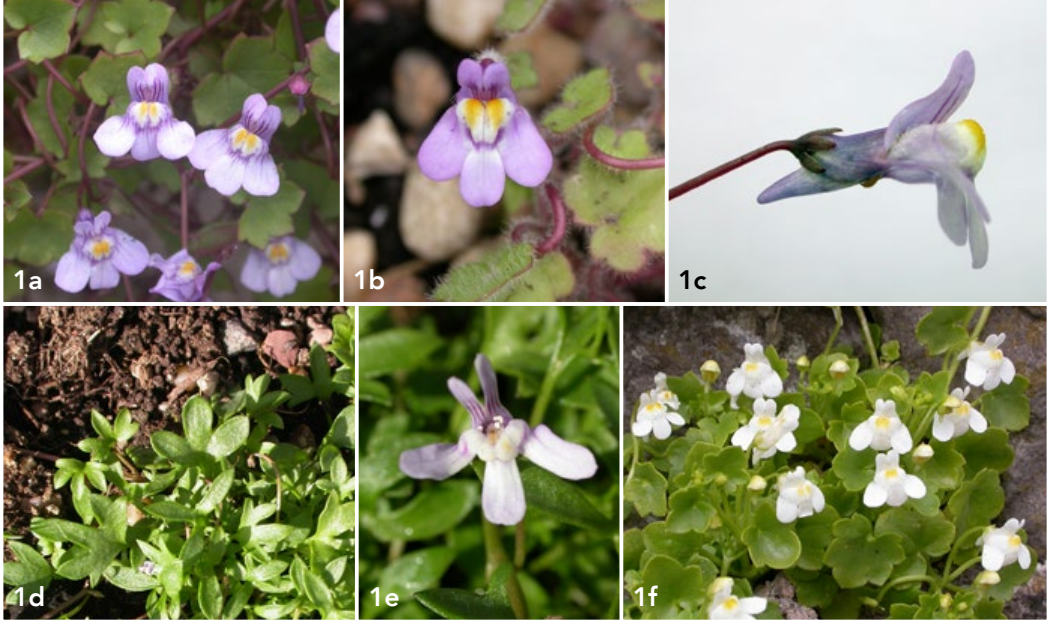


Figure 1. *Cymbalaria muralis* (a) *C. muralis* ssp. *muralis*; (b) *C. muralis* ssp. *visianii*, a distinctly hairy form of the species (in cultivation); (c) typical spur (2.6mm) of *C. muralis* in side view; (d) *C. muralis* f. *toutonii* showing digitate leaves (in cultivation); (e) *C. muralis* f. *toutonii* flower close-up; (f) *C. muralis* ssp. *muralis* 'Nana Alba' showing yellow boss (Slop Lane, v.c.74). Michael Wilcox



Figure 2. *Cymbalaria pallida* (a) Typical large purplish-blue flowers often with overlapping flower lobes; (b) showing the long broad spur (9mm long) (the glandular hairs can be seen on the pedicels); (c) a white-flowered form growing with normal form (flowers tend to be smaller in such plants). Michael Wilcox



Figure 3. *Cymbalaria hepaticifolia* (a) Showing the distinctive silvery markings on the leaves and a pale mauve flower (Whirlbrook Hall, Sheffield); (b) a typical flower but growing in a pot it shows the less distinctive markings on the leaves which are slightly more lobed; (c) showing the relatively small spur (3.5mm). Michael Wilcox



Figure 4. *C. muralis* × *C. pallida*, Clitheroe, SD7440 (v.c.59), 2007. (a) showing the bluer colour of the flowers and overlapping lobes similar to a small *C. pallida* and a trailing stem like *C. muralis*; (b) a flower showing the spur (4.5mm). Michael Wilcox



Figure 5. *C. muralis* × *C. pallida*, Simonstone, SD7634 (v.c.59), 2009. (a) Distinctly trailing stems like *C. muralis* showing darker flowers with separate to overlapping flower lobes; (b) mostly straight spurs 5–6mm long; (c) showing a distinctly curved spur 6mm long. Michael Wilcox

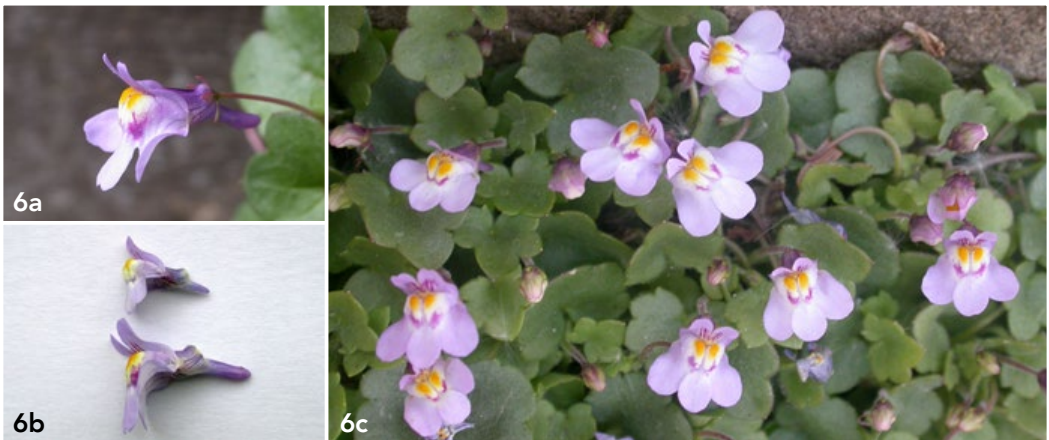


Figure 6. *C. muralis* × *C. pallida*, Harden, SD7634 (v.c.63), 2010. (a) This has trailing stems and flowers like *C. muralis* but longer spurs (5mm); (b) a comparison of a *C. muralis* flower with a spur, 2.2mm long (top) and a flower of the Harden hybrid (bottom) with a spur 5.5mm long; (c) showing a distinctly greyer-green plant with very brightly coloured flowers (located c.10m from the plant in 6a). Michael Wilcox



Figure 7. Langcliffe, SD8264 (v.c.64), c.2010. The ITS barcoding only showed species-specific *C. muralis* SNPs, but it has morphological features in common with the hybrid plants. The plants are spreading and sparsely to frequently glandular hairy. (a) There are two colour forms here, ‘pink’ (left) and darker bluish-mauve (right); (b) the spurs are to 5mm, which is rather long for *C. muralis*; the identity of such plants need further investigation (see text). Michael Wilcox



Figure 8. Sheffield, SD8264 (v.c.63), 2019. The ITS barcoding only showed species-specific *C. pallida* SNPs, but morphologically it looks different to this species. The Sheffield plants are more clump forming and sparsely to frequently glandular hairy. (a) The flowers are similar in colour to the ‘pink’ form seen at Langcliffe; (b) the spurs are to 5mm, which is unusually short for *C. pallida*; however, some plants do have small spurs. The spur in this photo does have a broader appearance and thus this plant may just be a small form of *C. pallida*, but like those at Langcliffe the identity of such plants need further investigation (see text). Michael Wilcox

a spur 4–9mm, suggesting a large flowered plant. However, the key in Sutton (1988) starts with, ‘stems and leaves glabrous at maturity’ and gives the flower size as 11–15(18)mm and the spur 2.5–5mm. Whilst the sizes do overlap, the plants seen in Britain are glabrous and have flowers 11–15mm long and spurs 3–4mm long (Figure 3c), however it is based on limited material. The flowers and spurs are rather delicate and similar to *C. muralis* but usually a very pale mauve colour (they can be bluer in some plants but I have only seen the pale flowered plants in Britain). Therefore, they should not be confused with *C. pallida*.

C. hepaticifolia is known from about 20 vice-counties from v.c.6 (N. Somerset) to v.c.98 (Argyll), with only one record in Ireland (Co. Down) [v.c.c. 6,

11, 13, 16, 17, 21, 22, 40, 46, 50, 57, 62, 69, 72, 79, 81, 83, 85, 98 & H38.] Photographs have been seen for v.c.72 (courtesy of C. Miles) and v.c.81 (courtesy of M. Braithwaite); the former is correct but the latter is *C. pallida*. It is also known on a wall at Bailrigg House, Lancaster University, v.c.60, 28.06.2018, SD484790, A. Baker (pers. comm.). Some records (maybe half or more) are not ‘wild’ as it is known to be a weed of botanic gardens and plant nurseries, etc. and some may be misidentifications. Most of those considered ‘wild’ are spreading on garden walls like all the other taxa in Britain. It has been well established as a weed on a wall and flowerbed in the grounds of Whirlbrook Hall, Sheffield, v.c.57 since 2013 (A. Baker) and I visited the site in 2016 and 2019 where it is still present.

C. longipes (Boiss. & Heldr.) A. Chev.

This species has been recorded once in 1986, in Strete v.c.3 (Clement & Foster, 1994). The specimen at the Reading University herbarium (RNG) collected by H.J.M. Bowen is rather ambiguous as it only has small pressed flowers and no fruiting capsules. It is a species that is very similar to *C. muralis* ssp. *muralis* in that both are spreading and glabrous at maturity. However, the key in Sutton (1988) distinguishes this species from *C. muralis* as follows:

C. longipes: Capsule 6–8 × 8–9mm, indehiscent, each loculus with a solitary seed or 2–3 seeds forming a concrescent mass. [The text notes that the spur is 3.5–4.5mm.]

C. muralis: Capsule 2.5–4.5mm, dehiscent, each loculus with numerous discrete seeds. [The text notes that the spur is 1.5–3(3.5)mm.]

The specimen in RNG has spurs to ≤3mm and no capsules. A search for *C. longipes* was carried out in Strete in 2015 by the author and revealed no plants other than *C. muralis*, and therefore it is unlikely to be *C. longipes* and should be regarded as *C. muralis* ssp. *muralis*.

Some other plants, found by the author, in Clitheroe and Simonstone (v.c.59) around 2007–2009 and later in Harden (v.c.63) c.2010, had been considered as *C. longipes* initially as they had distinctly longer spurs than *C. muralis*. However, because they were usually sparsely to frequently glandular hairy, with small capsules (as for *C. muralis* above) and all seeds are discrete, they are not *C. longipes*. In some ways I was trying to fit them to a species based on the illustrations in Blamey & Wilson (1993) and Polunin (1988). After finding the Simonstone plant, it was evidently intermediate between *C. muralis* and *C. pallida*. This is a spreading plant that has long narrow, straight or curved spurs 4–6mm long and is relatively glandular hairy. Therefore, I came to the conclusion that it was possibly a hybrid (which meant some of the others [though with slight differences] may have been hybrids or other unknown species). However, after consulting Sutton (1988) it was clear that none of the odd plants keyed out to known taxa. The plant in Simonstone was clearly intermediate between *C.*

muralis and *C. pallida*. However, they are all pollen and seed fertile.

DNA Barcoding of *Cymbalaria* plants with unusual morphology

Leaf material of the plants which could not be confidently allocated to either *C. muralis* or *C. pallida* and material of proper *C. muralis* and *C. pallida* were collected in silica gel. All samples were sent to Dr M. Ruhsam for DNA barcoding at the Royal Botanic Garden Edinburgh (RBGE). DNA barcoding uses a set of highly discriminating genes from the nuclear (e.g. internal transcribed spacer, ITS) and/or the chloroplast genome (e.g. *rbcl*, *matK*) to tell species apart (Hollingsworth et al., 2016). ITS sequences of *C. muralis* and *C. pallida* are very similar but differ consistently in two positions (single nucleotide polymorphism, SNPs) in the subregion ITS1 (Carnicero et al., 2017), which can be used to tell the two species apart. Sequencing of the ITS region of the collected material at RBGE revealed that some plants with unusual morphology were heterozygous (i.e. they had the *C. muralis* and the *C. pallida* specific SNP) at these two SNP sites. This suggests that these samples are likely to be first generation hybrids between *C. muralis* and *C. pallida*.

The hybrids (as suggested by the DNA analysis) differ from each of their parents in a number of characters, which show intermediate traits. They are similar to *C. muralis* in that they are spreading, as opposed to clump forming but all parts can be sparsely to more frequently glandular hairy as in *C. pallida*. Given the variation in hairiness it suggests the hybrids are *C. muralis* ssp. *muralis* × *C. pallida* (as ssp. *visianii* is very rare). Generally, the flowers look similar to *C. muralis* but are larger and usually intermediate in total length between the two species. The spurs have been measured from three sites and range from 4–6.5mm. The spurs are intermediate in shape and are ± narrow rather than broad and can be straight or curved. For photographs of each hybrid see locations below.

DNA analysis revealed that plants with unusual morphology from the following sites were the putative hybrids between *C. muralis* × *C. pallida*:

1. Clitheroe

In 2007 I came across an odd-looking *Cymbalaria* plant in Clitheroe (SD7440, v.c.59). It looked similar to *C. muralis* (spreading, Figure 4a) but the average length of the spur was 4.5mm (Figure 4b). It was also glandular hairy when young, becoming more sparsely so as it matured (though in some years it is more hairy than in others). Initially, this was thought to be *C. longipes* but later I ruled this out based on the information given above. While it essentially looks like *C. muralis* with trailing stems, the flowers have a darker more bluish colour and the lower flower lobes tended to be together in a row in a similar way to those in *C. pallida*, rather than the more often three separate lobes in *C. muralis*.

2. Simonstone

While living in Clitheroe, another plant was found (SD7634) in v.c.59 (c.2009), which was the Simonstone plant mentioned above. This one is distinctly intermediate between *C. muralis* and *C. pallida* and the one I most considered to be a hybrid despite its fertility (either that or it was an undescribed species). It is distinctly spreading like *C. muralis* (Figure 5a) but has more glandular hairy parts like *C. pallida*. The spurs are long and narrow and mixed curved to straight and on average 5.5mm long (see Figures 5b, 5c). However, it was confusing for a hybrid as a later visit revealed that it was fertile (like all the others). *Cymbalaria* is in the same tribe (Antirrhineae) as the genus *Linaria* Mill., which can produce fertile hybrids (Stace et al., 2015); it therefore seemed that a fertile hybrid might also be possible in *Cymbalaria*. The fact remained (like the Clitheroe plant) that it did not fit any known species and showed intermediate characters. Both parental taxa occur nearby.

3. Harden

Plants were found here in 2010. There are two patches of plants at Harden (SE0838, v.c.63) about 10m apart. One of the plants looks similar to the Clitheroe plant, though the flower colour is much closer to *C. muralis* and therefore initially it was thought to be a form of *C. longipes* from the image

in Blamey (1993). The small capsules and discrete seeds like *C. muralis* ruled this out (see Sutton, 1988) as well as being sparsely glandular hairy. The spurs are c. 4–5.5mm long and usually straight (Figure 6a); a typical *C. muralis* flower and spur is compared to a hybrid flower from Harden in Figure 6b. The second plant has greyer-green leaves similar to *C. pallida*, with flowers quite similar to *C. muralis*, although they are rather more brightly coloured than is typical for the species (Figure 6c). As the plants occur on a hill, it is thought that the latter plants, which are lower down the hill, are self-sown from seeds from the ones higher up the hill. Being fertile, the difference in appearance between the two at this site might suggest there is some segregation of features in the next generation from seed.

The plants from the above sites have been shown to be putative F1 hybrids from the DNA analyses. There were two other ‘oddities’, but ITS barcoding only showed species-specific *C. muralis* or *C. pallida* SNPs. The two sites are as follows:

Langcliffe: SD8264 (v.c.64)

Known at this site since about 2010, this plant was inconclusive, as ITS markers only suggested *C. muralis*. However, it seems doubtful that this is pure *C. muralis* as it is (sparsely-frequently) glandular hairy and there are two colour forms here (see Figure 7a). The spurs are to 5mm and straight (very similar to those at Harden). However, it is possible that this plant could be a later generation hybrid (e.g. an F2) which is not necessarily heterozygous at the two species discriminating SNP sites any more (in contrast to an F1 which always has to be heterozygous for species-specific markers). Further studies will be required to show the origins of this plant.

Sheffield: SK3288 (v.c.63)

This was found by Ambrose Baker (18.08.2018) on Heavygate Road, who sent some photographs which were inconclusive, thus I visited the site in 2019. It is similar to *C. pallida* due to it being more clump-forming (Figure 8a) but it has relatively short spurs 4–5(6)mm (Figure 8b). The flowers are rather a pale pinkish-mauve rather than the bluer flowers of

C. pallida, and the flower lobes are more separated, suggesting a more *C. muralis*-like flower. However, (as the DNA suggests) it is more likely to be an odd form of *C. pallida*, but like the Langcliffe plants it needs further investigation.

A different plant was also known on nearby Greenhow Street, but it seems to have gone from there. At a late stage, I received a pressed specimen of this plant; it has a trailing stem and is very glandular hairy in all parts with spurs at least 4mm (said to be a bit longer in life, pers. comm. A. Baker). These characters suggest it is a putative hybrid (or possibly an odd form of *C. muralis* ssp. *visianii* with longer spurs than normal). Some of the dried leaves have been sent to Dr Ruhsam, which are currently under investigation with the results pending.

Conclusion

This study has shown that hybrids between *C. muralis* ssp. *muralis* × *C. pallida* occur in Britain. It is very likely the hybrid has arisen in Britain given how widespread and frequent the two parental taxa are in the west and north of the country. It is possible that putative hybrids occur elsewhere; therefore it cannot be ruled out that it occurs in other countries where these two species have been introduced. The hybrids and other oddities need further study, perhaps using another molecular technique in order to see if plants like the Langcliffe and Sheffield ones are second or third generation hybrids (backcrosses). This seems to be an interesting addition to the British flora as these hybrids have not been described previously.

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Michael Wilcox

43 Roundwood Glen, Greengates, Bradford, BD10 0HW (corresponding author)
michaelpw22@hotmail.com

Dr Markus Ruhsam

Royal Botanic Gardens Edinburgh, 20A Inverleith Row, Edinburgh, EH3 5LR

Whatever happened to *Crepis mollis*?

JOHN RICHARDS

C*repis mollis* (Northern Hawk's-beard) is an increasingly rare and somewhat uncharismatic hawkweed-like member of the Asteraceae, which nevertheless inspires devotion amongst its acolytes, through its reclusive nature and highly selective habitat requirements. Since the millennium, several reviews concerning its conservation status have reached varying conclusions. Walker & Robinson (2011) although 'cautiously optimistic' called it 'one of Yorkshire's most threatened plants' while Walker et al. (2017, but based on a 2008 survey) state that 'the overall distribution ... appears to be stable'. Its status in Stroh et al. (2014) is 'Vulnerable' for England and 'Endangered' for the UK.

The BSBI Threatened Plants Project survey of *Crepis mollis* in 2008 caused many sites lacking twenty-first century records to be revisited. Since then, however, the number of records that have been added to the BSBI's Distribution Database (Ddb) is remarkably few. In fact, omitting my own vice-county of South Northumberland (v.c.67) of which

Part of the population of more than 500 plants of *Crepis mollis* at West Studdon, Allendale, Northumberland, July 2019. *John Richards*



more later, *Crepis mollis* has only been recorded from 13 UK sites since 2012, and as I write in 2019, it may have survived to the present day in only 11 sites away from v.c.67. In Scotland, *C. mollis* is probably extinct. Here it had been recorded in at least 35 sites in 12 vice-counties, but there is no recent report from the most likely surviving Scottish site, Newland Hill (v.c.72) where 62 plants were reported in 2012.

Of equal concern are population numbers in England. In 2019, Langleeford in Cheviotland (v.c.68) certainly has in excess of 50 flowering individuals, possibly more, while in Mid-west Yorkshire (v.c.64), Starbottan is said to still hold 'good numbers'. Most other recent reports away from v.c.67 are of population numbers of flowering plants reduced to single figures (however, see below).

The real problem is indicated by the phrase 'reclusive nature'. In flower, *Crepis mollis* is a conspicuous target, only likely to be confused with *C. paludosa* (Marsh Hawk's-beard) and some *Hieracium* (hawkweeds). Out of flower, it is very difficult to detect when in bud or sterile; after flower the brilliant white pappus can be a guide in the tall dense vegetation the species favours, but this still requires close and detailed searching. A few of many possible anecdotes will illustrate this.

In 2017, Ruth Starr-Keddle reported a large new population at an accessible site close to Sinderhope Community Centre, Allendale, v.c.67. I visited this location in late July 2018 and found nothing. Recognising that peak flowering had occurred in the last week of June that year, I visited on 26 June 2019 and again found nothing. During yet another visit on 4 July, a single large plant was found in full flower. I called in again once more on 13 July when 50 individuals were in full flower at the original reference, and another 57 were flowering 50–100m to the south. By 20 July it was difficult to detect that any plants had been there, although the habitat had not been altered.

On that ‘peak’ day in 2019 (13 July), the well-known roadside population at High Sinderhope had 57 flowering individuals where I had found six the previous week, and the road verge at Prospect Hill above Allendale Town had 30 flowering individuals where four had been counted on 4 July. Earlier that day, Elizabeth Maddison kindly led me to an inaccessible site below West Studdon, Allendale where she had counted 537 plants in flower five days previously. I then proceeded to sites near the bridge at Sparty Lea where 32 flowering plants were counted.

Finally, in a vain attempt to reach a previously known site on the haugh south of Sparty Lea bridge, Allendale, made inaccessible by high water levels, I attempted access from St Peters to the south and found a new thriving population of 20 opposite the cottage. A *dies mirabilis* indeed, considerably besting the 100 or so individuals I had already counted on 30 June 2019 at the renowned Kitty Green site, West

Allen (a date when most East Allendale populations had yet to flower; however this estimate was not exceeded at a later date).

To sum up, I logged at least 900 flowering individuals in eight sites in the hectads NY84 and NY85 in early July 2019. I failed to visit probably extant sites (single figure numbers) in NY69, NY74, NY85 and NY94. As a comparison, during the Threatened Plant Project survey in 2008, 380 plants were reported from v.c.67; at least 250 were recorded at Kitty Green, but the West Studdon population was not known then.

Thus, it would seem that South Northumberland presently hosts between 70% and 90% of individuals of *Crepis mollis* in the UK, and between 40% and 60% of the surviving sites. The statistics for the country as a whole are stark. On the Ddb there are in total records from 140 sites in 75 hectads, but in 2019 the corresponding figures may be fewer than 25 sites in 13 hectads. Neither has South Northumberland

Table 1. Numbers of sites for *Crepis mollis* (Northern Hawk’s-beard) in the British vice-counties in which it has been recorded.

Vice-county	Sites all years	Sites 2019	Biggest population	Year extinct
64 (Mid-west Yorkshire)	13	1 (-2)	100?	
65 (North-west Yorkshire)	14	2	20?	
66 (County Durham)	16	4 (-7)	50?	
67 (South Northumberland)	41	12	537	
68 (Cheviotland)	9	2	50+	
69 (Westmorland)	7	1 (-2)	<50	
70 (Cumberland)	6	1 (-2)	9?	
72 (Dumfriesshire)	2(-3)	1?	<60	
78 (Peebles)		0		1879
80 (Roxburghs)	4	0?		2011
81 (Berwicks)	9	0		2008
83 (Midlothian)	1	0		1847
87 (West Perth)	1	0		1884
88 (Mid Perth)	6	0		2010
89 (East Perth)	3	0		1972
90 (Angus)	2	0		2009
91 (Kincardines)	1	0		1859
92 (S. Aberdeen)	1	0		1949
94 (Banff)	3	0		1905
Totals	140	23–27		

been spared although the figures of 41 sites reduced to 12 are slightly less extreme (Table 1).

Of course there are major questions and caveats here. Was 2019 really such an exceptional year in Northumberland, or were I and others merely in the right place at the right time? If it was such an amazing year in v.c.67, perhaps it was in other areas too, but exceptional populations remained unvisited. Has the plant really become very recently extinct in many areas as several correspondents suggested, or were recent visits made at the wrong time, as peak flowering date varies so much between years?

In fact, I think it is very unlikely that South Northumberland enjoyed such an exceptional year for this rare plant at the same time as it languished on the verge of extinction in most other places. As Kevin Walker has suggested on more than one occasion, it is much more likely that it has not enjoyed timely visits in recent years. The main purpose of this article is to stimulate folk to prove my sad boast, that South Northumberland may now be main refuge for this interesting plant, is far from the truth!

As an addendum I am appending a few notes concerning the habitat for *Crepis mollis* in its Allendale stronghold, as this is very distinctive and well characterised. In general it agrees well with Walker et al. (2017) and Walker (2015), but differs in minor points.

With us, most sites are on steep (>45°) sides of river terraces, well above the flood zone, often on the lowest terrace, but sometimes up to 100m altitude above the river. Most sites are unmanaged, not mown, mucked or grazed, but have somehow escaped much colonisation by woody plants. If the locations are grazed, the banks discourage grazing animals by virtue of their steepness, and any mowing is performed by hand (or strimmer) as they are too steep for wheeled machinery. The vegetation is consequently dense, containing many vigorous forbs such as *Geranium sylvaticum* (Wood Crane's-bill), *Centaurea nigra* (Common Knapweed) and *Filipendula ulmaria* (Meadowsweet), although the *Crepis* cannot compete successfully with a dense stand of the latter. Typically, most plants occur towards or even at the

very bottom of the slope where the combination of drainage and moisture flow are maximised. Aspect seems unimportant, although few sites are south-facing. Several sites are the steeper banks of road verges (but are nevertheless river terraces), which enjoy the lack of mowing, grazing or artificial feeding required. Only one Northumberland site is shaded; it is a mystery how most sites have escaped any afforestation. Most recent losses can be explained by a change of management (e.g. to summer grazing, mucking followed by silage or hay making, or reseeding), but when management has not changed, for instance on road verges, it seems that the main threat is increased lushness and vigour of the unmanaged vegetation on these sites as the climate warms and deposition of atmospheric nitrogen increases.

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John Richards

High Trees, South Park, Hexham, NE46 1BT
hightreesgarden@btinternet.com

Viscum album (Mistletoe) – a preliminary survey in Suffolk

ANNE KELL

By sheer co-incidence, at the same time Tim Harrison (2019) was surveying Mistletoe (*Viscum album*) in Buckinghamshire, I too was undertaking a survey around Ipswich, Suffolk (v.c. 25). I decided I needed a focus to learn how to use John Poland's new *Field Key to Winter Twigs* and, having observed a large number of trees locally that contained sprigs of Mistletoe, decided to use the book to identify the host trees.

This was never intended to be a systematic survey or to be fully comprehensive and there are still many more trees in the area yet to be recorded. However, during January, February and March 2019 any tree that I saw in my local travels, mostly on walks or cycling trips, was noted down. In total, 436 host trees were observed, although 41 were inaccessible as they were on private land. All are within a 20 km radius of the centre of Ipswich. For each host tree either a 6-, 8- or 10-figure grid reference was recorded, depending on how close I could get to the tree, together with an idea of the level of infestation by estimating the number of Mistletoe sprigs visible, using binoculars for larger trees, and habitat. The species of tree was identified using Poland's book, and where there was any uncertainty, verified later once the tree was in leaf. The area is largely semi-rural, centred on the urban area of Ipswich and its outlying villages. Surrounding farmland is mostly paddocks (for horses) and arable land. The topography is one of rolling countryside with gentle valleys, with the three major river estuaries of the Stour, Orwell and Deben, and includes part of the coastline of Suffolk.

Martin Sanford, Vice-county Recorder for Suffolk, provided data from the county records for the same area. At the time there were only 78 records of Mistletoe recorded between 1990 and 2018. Some of these sites have been revisited and

the colonies still exist, others have been lost and some have yet to be located; 52% of these records were from the mid-1990s and are presumed to be the result of the study undertaken by BSBI and Plantlife (Briggs, 1999) at that time into the British distribution of Mistletoe.

Results

Both surveys will reflect surveyor effort and visibility of Mistletoe. Many of the records from the 1990s are single 6-figure grid references and may only record a single location when, in fact a number of infested trees were present. However, the data would suggest that there has been a significant increase in the number of trees infested with Mistletoe in this area.

In common with Tim Harrison's (2019) observation, Mistletoe in the Ipswich area clearly shows a 'hot-spot' distribution (Figure 1). If one tree in an area is infested then many adjacent trees are also likely to be infested, assuming that they are also susceptible to parasitisation by Mistletoe. However, there are other areas where groups of the same tree species show no infestation at all. This is assumed to be a function of the mechanism of seed distribution as described by Jonathan Briggs (2019) in his follow-up article. One feature of significance is that, with one exception (a single plant growing on an old *Crataegus monogyna*), no Mistletoe has been found growing close to the coast despite the presence of suitable host trees.

A wide variety of tree species (Table 1 and Figure 2) was found to host Mistletoe in this area. With the possible exception of some of the *Crataegus monogyna*, *Acer campestre* and *Salix alba* individuals (see table for English names), all of these host species are assumed to be planted. Briggs (1999; 2011) similarly found in the 1990s survey that most of the host trees were 'man-made', i.e. introduced cultivars and crosses

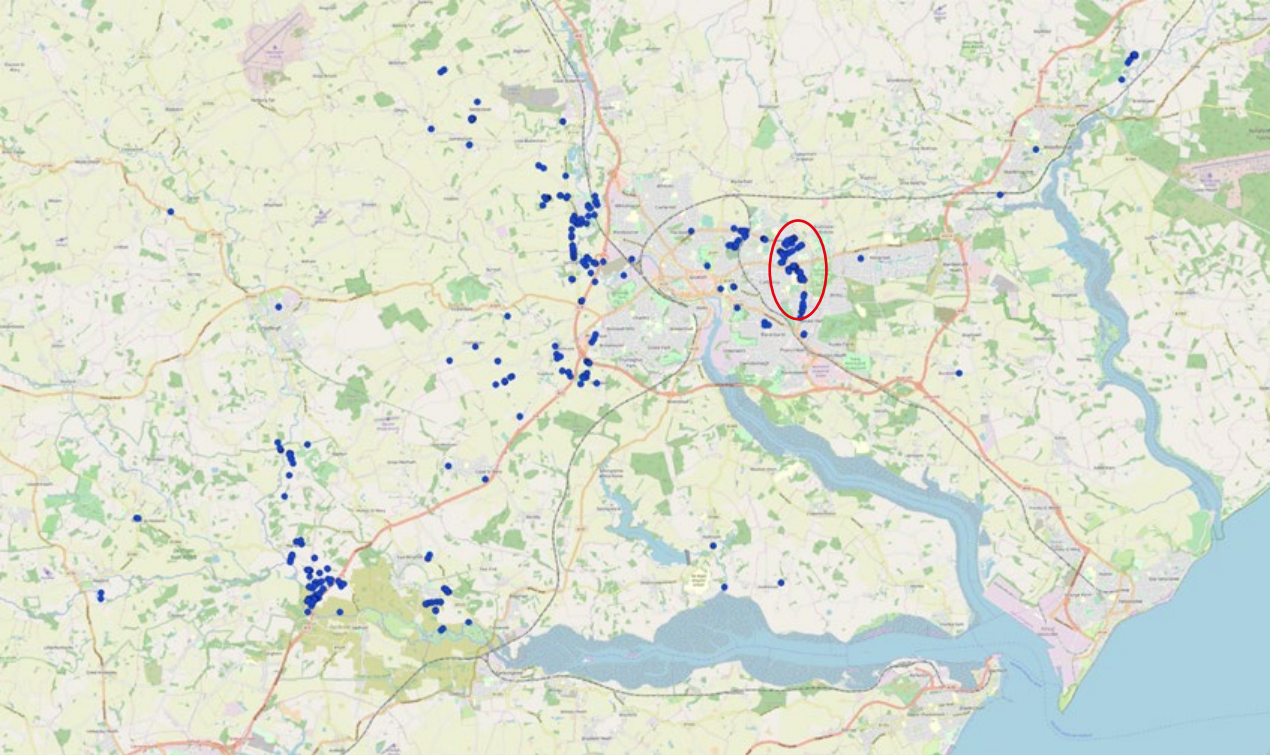


Figure 1. Distribution of records of Mistletoe (*Viscum album*) in south Suffolk (v.c. 25) study area (showing Ipswich Hospital area, circled). Contains Ordnance Survey data © Crown copyright and database right 2020.

generated by human intervention. The two primary hosts are *Tilia × europaea* and *Populus × canadensis*. In common with the findings of Briggs (1999) *Malus* was also found to be a popular host genus but many of these were cultivated species or varieties of Crab Apple (*Malus* spp.) grown as ornamental roadside plantings. Otherwise, infected trees of cultivated Apple (*Malus domestica*) tended to be in gardens, as most of the Suffolk orchards in the Ipswich area have been grubbed up. Some of the roads in Ipswich have wide verges which have been planted with ornamental trees from a wide variety of different species. If they are suitable hosts then many of these trees contain Mistletoe. These include *Acer rubrum*, *Acer saccharinum*, *Crataegus laevigata*, *Crataegus monogyna*, *Robinia pseudoacacia* and a range of *Sorbus* species. It is possible that some of these ornamental plantings allow for the ‘hot-spot’ distribution seen in the data.

The habitat data is summarised in Table 2 and Figure 3. In common with the previous survey (Briggs, 1999) gardens gave rise to the greatest number of records. There is a complete absence of orchards in the study area. Virtually all the habitats are man-made with a high preponderance of ornamental

planting along roadsides and in parkland. Where Mistletoe is recorded in woodland strips this tends to be in small *Populus* plantations.

Discussion

Traditionally Mistletoe is associated with the orchards of Gloucestershire and was considered to be relatively rare beyond Herefordshire, Worcestershire, Gloucestershire and Somerset (Briggs, 2011). The BSBI and Plantlife study of the distribution of Mistletoe showed relatively few records for East Anglia generally and Suffolk specifically (Briggs, 1999). Briggs (1999) considered climate to be the primary determining factor influencing distribution and that Mistletoe didn’t seem to spread much beyond its core area. However, this seems to have changed since the turn of the century, with it now increasing in its distribution and spreading to areas that are ‘outside its climatic comfort zone’ (Briggs, 2011; 2012). These data certainly support this observation.

The well documented climate change over the last few decades is one possible explanation for the expansion in distribution. Briggs (2011) considers

Table 1. Records grouped by host tree or genus.

Taxon	No. of trees
<i>Tilia</i> × <i>europaea</i> (Lime)	93
<i>Populus</i> × <i>canadensis</i> (Hybrid Black-poplar)	65
Not identified (inaccessible)	45
<i>Populus trichocarpa</i> (Western Balsam-poplar)	39
<i>Malus</i> – ornamental crab apple	36
<i>Crataegus monogyna</i> (Hawthorn)	31
<i>Malus domestica</i> (Apple)	28
<i>Salix alba</i> (White Willow)	16
<i>Robinia pseudoacacia</i> (False-acacia)	15
<i>Acer platanoides</i> (Norway Maple)	12
<i>Acer saccharinum</i> (Silver Maple)	10
<i>Crataegus laevigata</i> – (ornamental Midland Hawthorn)	8
<i>Sorbus aucuparia</i> (Rowan)	7
<i>Sorbus aria</i> agg. (Whitebeam)	6
<i>Prunus</i> spp.	5
<i>Acer campestre</i> (Field Maple)	4
<i>Acer rubrum</i> (Red Maple)	4
<i>Acer</i> (other spp.)	3
<i>Sorbus</i> spp.	2
<i>Alnus glutinosa</i> (Alder)	1
<i>Amelanchier lamarckii</i> (Juneberry)	1
<i>Fraxinus excelsior</i> (Ash)	1
<i>Photinia beauverdiana</i>	1
<i>Salix</i> × <i>sepulcralis</i> (Weeping Willow)	1
<i>Salix</i> × <i>fragilis</i> (Hybrid Crack-willow)	1
<i>Tilia platyphyllos</i> (Large-leaved Lime)	1
Total	436

Table 2. Summary of records by habitat.

Habitat	No. of trees
Garden	102
Ornamental planting park or cemetery	75
Ornamental planting roadside	51
Hedgerow	44
Roadside rural	39
Churchyard	38
Woodland strip	36
Roadside urban	16
Field	16
Streamside/riverside	15
Rough ground/allotment	4
Total	436

Figure 2. Proportion of host trees by genus.

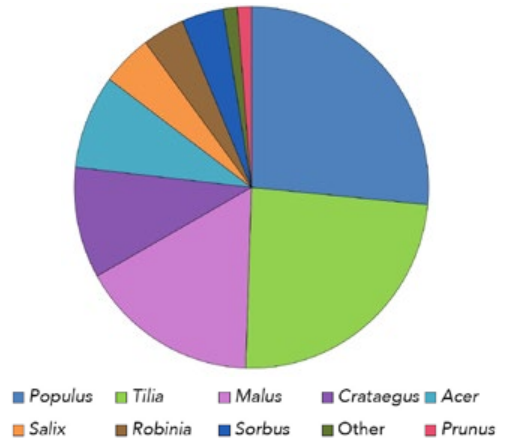
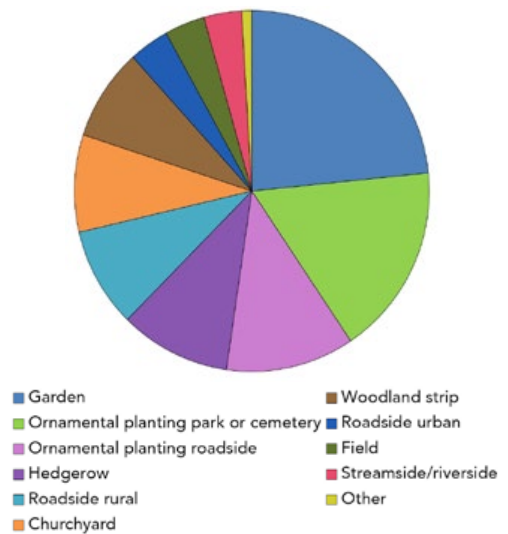


Figure 3. Proportion of records by habitat.



Blackcaps *Sylvia atricapilla* to be very efficient vectors of Mistletoe, far more so than Mistle Thrushes *Turdus viscivorus*, the only other bird that regularly takes the berries. There was a 77% increase in overwintering Blackcaps in Britain and Ireland between the Bird Atlases of 1981–84 and 2007–11 (Balmer et al., 2013), with numbers now in the thousands. This may be due to climate amelioration (Berthold, 1995) and the influence of supplementary feeding in gardens (Plummer et al., 2015). However, these data show a greater occupancy by Blackcaps in the south and



Mistletoe in ornamental Crab Apple (*Malus* sp.), Stratford St. Mary. Dennis Kell

west, where the wintering conditions are milder, rather than the east. As these birds are coming from southern Germany and Austria, the arrivals and returnees are likely to pass through East Anglia en route. Leach (1981) recorded a rise in the numbers of Blackcaps on autumn migration passing through British east coast bird observatories.

Supplementary feeding by Garden Birdwatch participants more than doubled between 1999 and 2011 (Plummer et al., 2015). This tends to be greater in built-up areas potentially drawing Blackcaps into these areas and may help to explain some of the 'hot-spots' within the urban area of Ipswich. Here they are likely to encounter the range of ornamental trees bearing Mistletoe.

Another potential distributor of Mistletoe is the Waxwing *Bombycilla garrulus*. Whilst individuals are recorded every winter in Suffolk, they are noted for their periodic irruptions when there is a failure of their fruit sources in mainland Europe. One of the noted places to see Waxwings in these years is the area around Ipswich hospital (Figure 1) when large flocks of birds can be seen stripping the ornamental trees of their berries. These trees are also the ones that contain Mistletoe. Snow (1988) cite an example of Mistle Thrushes being unable to defend their host trees in the face of an invasion of a large flock of Waxwings, that then proceed to strip the berries. Between 1949 and 1995 there were only six 'Waxwing years' in Suffolk (Suffolk Birds 2014). Between 1995 and 2017 there have been eight, with

the winter of 1995/96 recording the largest number of Waxwings ever recorded in one flock in Suffolk, 453 birds (Suffolk Birds 1995 to 2017). This may be a reflection of climate change with harsher winters being experienced on the continent.

It would appear that Mistletoe is yet another species that may be showing a change in distribution as a consequence of climate change and may warrant a repeat of the survey undertaken in the 1990s to see if this spread is occurring elsewhere in the country.

Acknowledgements

Thanks to Beck Harrington-Harding for producing the distribution map and to Dennis Kell for accepting that his winter walks may take a little longer than anticipated and helping to record data.

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Anne Kell

9, Pheasant Rise, Copdock, Ipswich, Suffolk IP8 3LF
wfs.magazine@gmail.com

Epipactis atrorubens var. *bicolor*, a new variety of Dark-red Helleborine from northern England

BRYAN YORKE

E*pipactis atrorubens* (Dark-red Helleborine) is distributed widely throughout boreal and temperate Europe from Scandinavia in the north to the Mediterranean in the south, from Britain in the west to western Siberia and the Caucasus in the east. It favours calcareous rocky habitats, especially partially shaded wooded mountain areas, limestone pavements, and old quarries.

The overall appearance of flowers of the nominate species (autonym *Epipactis atrorubens* var. *f. atrorubens*) is purplish- to brownish-red with a conspicuous large yellow anther cap in the centre. In particular, the petals, sepals and epichile lip and epichile bosses are all purplish- to brownish-red; the hypochile is greenish-, reddish- or brownish-purple. In addition, several colour variants have been named, in particular *E. atrorubens* f. *pallens* which has pale green or pale yellowish-green flowers, stained reddish.

However, a population of *E. atrorubens* growing on a hillside limestone pavement at Hutton Roof Craggs Nature Reserve, Burton-in-Kendal, Cumbria, England includes, in addition to the nominate species, specimens of f. *pallens* and an unnamed colour variant with a bicoloured perianth. This variant has typical purplish- to brownish-red sepals but petals which on the outside are mostly pale yellow, often with a central red rib and stained red basally. These alternate red sepals and yellow petals produce a conspicuously bicoloured perianth. The inside of the petals is purplish- to brownish-red, stained pale yellow. The epichile lip is a paler purplish- to brownish-red than the nominate variety or, more frequently, whitish or pale yellow, often stained reddish. The epichile bosses may be reddish, or whitish or pale yellow often stained reddish, and often different from the colour of the epichile lip. The stem is green, green stained purple or purple.

Examples of this bicolour variant are illustrated in the photographs shown here.

Although found on Hutton Roof Craggs, *E. atrorubens* var. *bicolor* also grows at Warton Crag (Richard Mielcarek, pers. comm. 2007) and Gait



Epipactis atrorubens var. *bicolor*, Burton in Kendal, Cumbria, 24 July 2015. Bryan Yorke

Barrows Nature Reserve, Silverdale, Lancashire (Alan Smith, pers. comm. 2017); Great Orme, Clwyd (Steve Tandy, pers. comm. 2017) and at Coombs Dale, near Calver in Derbyshire (Richard Mielcarek, pers. comm. 2006). Photographs of these specimens are illustrated on my website: <https://epipactisatorubens.blogspot.com/2016/12/lemon-petalled-varieties-both-purple.html>.

In view of its distinctive appearance and its continuing occurrence at Hutton Roof Crag, this variant is now named as follows:

***Epipactis atrorubens* (Hoffm.) Besser. var. *bicolor* B. Yorke** var. nov.

Holotypus: Hutton Roof Crag Nature Reserve, Burton-in-Kendal, Cumbria, England (v.c. 69). Burton Fell Limestone pavement, 21 July 2016, leg. B. Yorke, Kew (K), Accession No. K000342484.

Etymology: named after the conspicuously bicoloured perianth.

Description: Like *Epipactis atrorubens* (Hoffm.) Besser var. *atorubens* but with a bicoloured perianth consisting of purplish- to brownish-red *sepals* and *petals* which on the outside are mostly pale yellow, often with a central red rib and stained red basally. Inside of *petals* reddish, stained pale yellow; *epichile lip* a paler purplish- to brownish-red than the nominate variety or, more frequently, whitish or pale yellow, often stained red; *epichile bosses* whitish or pale yellow often stained reddish, or reddish, often different from the colour of the epichile lip. *Stem* green, green stained purple or purple.

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I am grateful to the Cumbria Wildlife Trust for permission to collect the holotype specimen.

Bryan J. Yorke

9 Glebe Close, Burton-in-Kendal, Carnforth, Lancashire LA6 1PL

bryan.yorke@sky.com



Epipactis atrorubens var. *bicolor*, Burton in Kendal, Cumbria (left: July 2015; above: July 2017). Bryan Yorke

Archibald Sim Montgomery and his herbarium

BEVERLEY RONALDS

Archibald Sim Montgomery (1843–1922) was an avid amateur plant collector in Britain and abroad. Little has been published about his life, botanical influences, or details of his herbarium and its legacy, as outlined in this note.

Archie (Figure 1) was born on 29 July 1843 at his father James's large sawmill on Brentford High Street, Middlesex; his mother Henrietta was the daughter of timber broker John Sim. The business had been established by his grandfather James Montgomery Sr in 1806. James Sr's wife Jane née Ronalds was the niece of Hugh Ronalds, whose nursery was just down the High Street (like other botanists mentioned, Ronalds is listed in Desmond (2006) and Kent and Allen (1984)). The Montgomery and Ronalds families remained close throughout Archie's life.

Montgomery's schooling was capped off at age sixteen with a year at an educational institute in Dresden. Fifteen years later he was largely running the timber mill (Ronalds, 2018). He became a prominent member of the community, serving as a county councillor, a magistrate, and in the 2nd Royal Middlesex Militia. He helped fund and oversee the development and operation of significant infrastructure in Brentford: a hospital, library, fire station, Anglican church, and education facilities (Anonymous, 1922). Two plaques in the town bear his name. He additionally pursued more scientific interests as time allowed. He was a founding member of the British Numismatic Society in 1903, a Fellow of the Royal Geographical Society from 1898, and joined the Society for the Encouragement of Arts in 1881. He was elected to the Reform Club in 1867.

He fell seriously ill in 1910, and so withdrew from public life and sold the timber mill. He had no children and was a widower for 40 years after his wife Olivia Maria, daughter of Revd. John Henry Coward, died at age 32. He chose to move to Cheltenham where his widowed sister Agnes West

lived. On recovering his health, he enthusiastically resumed his study of plants, and in 1911 became a member of the Cotteswold Naturalists' Field Club, and the Botanical Exchange Club and Society. He continued collecting to within a year of his death, which occurred at his nephew's home in Hilperton on 12 April 1922. He was buried at the Park Road cemetery at the west end of Brentford.

The initial inspiration for Montgomery's botanical work was undoubtedly the Ronalds nursery – in particular the *hortus siccus* compiled by Robert Ronalds in 1817–22 and founded on the herbarium created in the 1770s by his father Hugh (Ronalds, 2017). The twelve leather-bound volumes in their purpose-made cabinet was the centrepiece of Robert's study in Brentford up to his death in 1880. It was then shipped to his great-niece Lucy Harris née Ronalds in Canada where it remains on



Figure 1. Archibald Sim Montgomery. Courtesy Western University RC1632.

display at the Eldon House museum in London, Ontario (Pringle, 1995).

The specimens that Montgomery amassed are in various locations, as suggested by the partially-accurate entry in Kent and Allen (1984). The core of his herbarium is now at the Bristol Museum and Art Gallery (BRISTM). The around 1,700 loose sheets of size 57 by 38 cm are currently sorted by family in a cabinet of twelve suitcase-style drawers. Each plant is 'beautifully arranged... and mounted with great skill and taste' to quote John Wilton Haines, a collecting partner late in life (Figure 2). The broad coverage includes trees, shrubs, ferns and grasses in addition to herbaceous plants. They were collected across England, Wales and Scotland in numerous trips, with some emphasis on south east England, closer to Montgomery's first abode. The earliest specimens are from his teenage years (dated 1859–60). He acknowledged the assistance in this period of Mrs Lucy Jones James amongst others. A small number of the plants were provided by other collectors.

His herbarium and manuscript notes assisted in the 'confirmation' of 'important Middlesex specimens' for *The Historical Flora of Middlesex* (Kent, 1975: 26, 41, 50), including the first record in the vice-county of what was then called *Silene quinquevulnera* (Kent, 1949) [*Silene gallica* (Small-flowered Catchfly)]. The author Douglas Henry Kent considered Montgomery to have been 'a very capable amateur botanist'. Kent and Haines suggested that 'many more of his records will appear in' *Flora of Surrey* (Lousley, 1976) after its author also consulted Montgomery's herbarium.

Montgomery had bequeathed all his botanical collections and books to his sister Laura Henrietta Montgomery, who shared his scientific interests. She gave his 'Cabinet of British Dried Flowers' to the Cheltenham Museum Free Library (Knight, 1922) but was 'very dis-satisfied with the way they were kept and housed' and formally requested their return in 1924. She sought Haines's involvement, who offered the collection to the Museum of Gloucester (GLR) and later passed it to Bristol.

All Gloucestershire specimens (vice-counties 33 and 34) were removed from Montgomery's Bristol collection to join many others he had provided previously for the herbarium at the Museum of Gloucester (none of these are signed). He had been an active contributor towards *Flora of Gloucestershire* (Riddelsdell et al., 1948: cxlviii, clxx) and published several discoveries that were unusual in the area (Montgomery, 1918). He and Haines were the first to identify *Potamogeton trichoides* (Hairlike Pondweed) in East Gloucester (Dandy & Taylor, 1938).

He also participated in documenting the rare (in England) *Ranunculus ophioglossifolius* (Adder's-tongue Spearwort) at Badgeworth, Gloucestershire. The plant had not been seen for two decades after its first recording in 1890. There was apparently a small patch in 1911 (Riddelsdell et al., 1948: 14) preceding Montgomery's significant discovery on 24 May 1912. His find was published by the Department of Botany of the British Museum (Baker, 1914) and his specimen is still preserved at the Natural History Museum (BM). Montgomery also passed samples to Thomas Alfred Dymes and others and notified Claridge Druce and probably Harry Joseph Riddelsdell, who both recorded their subsequent observations (Druce & Riddelsdell, 1913). The spot became a small nature reserve in 1933.

Montgomery added to and arranged a herbarium at the Cheltenham College for Boys that is now at the World Museum in Liverpool (Greenwood, 1968) [LIV]. His specimens also survive in the collections of several colleagues. These include the Harold Stuart Thompson bequest at the University of Birmingham [BIRM]; at the Manchester Museum [MANCH], in part in Robert Morton Middleton's collection; and 26 sheets in Dymes's herbarium at the North Hertfordshire Museum [BDK].

Montgomery travelled widely on the continent and to North America and used these opportunities to supplement his herbarium. He wrote of 'a lot of dried specimens I brought from Canada for my collection' in 1896 on one of several visits to his Ronalds relative Lucy Harris. These international plants have not been located. He presented a stone

axehead unearthed near Windsor, Ontario on his 1873–74 trip to the Museum of Gloucester.

Acknowledgements

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Beverley F. Ronalds

Adjunct Professor, The University of Western Australia

beverley.ronalds@gmail.com



Figure 2. *Potentilla intermedia* (Russian Cinquefoil). Herbarium Montgomery. Courtesy Bristol Museum and Art Gallery.

ADVENTIVES AND ALIENS

Adventives and Aliens News 19

COMPILED BY MATTHEW BERRY

In a note on alien plants in Gosport from 2005 (see *BSBI News* 100, pp. 46-48), John Norton (our new Editor) very fairly wrote that: 'With global warming upon us, the Mediterranean flora seems to be getting ever closer'. It continues to get closer (if not as swiftly as some of us anticipated!), and the appearances of two Mediterranean grass species in Sussex (see v.c.14) and an E. Mediterranean composite on the Isle of Wight (see v.c.10), all apparently for the first time, almost certainly provide further evidence of this trend – even if one is probably a garden escape taking advantage of the milder, more propitious climate. And no doubt in some way the same applies to the very recent Scottish records of *Plantago afra* (Glandular Plantain) and *Lotus dorycnium* (Badassi) too, see v.c.c. 77 and 83 respectively.

I think the records in this compilation otherwise speak for themselves and require no further introduction, although a longer pre-amble is perhaps overdue. I should have more to say next time. For the time being I trust readers will find the following collection to be an interesting mixture of the familiar, the not-so-familiar and the completely new. There should now also be a greater chance of their particular region being represented (although of course there is room for improvement in that regard). I will be particularly pleased if this means I receive records from new contributors! Many thanks.

V.c.9 (Dorset)

Genista hispanica (Spanish Broom). Swanage (SZ0362378642) 2019, D. Leadbetter: one low bush by path close to railway south-east of Swanage Sailing Club, possibly seeded from nearby bed. Most/all British plants are referable to ssp. *occidentalis* which has somewhat showier flowers than the type.

Nothofagus dombeyi (Coigue). Wareham (SY90648949), 8/5/2018, D. Leadbetter: many

seedlings from planted trees, north-east of Forestry Commission HQ, Cold Harbour. Of the three or four species most likely to be encountered this is the only one that is evergreen.

Thunbergia alata Bojer ex Sims (Black-eyed Susan-vine). Poole (SZ05898953), 25/9/2019, D. Leadbetter: at least one plant on dumped soil, Canford Cliffs. A twining herb (Acanthaceae) native to E. Africa, grown here particularly as an adornment of trellises and hanging baskets. The leaves are ovate-cordate to sagittate and net-veined with slightly down-turned denticulate margins. The 'black'-eyed, five-lobed, orange corollas occur singly in the leaf axils with the paler tubes concealed by spineless bracts. Frost-sensitive, it is most likely as a garden outcast; self-sown plants could conceivably occur in very warm spots at the bases of walls, etc. There are seven records in the DDb, for v.c.c. 17, 20 and 21, all M.J. Crawley.

Isotoma axillaris Lindl. (Rock Isotome). Poole (SZ05898952), 25/9/2019, D. Leadbetter (det. M. Berry): several plants in an open area, Canford Cliffs. A subglabrous perennial (Campanulaceae), native to Eastern Australia. The linear-elliptic leaves are more or less lacinate with the narrow, antrorse teeth to c.8mm long and the entire portion up to 10mm wide. The mauve flowers are solitary in the leaf axils and carried on 8-10cm pedicels. They have five, narrow, spreading lobes recalling the star-like flowers of a *Lobelia* or *Pratia*, the limb up to c.3cm across and with a long narrow corolla tube to 3.5cm. The obconical calyx is 1.5cm long with linear spreading teeth (c. 7mm × 1mm). The fruit is a capsule. A garden plant with six records in the DDb, all since 2002. It is also known as *Laurentia axillaris* (Lindl.) E. Wimm. Self-sown, non-flowering plants have been reported from brick paving at Brighton Marina (v.c. 14) in 2019 (pers. comm. A. Spiers).



Thunbergia alata, Canford Cliffs, v.c.9. D. Leadbetter

V.c.10 (Isle of Wight)

Centaurea hyalolepis Boiss. (Eastern Star-thistle). Nettlestone (SZ61719013), 28/9/2019, G. Toone (conf. E.J. Clement): one plant in north corner of arable field with various introduced *Trifolium* (Clover) species including *T. alexandrinum* (Egyptian Clover) and *T. resupinatum* var. *majus* (Reversed Clover), Park Farm. At first glance Geoff thought it might be *C. solstitialis* (Yellow Star-thistle), which was formerly an uncommon impurity of Lucerne crops. The key difference separating the two species can be simply stated: *C. solstitialis* has decurrent stem leaves and thus a winged stem, while *C. hyalolepis* has non-decurrent stem leaves and an unwinged stem. A native of the E. Mediterranean with no recent records in the DDb. Also known as a bird-seed, grain and wool alien, Clement & Foster (1994).

V.c.13 (W. Sussex)

Euphorbia prostrata Aiton (Fringed Spurge). Fontwell (SU94500706), 8/2019, M. Shaw (det. M. Berry/conf. E.J. Clement): several plants on gravel in cleared area, Denmans Gardens. The second Sussex record and the first for W. Sussex. As well as the characteristic distribution of capsule hairs referred to

in Adventives & Aliens News 4 (v.c.14), the seeds are distinctive with obvious transverse ridges. See v.c.27.

V.c.14 (E. Sussex)

Verbena hastata L. (American Vervain). Newhaven (TQ4528601074), 19/8/2019, M. Berry & J. Reynolds (det. M. Berry/conf. E.J. Clement): two plants by informal path, waste ground between new road and River Ouse, south of A259, with single plants also at TQ4528801064 and TQ4537901016. Of small stature in this case, it can grow to a considerable height in gardens. See Adventives & Aliens News 13, v.c.6.

Oloptum miliaceum (formerly *Oryzopsis miliacea*) (Smilo-grass). Eastbourne Old Town (TV5982399768), 26/7/2019, M. Berry (conf. E.J. Clement): scattered tufts in gutter and at base of lamp post in middle of pavement, St. Mary's Road. It has probably escaped from a garden at some stage. A native of the Mediterranean region where its tufts can easily reach 0.9m. See Adventives & Aliens News 16, v.c.6.

Festuca rubra ssp. *megastachys* (Red Fescue ssp.). Eastbourne (TV6037297538), 25/5/2018, M. Berry (conf. Arthur Copping): verge south end

of Chesterfield Road. Arthur’s most memorable encounter with this taxon was of a field sown with it and *Dactylis glomerata* (Cock’s-foot) at Burgh Castle near Great Yarmouth, where it almost rivalled *Schedonorus arundinaceus* (Tall Fescue) in stature at c.1m. The Eastbourne plant was rather on the small side. Widespread and almost certainly under-recorded.

Rostraria cristata (Mediterranean Hair-grass). Winchelsea Beach (TQ9210516643), 2/7/2019, E. Campbell, J. Clark & J. Rose (conf. M. Berry): on dry shady verge of one house, The Ridge. Jacqueline Rose’s observation that there were ‘dozens of tufts, hundreds of flowering stems on sandy, gravelly soil’ indicates that it has been here for some time. See Adventives & Aliens News 1 (v.c.11).

V.c.15 (E. Kent)

Eragrostis curvula (African Love-grass). Greatstone-on-Sea (TR0824121948), 13/11/2018, O. Leyshon (det. G. Kitchener): single clump on east side of The Parade, opposite Romney Tavern at the edge

of Greatstone Dunes. The first Kent record since before 1960. A caespitose ornamental grass native to South Africa, it could probably be identified on jizz alone with experience. In the meantime it is keyed on p. 1115 of Stace (2019) and if any doubts remain there is Delf Smith’s excellent drawing on p.1 (and his very detailed description on pp. 28-29) of *BSBI News* 63. A wool and dock alien in the past with well-known, established sites at Southampton and Feltham (lingering or gone in both cases), it is more likely as a garden escape now, a sentence I seem to write about an increasing number of alien plants these days.

V.c.16 (W. Kent)

Sedum hispanicum (Spanish Stonecrop). Erith area (TQ497805), 14/2/2017, M. Robinson (conf. R. Stephenson): in quantity by footpath leading from Norman Road north to Thames Path, first noticed in 2016. New to v.c.16. A garden succulent (Crassulaceae) native to south-east Europe and south-west Asia (contrary to both Latin and English



Centaurea hyalolepis, Nettlestone, v.c.10. G. Toone



Rostraria cristata, Winchelsea Beach, v.c.14. J. Rose

names!). For photos and interesting comment from the referee, see p. 30 of Kent Botany 2017. Clement *et al* (2005):141.

V.c.27 (E. Norfolk)

Euphorbia prostrata Aiton (Fringed Spurge). Norwich (TG22870857), 10/8/2019, R. Leaney (conf. T. Walker): one plant in pavement crack, near Norwich market. First record for v.c.27 and for Norfolk. Bob Leaney observed a difference in leaf shape between the Norwich plant ('ovate-orbicular') and online images of *E. maculata* ('oblong-elliptic').

Epilobium brachycarpum (Paniced Willowherb). Horsham St. Faiths (TG2214), 7/8/2019, J. Parmenter & R. Leaney: c.300 plants on southern side of recently completed Norwich Northern Distributor Road (NDR); Horsham St. Faiths (TG2314), 21/8/2019, J. Parmenter & R. Leaney: six plants on NDR 1km west of larger colony. The third and fourth records for Norfolk. See Adventives & Aliens News 18 (v.c.27) for details of first and second records, for the latter of which a more precise location would have been Beeston St. Andrews (also on the NDR but 4-5km east of 2019 sites). 'The much larger population recorded in 2019 was found on a relatively small area of bare ground behind the NDR embankment. For this reason it would seem that the hundreds of plants present did not arrive at this location by aerial dispersion along the road, but represent a local 'build-up' of seed from an earlier colonist when the bank was created in c. 2016; some of this seed may have been dispersed by machinery or as topsoil was moved around the area'. J. Parmenter & R. Leaney.

V.c.28 (W. Norfolk)

Solanum chenopodioides (Tall Nightshade). King's Lynn (TF61721967), 23/11/2018, R. Stevenson: one plant at the side of Devil's Alley. A S. American perennial with a woody base to its stem. The larger average size of the petals (relative to *S. nigrum*) is a good spotting character. It might be slowly spreading outside its traditional headquarters of London and the Channel Islands, with records from 2018 for v.c.18 (on central reservation of A12) and v.c.10 (see

Adventives & Aliens News 17). In 2019 it was seen along the central reservation of the A11 in v.c.29 (pers. comm. Jonathan Shanklin). Stace (2019): 611. Clement *et al*. (2005): 215.

V.c.35 (Mons.)

Anisantha madritensis (Compact Brome). Near Tintern (SO5101), 4/7/2018, E. Wood & A. Wood; near St. Brides Wentlooge (ST2982), 11/7/2018, E. Wood & S. Tyler; Caldicot Moor (ST4988), 31/8/2018, E. Wood & A. Wood; near Llanishen (SO4802), 5/9/2018, E. Wood, A. Wood & S. Tyler; near Llaneth Court (SO3811), 16/9/2018, S. Tyler: at edge of harvested arable fields. Dr Stephanie Tyler, the joint Vice-County Recorder, commented that it had turned up in many new sites in 2018, of which the preceding are a representative sample. Further sites have been added in 2019 for SO3012, SO3409, SO3809 and SO4308 (all S. Bosanquet), and SO3004 (E. Wood & A. Wood). An increasing but almost certainly over-looked species.

V.c.42 (Breccs.)

Polemonium pauciflorum S. Watson (Few-flowered Jacob's-ladder). Llanynis (SO0278650812), 29/7/2019, A. Shaw: a weed at Caer Beris Holiday Park, with many plants on the bare ground beneath a cypress tree which was subsequently cut down. A native of the United States and Mexico with a few-



Polemonium pauciflorum, Llanynis, v.c.42. A. Shaw

flowered raceme of yellow tubular flowers marked externally in reddish-brown and 'laddery' 1-pinnate leaves reminiscent of our native *P. caeruleum* (Jacob's-ladder). The DDB contains records for v.c.17 (Kew Gardens, 2009) and v.c.39 (2005). There are older records for the car park at RHS Gardens, Wisley (v.c.17, 1989, *Wild Flower Magazine* 419:15) and as a garden weed in east Hull (v.c.61, 1979). It seems to be a variable species in the wild.

V.c.58 (Cheshire)

Diplotaxis erucoides (White Wall-rocket). Heald Green (SJ844859), 18/5/2019, D. Shaw (conf. T. Rich/comm. G.M. Kay): one plant by footpath. The first county record. See *Adventives & Aliens News* 18, v.c.c.14 and 27.

Cotula coronopifolia (Buttonweed). Crewe (SJ6855), 24/8/2019, Cheshire Recording Group (comm. G.M. Kay): a few plants by lake, Queen's Park. It was accompanied by many plants of *Rorippa islandica* (Northern Yellow-cress), the first time the latter has been recorded in the county. Other recent Cheshire records of the *Cotula* are for Lingham, Moreton, Bidston, Bromborough Dock, Leasowe and Noctorum. It has a long history in the county dating back to the 1880s. Sold as a 'marginal aquatic plant', the source of most/all recent records, this S. African native (Asteraceae) was also once a wool alien. Clement & Foster (1994) describe it as 'increasing', it is still if slowly (and there have also been some losses). See *BSBI News* 64 pp. 43-46 for Eric Clement's fascinating account of its discovery in Southampton in 1991 and Delf Smith's ageless illustration.

V.c.59 (S. Lancs.)

Oxalis tetraphylla 'Iron Cross' (Four-leaved Pink-sorrel). Ainsdale/Merseyside (SD299132), 20/5/2019, P.A. Lockwood & P.H. Smith: two plants on sand-dune strandline. The second vice-county record. The first was made by David Earl on recently sown grass near Chorley in 2009 (SD5617). As Phil Smith points out, most records of this cultivar, and indeed the species, are for Greater London, with a steep increase after 2010.



Oxalis tetraphylla 'Iron Cross', Ainsdale, v.c.59.
P.H. Smith

Lilium candidum (Madonna Lily). Hightown/Merseyside (SD297024), 7/7/2019, P.H. Smith: three plants close together in full flower on fixed-dune grassland, 500m from nearest housing. The first vice-county record. Possibly surviving after having been planted originally. A native of the E. Mediterranean (Liliaceae), it has a stem that is leafy along its entire length, pure white, horizontal flowers (7-8cm long) and can grow to an impressive 1.5m. There are records in the DDB for v.c.c. 5, 9, 11, 15, 16, 17, 25, 28, 37, 71 and 113. 'A persistent garden escape' Clement & Foster (1994). Stace (2019): 902.

V.c. 64 (Mid-W. Yorks.)

Primula pulverulenta (Red Cowslip). Harrogate (SE27685468), 26/5/2018, M. Wilcox: by Oak Beck, with *Ranunculus aconitifolius* (Aconite-leaved Buttercup) nearby (SE27795479). The first vice-county record. A garden plant native to W. China, with records known for v.c.c. 21, 22, 28, 30, 69, 77, 81, 87, 100 and 102. One classic site was at Linn Mill, v.c.87 (W. Perth). Oak Beck is also home to a number of other interesting alien species, such as *Pachyphragma macrophyllum* (Caucasian Penny-cress) and *Cardamine raphanifolia* (Greater Cuckooflower). Stace (2019): 548.

Sinacalia tangutica (Chinese Ragwort). Addingham (SE08494958), 14/7/2018, D. Broughton (det. C.A.

Stace): by Town Beck. The second v.c. record. A tall (up to 2m) rhizomatous perennial (Asteraceae) native to central China. It flowers late in August and September. First cultivated in this country at the very beginning of the twentieth century, most of the more recent records have been for northern England and Scotland. Stace (2019): 808. Clement *et al* (2005):342.

Dipsacus laciniatus (Cut-leaved Teasel). Knaresborough (SE365558), 23/7/2018, M. Wilcox; Flaxby Moor (SE407573), 23/7/2018, M. Wilcox. On road verges. Both populations contain upwards of 100 plants and are accompanied by native *D. fullonum* (Wild Teasel). Known at the Flaxby site since at least 2008. It was recorded new for the vice-county at Knaresborough in 2002 (B. Tregale). Mike could see no evidence of hybridisation at either site on his visits in 2018 (pers. comm.). See Adventives & Aliens News 17, v.c.12.

V.c.77 (Lanarks.)

Plantago afra (Glandular Plantain). Glasgow (NS56466511), 25/6/2018, M. McNeill: on quayside near the Glasgow Science Centre. The fourth Scottish record and first for west Scotland. Photograph on p. 1 of *Scottish Newsletter* No. 41. See also Adventives & Aliens News 15 (v.c.14). As well as the 2018 Hastings record other recent records are for v.c.c.28 (2017), 49 (2017) and 88 (2018). In all of these cases it might well be a food refuse alien, the seeds being sold, possibly as 'Psyllium' (*P. psyllium*) a synonym of *P. afra*, for their medicinal benefits.

V.c.83 (Midlothian)

Lotus dorycnium (formerly *Dorycnium pentaphyllum*) (Badassi). Newbridge (NT11687249), 17/7/2018, R. Milne (det. D.A. Pearman): on waste ground near the River Almond. The first Scottish record. In R. Milne's photo on p. 2 of the *Scottish Newsletter* No. 41, the rather loose capitulate heads of small, clean-white, pea-like flowers are particularly striking. Still present in 2019. There are two more records for this Mediterranean legume in the DDb, for v.c.c. 37 (2001) and 15 (1948). See *BSBI News* 135:71-72; Stace (2019): 164.

V.c.95 (Moray)

Crocus kotschyanus (Kotschy's Crocus). Hopeman (NJ14456957), 10/10/2019, A. Amphlett & E. Amphlett (det. & comm. I. Green): on grass verge, north side of Duff Street. The first Scottish record for this native of Turkey, Syria and Lebanon. There are records in the DDb for v.c.c. 13, 16, 17, 25 and



Lilium candidum, Hightown, v.c.59. P.H. Smith



Primula pulverulenta, Harrogate, v.c.64. M. Wilcox

26. Known at Wisley (v.c. 17) since 1981, it was still there as recently as 2005. Stace (2019): 935.

V.c.104 (N. Ebudes)

Epilobium brunnescens (New Zealand Willowherb). With over 1000 v.c.104 records in the DDb, there is probably little point in selecting just a few as examples; however I think it is worth quoting Vice-county Recorder Dr Stephen Bungard's assessment of it in full: '*Epilobium brunnescens* (New Zealand Willowherb) is found from seashore to mountain tops, now recorded in 435 out of 709 tetrads. Mostly it seems to integrate into the native vegetation without much harm, but in some places it forms a blanket tens of metres in diameter, smothering all in its path. A concern is that it colonises small wet cracks in montane rocks that are home to threatened species like *Micranthes nivalis* (Alpine Saxifrage).'

Crocsmia paniculata (Aunt-Eliza). Armadale (NG63740376), 5/9/2007, S. Bungard: the first v.c. record; Inverarish/Raasay (NG5535), 29/8/2010, S. Bungard; east of Dunvegan (NG2648), 11/8/2012, S. Bungard: in a quarry; Skye (NG6924), 8/6/2016, S. Terry; Achachork (NG48714543), 13/8/2019, S. Gibson; Ashaig (NG6923), 21/8/2019, S. Bungard; Harrapool (NG659228), 12/9/2019, S. Gibson.

Crocsmia pottsii (Potts' Montbretia). Raasay (NG5540), 27/5/1992, S. Bungard: the first v.c. record; Skye (NG39513111), 7/2009, I. Green; Waterloo (NG665238), 28/7/2017, A. Leslie & I. Green; Uig Woods/Bay (NG3963), 1/8/2017, S. Gibson; Glosrhein (NG4668), 13/8/2019, S. Gibson; West Suisnish/Raasay (NG55233529), 13/8/2019, S. Bungard; Armadale Castle Grounds (NG6304), 28/8/2019, Skye Nature Group; Ose (NG31404089), 1/9/2019, S. Bungard.

Stephen comments further that 'Montbretia' stands are frequent in v.c.104 'along roads, burns and shorelines' with *C. × crocsmiiflora* (Montbretia) by far the most common, followed by *C. pottsii* then *C. paniculata*.

Cortaderia richardii (Early Pampas-grass). Raasay (NG549368), 26/10/2000, S. Bungard: the first v.c. record; Portree (NG476426), 19/8/2005, C. Farmer;

NE of Lusa (NG71032519), 3/10/2012, S. Bungard; Dun Gerashader (NG4945), 27/7/2017, A. Leslie & I. Green; Conasta (NG4273), 14/5/2019, Skye Botany Group; Drumuie (NG4546), 13/8/2019, S. Gibson.

'There were no records of *Cortaderia richardii* (Early Pampas-grass) before 2000 when I recorded it on Raasay well out in the wild. It is now known in 33 tetrads on Skye and two on Raasay, mostly on road sides.' S. Bungard (October 2019). This pattern will probably partly reflect the increased interest in recording alien plants. *C. richardii* can be very conveniently distinguished from *C. selloana* (Pampas-grass) using vegetative characters, see Poland & Clement (2019).

V.c. H12 (Co. Wexford)

Pimpinella peregrina (Slender Burnet-saxifrage). Knocknagapple (T07516660), 10/9/2019, P. Green (comm. P. Green): well established at entrance to conifer plantation with some growing up through brambles. Also two plants of *Silene coronaria* (Rose Campion). The second v.c. record. A southern European umbellifer which might become more familiar if, as Paul surmises, it is a constituent of certain wild flower seed mixes. Its potential 'weedy-ness' is indicated by the specific epithet. Stace (2019): 861.

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Matthew Berry

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

Brachypodium phoenicoides (L.) Roem. & Schult. new to South Devon (v.c.3) and Britain

ROGER SMITH

Until the 1980s only two species of *Brachypodium* were thought to occur in England, *B. sylvaticum* (Huds.) P. Beauv. (False Brome) and *B. pinnatum* (L.) P. Beauv. (Heath False-brome). By 1986 it became apparent a third species, *B. rupestre* (Host) Roem. & Schult. (Tor-grass), part of the *B. pinnatum* complex, was the most widespread species (Chapman & Stace, 2001; Cope & Gray, 2009) but few had been expertly determined. Nevertheless, the differences between *B. rupestre* and *B. pinnatum* overlap beyond the point of distinction in the field (Cope & Gray, 2009) and the debate regarding species status is still open.

Records of *Brachypodium pinnatum* s.l. on Exmouth cliffs date back to 1956 when it was recorded by V.M. Wilkinson (Martin, 1957) but the precise location is not known. In 1988 L.J. Margetts, P. Ivimy-Cook and J.A. Philpot found plants beyond the town in tetrad SY0279 on the cliffs towards Sandy Bay whilst recording for the Monitoring Scheme. When I found plants on the slopes above Queen's Drive, SY014798, in January 2004 I showed the plants to Len Margetts who suggested they could be *B. rupestre* rather than *B. pinnatum* and I that should get them refereed. They were, however, published as *B. pinnatum* (Margetts, 1989). I made a further collection at the end of June in 2005 and sometime later they were both examined by another botanist who had shown an interest in the genus but the identification of the 2004 specimen as *Elytrigia atherica* (*Elymus athericus*) Sea Couch was clearly wrong.

Following his appeal for specimens in June 2019 I sent Michael Wilcox (MW) several collections from Devon and Dorset including two samples from the coastal slopes above Queen's Drive at Exmouth, SY014798. While most proved to be *B. rupestre* the Exmouth specimens were identified by MW as *B. phoenicoides* (L.) Roem. & Schult., and seem



Brachypodium phoenicoides, Exmouth (v.c.3). Top: showing habitat by Queen's Drive; bottom: closer view of plant. Roger Smith

to be the first confirmed records of this species in Britain. However, when Clive Stace and Ajab Khan completed hybrid studies on the five species of *Brachypodium* (Khan & Stace, 1999) collected in

the early 1980s, one labelled B8 is *B. phoenicoides* and appears to be from Fairlight in East Sussex. When first viewed by MW a few years ago he discovered this anomaly and put it down to an error in placing a European specimen on a sheet from Britain but he notes it could have come from the Fairlight area especially if it had been collected near the sea. (MW pers. comm., 2019).

Brachypodium phoenicoides is a predominantly western Mediterranean species found in closed dry perennial grasslands and has been slowly extending its range northwards in Europe in recent decades, though two populations found in Belgium are both likely to be introductions. A large, apparently well-established population found on a spoil tip in Belgium in Winterslag-Genk (province of Limburg) in 2016 with other thermophilous, southern European species (including *Plantago sempervirens* (Shrubby Plantain), a species with a distribution and ecological requirements very similar to that of *B. phoenicoides*), could not have established before 2006 (Verloove & Barendse, 2019). Following this discovery, a search

of the herbarium at Meise Botanic Garden revealed specimens of this species from the coastal dunes in De Panne (West Flanders) collected in 1946, and are thought to be associated with the building of the Atlantic Wall during World War II when many alien plant species were introduced. It has since been found in one or two other locations in Belgium (MW pers. comm., 2019) and in 2015 it was found in coastal grassland north of Copenhagen near Graevlingehøj, Denmark (Hartvig, 2015).

I revisited the original site at Exmouth on 2 September 2019. It is situated on the slopes between Queen's Drive and Foxholes Hill at the eastern end of the town at SY 0147 7989 on the east side of the toilet block where the soils are slightly acid loam or clay with impeded drainage (Cranfield Soil and Agrifood Institute, Soilscales) derived from the Exeter Mudstone and Sandstone series (British Geological Survey, Geology of Britain viewer) where the closest available pH measurement from the same soil type, within 100m, is 6.42 (British Geological Survey, UK Soil Observatory).



Brachypodium phoenicoides, Exmouth (v.c.3). Detail of herbarium specimen. Roger Smith

During the limited time available to me I was able to explore the narrow strip of tall grassland immediately above Queen's Drive from the footpath, where *B. phoenicoides* can still be found at the original site and scattered east to SY 0170 7982, where it grows with:

Brachypodium sylvaticum False Brome
Dactylis glomerata Cock's-foot
Festuca rubra Red Fescue
Achillea millefolium Yarrow
Agrimonia eupatoria Agrimony
Allium vineale Wild Onion
Convolvulus arvensis Field Bindweed
Daucus carota ssp. *carota* Wild Carrot
Helminthotheca echioides Bristly Oxtongue
Hypochaeris radicata Cat's-ear
Inula conyzae Ploughman's-spikenard
Ononis repens Common Restharrow
Picris hieracioides Hawkweed Oxtongue
Plantago lanceolata Ribwort Plantain

The population may once have been more widespread on what were formerly much grassier slopes but are now dominated by a closed community of scrub with Bramble (*Rubus fruticosus* agg.), Gorse (*Ulex europaeus*) and Blackthorn (*Prunus spinosa*) and very little open space.

Thanks are due to Mike Wilcox for the correct identification of my specimens and comments on the draft of this note.

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Roger E.N. Smith

12 Castlewood Avenue, Highweek, Newton
 Abbot, Devon, TQ12 1NX
 r.smith@btinternet.com

Malva verticillata in Surrey (v.c.17)

GEORGE HOUNSOME

Caroline Bateman is a keen and energetic Surrey botanist. She was walking with friends by the River Thames at Barnes (v.c.17) on a cold and wet February day in 2016 when she noticed a mallow in the scruffy pathside herbage (TQ 2130 7616) which looked unusual because of the very small flowers. The snippet she took survived a fairly lengthy session among the crusts and crumbs in a food bag with her picnic detritus at the Express Tavern near Kew Bridge, then keyed out very easily at home using Stace (2010)

as *Malva verticillata* (Chinese Mallow), confirmed by both Eric Clement and Barry Phillips. Key field characters are the small pink flowers with petals up to 9mm, less than twice as long as the sepals, densely clustered at the nodes, and glabrous nutlets.

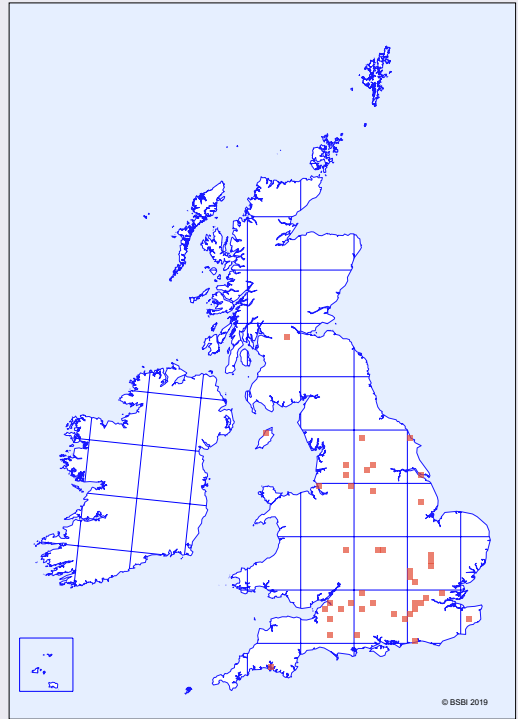
M. verticillata is a native of Asia but a very rare casual in the British Isles. The BSBI Distribution Database (DDb) lists it in 40 sites but only six this millennium, in widely-scattered sites (Figure 1). In all cases the plant was casual, apparently present for one year only or persisting briefly. The plant

was still at the same site in January 2018 and had increased somewhat, but is vulnerable to local authority ‘tidying up’. The DDb shows seven Surrey records, the last in 1994. Most are unlocalised but one is from near Kew Bridge in 1943 and another from a potato crop in Kew Gardens, also in 1943. Both sites are about 3km from Caroline’s plant, and the source of these can be only conjecture, though perhaps it has persisted in the area since 1943, just waiting for Caroline to spot it? A subsequent visit to the Middlesex (v.c.21) side of the Thames in January



Malva verticillata showing small pink flowers in clusters at the nodes. George Hounsome

Figure 1. Distribution of Malva verticillata in Britain. BSBI Distribution Database



2019 found hundreds of plants along the footpath east of Kew Bridge.

Historically it appears to have been introduced with cotton waste but modern records may derive from its use as a vegetable or a dietary health supplement. Look out for plants resembling *Malva sylvestris* (Common Mallow) but with much smaller, paler flowers in tightly packed clusters at the upper nodes.

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George Hounsome

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

Pancratium maritimum at Sandbanks, Dorset (v.c.9)

DAVID LEADBETTER

On the morning of 17 September 2019 I happened to be walking along the dunes at Sandbanks, Dorset when I noticed a white flower low in the sand. After examining it closely I realised I was looking at *Pancratium maritimum* (Sea Daffodil). Close to the single flower were several strands of ribbon-like leaves. Unfortunately, I did not have my camera with me and two subsequent visits proved disappointing as snails were finding the plant tasty, though I did manage to photograph it the following week when it was not in flower.

Pancratium maritimum is a bulbous perennial closely related to Narcissi, but produces flowers in the late summer/early autumn, not the spring. The white tepals and corona are fused to form a long slender greenish hypanthial tube above the ovary. The leaves appear with the flowers.

It has been recorded at three other sites in Britain: two in Devon and one in Cornwall. 'A New Flora of Devon' (Smith et al., 2016) describes *Pancratium* as being established on a beach near Slapton for at least sixteen years, with up to five plants. It also grows at Dawlish Warren, where it can be seen with several garden species. In 2006 it was found at Marazion, Cornwall.

Pancratium maritimum is a native to the Mediterranean so it is most likely to be an introduction to Britain, though sea-borne dispersal may not be impossible. The Sandbanks plant is not far from gardens, but where it grows there are also native species, such as *Ammophila arenaria* (Marram) as well as neophytes like *Oenothera stricta* (Fragrant Evening-primrose), and there is no evidence that it was obviously planted. In recent years species such as *Salsola kali* (Prickly Saltwort) and *Euphorbia paralias* (Sea Spurge) have become very well-established at Sandbanks, and at nearby Shell Bay a small population of *Matthiola sinuata* (Sea Stock) has been

recorded, all evidence of seed dispersal through tidal action.

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David Leadbetter

15 Prospect Crescent, Swanage, Dorset, BH19 1BD
davidleadbetter@myphone.coop



Pancratium maritimum at Sandbanks, Dorset (v.c.9).
David Leadbetter

COUNTRY ROUNDUPS

ENGLAND

Farewell then, Atlas fieldwork. After tens of thousands of hours of recording, probably almost as many spent entering data, hundreds of field meetings and identification workshops, countless visits to bakeries, plenty of socialising and, certainly as far as I am concerned, numerous new species encountered for the first time (and hopefully not immediately forgotten), fieldwork for the third Atlas of Britain and Ireland is complete. A few figures that speak for themselves: you have collected nearly 19 million records across the 60 vice-counties of England, Man and the Channel Islands, identifying over 7,000 taxa. Not bad for a Society with 2,128 members in England.

With all records for the Atlas period now safe in the BSBI's database, the task of examining maps, validating records, editing and writing species captions, analysing your hard-won data, etc. can begin in earnest. The intention is to have everything ready to publish online by the beginning of 2022, the same gap that happened between the final submission of records and publication of the *New Atlas*. To some, this may seem like an unreasonably long time, but from my perspective, it doesn't seem nearly long enough! I'll keep you updated with progress, and we hope for an earlier finish, but for now, all there is to say is a massive 'thank you' to all involved, and I hope that you found recording for this Atlas enjoyable and rewarding.

Throughout the Atlas project, one of the true joys of square-bashing has been stumbling across the unexpected, the plant that you had no idea was in the area you were visiting, the one for which there was previously no dot on the map. Such a surprise was in store for Jeremy Roberts in May this year when he spotted an unfamiliar plant in muddy hollows along a cattle-trampled laneside near Moorthwaite, Cumbria. There were several clusters of very small plants, with a passing resemblance to a miniature *Plantago maritima* (Sea Plantain), but on closer inspection Jeremy recognised the plants as *Myosurus minimus* (Mousetail), a species with only two previous county records. This is a species that is declining nationally, particularly in its classic cattle-poached grassland habitats, although it does appear to have taken up a penchant for industrial estates and pavement cracks in a few southern counties. The population in Cumbria comprised approximately 1,000 plants, and assuming they produced viable seed, it would seem that the county will have Mousetail for a while to come, given a well-directed cattle hoof or tractor tyre from time to time.

Happily, it would appear to have been a 'good year' for *Crepis mollis* (Northern Hawk's-beard) in South Northumberland, a stronghold for this nationally 'Vulnerable' species, with about 900 plants counted across eight sites. This

total includes the outstanding find of a huge population at a new site a few miles upstream from Allendale Town, with 537 flowering individuals recorded (see article, p.22). North and South Hampshire are a stronghold for the nationally threatened orchid *Cephalanthera longifolia* (Narrow-leaved Helleborine), and it's encouraging that even in these extremely well-recorded counties new sites can still be found, with Dave Pearson discovering five plants just outside the boundary of Magdalen Hill Butterfly Conservation Reserve, North Hampshire. The species was last recorded in this hectad, just over the county line in South Hampshire, in 1883, about one kilometre to the south of the new site. In the Norfolk Broads, a population of hundreds of *Liparis loeselii* (Fen Orchid) was found this year by Tim Pankhurst and



Myosurus minimus (Mousetail).
Pete Stroh

others in a species-rich patch of *Schoenus nigricans* (Black Bog-rush) mire, cut on a biennial rotation. The purpose of the site visit was to assess its suitability for reintroduction of this nationally Vulnerable orchid, as there had been no records of it there for more than 60 years. Clearly the finders had a good eye for suitable habitat. Remarkably, this was one of two localities where Fen Orchids were found in 2019 after an assumed absence of more than half a century. The second site, found by Mike Padfield and his son, is all the more remarkable because it is located to the north of the Broads, and is now the most northerly extant site in Britain. Rumour has it that David Bellamy saw the orchid there in the late 1950s, although no official record seems to exist, and it was not mapped for past Norfolk Floras or national atlases.

A single plant of *Euphorbia paralias* (Sea Spurge) has been found at the end of the promenade at Redcar, North East Yorkshire, a first for the county. It is possible that seed arrived on currents from a site further south, although it would have been quite a journey, with the nearest known location at Chapel St Leonards, North Lincolnshire (where there is also an excellent beach-side café, by the way). Perhaps there are populations still waiting to be found along the South-east Yorkshire coast?

When it comes to spreading species, *Polycarpon tetraphyllum* (Four-leaved Allseed) has certainly been getting around, particularly in the south-east where there were few historical records. The second vice-county record (last recorded 1990) was found this



Polycarpon tetraphyllum (Four-leaved Allseed). Liam Rooney

year in Buckinghamshire by Andy McVeigh and Julia Carey in central Milton Keynes, with plants growing in fine gravel on a central reservation on one of the grid roads. And in County Durham, Colin Conroy bagged a first county record with the discovery of the species in Bishop Auckland, growing between the cobbles in an urban street. Staying briefly in Durham, *Rorippa islandica* (Northern Yellow-cress) has been found in Upper Teesdale, with material confirmed by Tim Rich. The species has only one previous v.c. record dating back to 1977. Remaining in the north, *Arctium tomentosum* (Downy Burdock) was found on a Magnesian limestone ridge to the east of Leeds by David Broughton, only the fourth record for this species in England since 2000, and *Pastinaca sativa* ssp. *urens* (Eastern Parsnip) has also reached Leeds, where David found several locations in the city by roads and railways. It has also turned up for the first time in Northamptonshire, where it was recorded by Paul Stanley on a junction that I drive along regularly (I like to think that I am the safer driver, as my excuse for not spotting it!). Finally, Stuart Hedley has found two sites

for *Zizania latifolia* (Manchurian Rice-grass) in Herefordshire, far from the other known populations in the south-east. This perennial, monoecious aquatic grass can be a bit of a brute, growing up to 2.5m tall and forming extensive stands, and is difficult to eradicate because any root or rhizome fragments will regrow (such robustness is, of course, why it is grown as a crop in Asia). It's considered to be an invasive non-native plant in New Zealand, and is assessed as posing a 'high invasion risk' in other countries (e.g. USA). Let's hope that it behaves itself on these shores.

I'm going to leave other interesting finds of non-native records to Matt Berry and his excellent 'Adventives and Aliens' column, but can't first resist naming two more species found this year. *Vicia dumetorum* (Great Wood-vetch) is a native plant of central and south-eastern Europe growing in calcareous mountainous woodland, but is also recorded as an urban non-native casual in many areas of northern Europe and Scandinavia. The species, new to England (and Britain and Ireland) as a wild occurrence, was found at Low Hauxley Nature Reserve in South

Northumberland by one of the Rangers, and is most likely to have arrived in bird seed. In North East Yorkshire, Ambrose Baker found what was later grown on and determined as *Mentha cervina* (Hart's Pennyroyal), only the third record in the wild for Britain and Ireland, whilst recording with other BSBI members at South Gare (a remarkable site for plants and birds). The five small plants at South Gare look likely to be a natural colonisation, possibly arriving via birds who have dipped their feet in nearby garden ponds, as opposed to being a garden 'throw-out'. Hart's Pennyroyal is a Western Mediterranean species

which grows in some areas with *M. pulegium* (Pennyroyal). It has a pungent minty smell, and unlike all other Mints, has four calyx teeth, not five, as well as having digitately lobed bracteoles, as opposed to simple bracteoles (Tutin et al., 1972).

If you have any summer events that you would like me to publicise here, then please do let me know in time for the April edition of News. Thanks to Ken Adams, David Barlow, David Broughton, Stuart Hedley, Brian Laney, Andy McVeigh, Tony Mundell, Tim Pankhurst, John Richards, Jeremy Roberts, and Keith Robson for providing

information, and apologies to others who sent me records for which there was no room for inclusion.

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Pete Stroh

BSBI England Officer
peter.stroh@bsbi.org

WALES – CYMRU

The late summer season has brought a series of surprises in Wales with additions to the flora and great finds by a number of recorders. The Wales Officer also held two more well-attended Plant Family workshops for beginners in Rhayader and Lampeter. As the field season has drawn to a close,

vice-county recorders have been focused on the compilation and checking of records, a few last visits to poorly recorded monads and chasing up records held by other organisations.

In v.c.46 (Cardiganshire) Justin Lyon (NRW) was making a check on grazing stock before going

on holiday when he spotted two flowering plants of *Spiranthes romanzoffiana* (Irish Lady's-tresses). Further searches revealed eight plants in the grazed turf. The plants have probably spread naturally from Ireland, making a first record for Wales.

In Brecknock (v.c.42) John Crellin wasn't even plant hunting when on 18 August, he noticed a different looking *Persicaria* which he examined at home. This proved to be *Persicaria mitis* (Tasteless Water-pepper) which had not been recorded in the vice-county since 1927.

Later in the autumn, the Brecknock botany group spotted a half dead orache next to the Brecon by-pass. It seemed to be *Atriplex littoralis* (Grass-leaved Orache) normally a seaside plant and never found in Brecknock before. Further searches will be carried out next summer.

The Monmouthshire (v.c.35) botany group recording has

Plant families workshop at Rhayader. *Barbara Brown*



continued to yield good records. In early September they were escorted onto Llanwern steelworks by ecologist Mike Lauder. This visit produced new records for two tetrads including *Verbascum virgatum* (Twiggy Mullein), *Trifolium arvense* (Hare's-foot Clover) and *Sisymbrium altissimum* (Tall Rocket). They also found a new hectad record for *Erodium maritimum* (Sea Storksbill).

Further September visits yielded abundant *Ceratophyllum submersum* (Soft Hornwort) on Bloreng and *Eriophorum latifolium* (Broad-leaved Cottongrass) growing on the old coal tip at Aberbargoed grasslands.

A Glamorgan (v.c.41) botany group meeting to Llangynwyd on 17 August revealed a new hectad record for *Dryopteris carthusiana* × *dilatata* = *D. x deweveri*. The 21 September meeting near Pencoed visited rhos pasture and was very productive including new hectad records for *Veronica scutellata* (Marsh speedwell), *Epilobium tetragonum* (Square-stalked Willowherb), *Epilobium roseum* (Pale Willowherb) and *Veronica polita* (Grey Field-speedwell), as well as number of hybrids including a new vice-county record for *Ulex europaeus* × *gallii* = *U. x breoganii*. Tim Rich also showed the group his new book *101 Rare Plants of Wales* which is a great summary of our more threatened flora. The book was co-authored with Lauren Marrinan.

In early August the Montgomery Flora group (v.c.47) arranged a *Rubus* recording weekend with the referee Dave Earl. Together they toured the vice county and found 23 different

species including a county first of *R. ludensis* near Llyfnant. They also built up a reference herbarium.

In September, Kate Thorne found *Potentilla* × *mixta* in an old railway at Cyfronydd where she had previously seen both parents nearby – *P. reptans* (Creeping Cinquefoil) and *P. anglica* (Trailing Tormentil). This is a first record for the hybrid in the vice-county.

In Radnorshire (v.c.43) Barbara Brown continued to carry out summer evening surveys with local volunteers targeting unrecorded monads in north Radnorshire. Finds have included a large patch of *Comarum palustre* (Marsh Cinquefoil) (fourth record for the hectad) and a third hectad record for *Veronica scutellata* (Marsh Speedwell).

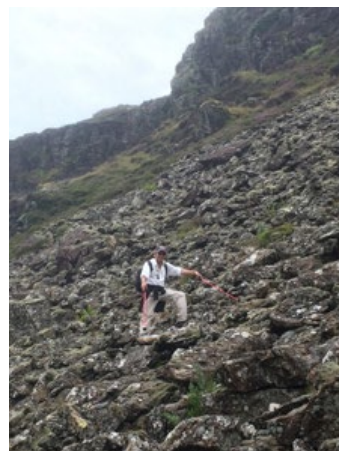
The Caerleon Botanical residential from the 26–28 July was another enjoyable reunion for botanists in Meirionnydd (v.c.48). This meeting was a little poignant as Sarah Stille announced her retirement as VCR, a role she has held since 2011. Consequently, friends took Sarah on a special trip on the Wales Highland steam railway, from which she saw 'the whole of Meirionnydd'. This is probably a view of unequalled beauty throughout the British Isles and a fitting celebration of Sarah's dedication to botanical recording in and beyond this area. Meanwhile, teams of botanists headed out to search under-recorded monads. On 27th Phil Brown, Martyn Stead and Barbara Brown visited Craig y Benglog. Scrambles along the gorge revealed *Helianthemum nummularium* (Common Rock-rose) which had previously only been recorded in four tetrads in the vice-county, *Sedum fosterianum* (Rock Stonecrop)



Persicaria mitis (Tasteless Water-pepper). John Crellin

which had been recorded in 10 other tetrads and *Melica nutans* (Mountain Melick) with only two other tetrad records throughout Meirionnydd.

In Caernarfonshire (v.c. 49) a focus on bog habitats led to Andrew Graham discovering that the *Utricularia intermedia* agg. (Intermediate Bladderwort) of Cors Gyfelog is actually *U. stygia*, (Nordic Bladderwort). Julian Driver also found a previously unknown site for *Hammarbya paludosa* (Bog Orchid) at the edge of a bog at Sarn Diwaunydd. Julian then made several significant fern records with *Asplenium obovatum*



An intrepid Martyn Stead at Craig Benglog. Barbara Brown

(Lanceolate Spleenwort), last recorded pre -1930 in SH76, *A. septentrionale* (Forked Spleenwort) on an old mine in the Gwydyr Forest and a new site for the gametophyte stage of *Trichomanes speciosum* (Killarney Fern) in SH77.

The group's plant hunting efforts during this period have spanned summits to sea with John Hughes recording *Carex bigelowii* (Stiff Sedge) on ledges on Tryfan, Glyder Fach and Lliwedd, whilst recorders were delighted to re-find *Calamagrostis stricta* (Narrow Small-reed) on the harbour wall at Abersoch in SH32, as it hadn't been seen there since 1964. On the same day they refound the

site in SH32 for *Equisetum x littorale* (a hybrid Horsetail) which hadn't been observed since 1980 by Peter Benoit.

Late summer saw a considerable recording effort around Cemlyn on Anglesey (v.c.52). Richard Birch surveyed the pools near Tyn Llan and added *Ruppia cirrhosa* (Spiral Tasselweed), *Ruppia maritima* (Beaked Tasselweed) as well as *Zannichellia palustris* (Horned Pondweed). Nigel Brown also listed the plants in the grounds of Bryn Aber. The result was 15 additions to the hectad. Recording near Tywyn Fferam at Rhosneigr gave a new find for Anglesey of *Olearia solandri*

(Coastal Daisy-bush). It has been a good year for annual clovers, *Spiranthes spiralis* (Autumn Lady's-tresses) and *Gentiana pneumonanthe* (Marsh Gentian) on Anglesey, with recorders estimating an amazing population of over 10,000 spikes of *Spiranthes spiralis* in a dune slack in Aberffraw.

What a fantastic final Atlas 2020 field season! Many thanks to all the Recorders and their contributors.

Barbara Brown
BSBI Wales Officer
barbara.brown@bsbi.org

SCOTLAND

The second Scottish Botanists' Conference was held at the Royal Botanical Garden Edinburgh (RBGE) in November, with a huge attendance of more than 200 people. A joint event between BSBI, the Botanical Society of Scotland and RBGE, the meeting was a great success, with workshops, talks and one of the biggest exhibitions we have ever mounted. Details can be found on the BSBI website, including abstracts and photographs of the many excellent exhibits as well as copies of the presentations.

Two iconic Scottish species – *Linnaea borealis* (Twinflower) and *Cicerbita alpina* (Alpine Sow-thistle) – were the subject of fascinating talks. Diana Gilbert described the work being carried out for the North Scotland Twinflower project. 80% of patches in Scotland are single clones, with the remainder comprising just two or three

closely related clones. The current Scottish population is effectively a static collection of isolated clones, highly vulnerable to further loss. The project aims to (1) safeguard the genetic diversity of north Highland populations by bringing all genotypes into cultivation, and (2) achieve genetically diverse and viable populations, in order to facilitate seed production in the long term.

Aline Finger described RBGE's work on *Cicerbita alpina* (Alpine Blue-sowthistle), which she considers to be on the brink of extinction in the UK. It is threatened by grazing, landslides and climate change. Genetic studies show that the remaining four Scottish populations, with less than 50 individuals in total, are highly inbred with low genetic diversity, and this has adverse impacts on reproduction. Research has shown that cross-pollination increases germination,

plant size and survival, though only slightly. Experimental translocations have had some success, though grazing is a serious problem. The case of *C. alpina* represents a wider conservation issue that many species are facing.

The National Trust for Scotland has been monitoring another of our rarest arctic-alpines, *Sagina nivalis* (Snow Pearlwort), at Ben Lawers since 1996, following a baseline survey in 1981. In Scotland this tiny cushion-former occurs at the extreme southern margin of its north European range, making it especially vulnerable to climate change. Most of its populations occur within the Ben Lawers NNR above 900m altitude. A conference poster by Sarah Watts, David Mardon and Dan Watson presented the main findings from this impressive long-term study, including life history information

on plant size, pollination, lifespan, survival and flowering rates. Overall numbers across the site have declined since the 1990s, with threats including natural processes, sheep activity and climate change impacts.

Vice-county recorders, other members and local groups have been flat out in the final recording year for Atlas 2020. Many notable finds, too numerous to mention here, were included in the conference exhibits. In the south, Luke Gaskell discovered *Juncus filiformis* (Thread Rush) in the drawdown zone of a reservoir in Peeblesshire, its typical habitat. This new locality is 80km from the nearest known localities. Meanwhile on the north coast Ian Evans and Gwen Richards found *Eupatorium cannabinum* (Hemp-agrimony) near Bettyhill, where the only previous record for West Sutherland was made back in 1833.

Despite the huge amount of fieldwork done for the Atlas there remain many remote parts of Scotland still to be explored, not least in my own vice-county of



Sagina nivalis (Snow Pearlwort) on Ben Lawers, July 2019. Sarah Watts

Westerness. Readers may recall that we found a new site for the Nationally Rare *Scheuchzeria palustris* (Rannoch-rush) north of Loch Garry in 2018, extending its range to the north-west by 40km. In 2019 Paul Stanley and Keith Turner made a similarly remarkable find in Coire na Coichille on Aonach Beag (Ben Alder) – the first county record for the Nationally Rare *Schoenus ferrugineus* (Brown Bog-rush), coincidentally also 40km north-west of its known range, and much higher (at over

700m altitude) than its Perthshire localities. There's still plenty to find out there!

In a break with the long tradition of holding annual meetings in November in Scotland, next year's Scottish Botanists' Conference will be on Saturday 31 October at RBGE. Look out for the flyer with the September *BSBI News* and book online.

Ian Strachan

Vice-county Recorder for Westerness (v.c.97)
imstrachan55@gmail.com

IRELAND

Winter is a great time to reflect on what we have accomplished in the last year and plan ahead for the next. Since the last *BSBI News*, we have wrapped up recording for Atlas 2020 and validation is well underway, we completed the Aquatic Plant Project, held our Irish Autumn Meeting, and have begun planning events for next year.

2019 was a fantastic year for plant recording in Ireland as our vice county recorders and other volunteers were out in force

to collect as many records as possible for Atlas 2020. This effort was helped further by analysis and updates throughout the year from Robert Northridge to help recorders identify areas where more recording efforts would be most beneficial. Thanks to all this hard work, nearly every hectad in Ireland was well-recorded in the Atlas period with at least 60% of all species ever recorded in each hectad recorded during the last 20 years. It can be difficult to envisage what a tremendous feat

this really is, but it comes from more than 200,000 new plant records every year for the last five years in Ireland, and a total of over 2.6 million records in the Atlas period. Enormous thanks and congratulations to all involved in this incredible effort!

In 2019 BSBI ran a major project to increase aquatic plant recording across Ireland. The Aquatic Plant Project was a huge success, training over 100 people in aquatic plant identification and collecting 6,397 aquatic

plant records, including 370 new hectad records. In total the project visited 239 sites in 97 hectads across 27 vice-counties. A huge thanks for this success is due to Paul Green for managing the project, Nick Stewart, Chris Preston, Cillian Roden, and Lynda Weekes for running training and recording days, and of course to the National Parks and Wildlife Service (Roi) and the Centre for Environmental Data and Recording (NI) for their generous funding. We are now looking at ways to build on this success with further training and more targeted monitoring of aquatic plants in Ireland. Keep an eye on the BSBI Ireland and Aquatic Plant Project webpages for updates.

Thinking ahead, the Irish Spring Conference is scheduled for Saturday, 28 March, at the National Botanic Gardens, Dublin.

Further details will be added to the website soon. We have a great programme of eight field meetings scheduled for 2020, visiting Antrim, Southeast Galway, West Cork, Laois, Louth, Clare, East Cork, and East Donegal. Please see the website or yearbook for details of these. We are also looking forward to lots more events with our local groups. If you are not already on the mailing list for your closest group, contact details are on the main BSBI Ireland webpage. Finally, you can also mark your diaries for the Irish Autumn Meeting and AGM, scheduled for 26 September. Everyone is welcome at our events, including beginners. If you haven't ventured to one of our events before, make 2020 your year to get involved!

No country update would be complete without highlighting a

few of the exciting plants finds. We start in West Cork, where vice-county recorder Clare Heardman found *Gentianella campestris* (Field Gentian) on Hare Island in September. It was the first record of the species in Co. Cork for at least 50 years. Clare writes: 'Although a mostly north-western species, this uncommon flower had been recorded on Horse Island in Roaringwater Bay by Oleg Polunin in 1950. One of his pupils, British botanist John Akeroyd, went on to write an extremely comprehensive book on the flora of Roaringwater Bay, *The Wild Plants of Sherkin, Cape Clear and adjacent Islands of West Cork*, published in 1996. He documented nearly 600 plants on the islands; however, one species that eluded him was Field Gentian. On hearing of its rediscovery this year he replied,



The Aquatic Plant Project trained over 100 people in 2019. John Faulkner



Geniella campestris (Field Gentian). Clare Heardman

“an excellent piece of news... the most exciting find in Roaringwater Bay for years! I've looked hard for so long on autumn visits, and had quietly given up on *Geniella campestris*, thinking that maybe Oleg Polunin, who was less experienced in 1950, had even mistaken a goat-chewed *Dianthus armeria*, which I discovered on Horse Island in 1992, for this species. But as ever, Oleg was absolutely correct!”

In the North, one of Co. Antrim's active recorders, Suzanne Belshaw, found *Lithospermum arvense* (Corn Gromwell) over the summer, a plant which hadn't been recorded in Ireland for 50 years. Suzanne writes: 'I recorded it within the grounds of Lisburn's Lagan Valley Hospital. This arable weed has apparently never had much of a presence in Ireland: there are a handful of pre-1930 records, now barely visible on the distribution map, and only two post-1930. Demolition work was in progress in preparation for the city's new Health Centre, and flowering plants were found nearby (on 21 June) on strips of newly-landscaped bare ground.

On this date, the plants were no more than 15cm tall. Bright white (not cream or yellowish), comparatively large flowers, and the lack of lateral/secondary veins on the leaves were enough to convince me and my county recorder [David McNeill] that the plants were in fact *Lithospermum arvense*. On a return visit on 22 July, the previously bare ground had become surprisingly grassy and, due to mowing, only very few plants had survived to produce their distinctive brown warty fruits. It might be a long time before they are unearthed to flower again.'

A few other interesting finds include *Rumex pulcher* (Fiddle Dock), found during a BSBI field meeting in Youghal in July. East Cork joint-VCR Edwina Cole reports, 'It has only ever been recorded from one other site in East Cork – Whitegate (1895 record and pre-1969 record) but has never been recorded in Youghal until now.' In November, *Epilobium pedunculare* (Rockery Willowherb) was recorded by Maria Long, Rory Hodd, and Sharon Spratt in Co. Cavan – a new record for the vice-county. In Kilkenny, Roger Goodwillie recorded *Carex appropinquata* (Fibrous Tussock-sedge) growing in a wooded fen near Freshford, far from the rest of its range. This is one of only six records of this species in Ireland since 2000. Roger also recorded *Carex lasiocarpa* (Slender Sedge) and *Koeleria macrantha* (Crested Hair-grass), both new to Co. Kilkenny. In Co. Wexford, Paul Green re-found *Salicornia pusilla* (One-flowered Glasswort) after several years of looking. It was last recorded there in the 1990s. Paul also found a single plant of rare

Lathyrus maritimus (Sea Pea) on a shingle beach on The Hook. This is only the second record of Sea Pea for Wexford, with the previous record from Kilmore Quay in 1994.

Finally, a reminder that even when you don't find what you are looking for, you can turn up some really interesting plants. In September I joined my first Rough Crew trip, up a mountain in Sligo, along with Cliona Byrne, Roisin Nighfhoinn, Shane Farrell, Sinead Heskin and Sandie McCanny. We went in search of *Lycopodium clavatum* (Stag's-horn Clubmoss). It was a wet day and the mist was down, preventing us from properly searching the cliffs where we were most likely to find it and making our trek across heavily eroded peat and around hidden limestone holes a bit more challenging. Despite our lack of success in finding any clubmoss, we did spot a couple of small ponds on the top of the plateau where we found some lovely aquatic species. *Chara virgata* (Delicate Stonewort), *Potamogeton berchtoldii* (Small Pondweed) and *Lythrum portula* (Water Purslane) were all hectad firsts, while *Callitriche stagnalis* (Common Water-starwort) and *Myosotis scorpioides* (Water Forget-me-not) hadn't been recorded in the hectad since the 1950s and 1996, respectively. Quite different from what we were searching for, but great finds and I personally enjoyed trying out the new aquatic identification skills I learned during the Aquatic Plant Project!

Sarah Pierce
BSBI Ireland Officer
sarah.pierce@bsbi.org

MEETINGS REPORTS

THE 2019 ANNUAL SUMMER MEETING, MALHAM TARN, MID-WEST YORKSHIRE (V.C.64), 13–19 JULY

With Atlas 2020 recording in its last year, the question was – should the ASM be in a location where ‘nice’ plants could be shown, or somewhere that had under-recorded tetrads in the vicinity? The Field Studies Council (FSC) centre at Malham Tarn was suggested as a possible venue that would meet both of the requirements and so it was booked well in advance of the meeting. Having secured the venue there was still plenty to do – decide which sites could be visited, get permissions where necessary, produce maps and recording cards, contact guest lecturers and site leaders, arrange for transport from the station, set-up web booking and produce a flyer for *BSBI News*. With the venue likely to be popular, residential accommodation was largely reserved for those wanting to stay all week, with space for day visitors, and an overall maximum of around 40 participants.

Once the booking web page opened bookings started to flood in, though it was June before all places were filled, perhaps a consequence of insisting that priority was for those who would stay all week. July soon arrived and the forecast was for good weather for the site visits, but perhaps not the recording days. Participants began to arrive after lunch on Saturday, and around a dozen took part in a short walk from the centre, westwards to an old quarry site and led by the vice-county recorder David Broughton.

We recorded as we went, as rather surprisingly the Malham Tarn monad was under-recorded compared to pre-2000. We quickly added *Bellis perennis* (Daisy), *Plantago lanceolata* (Ribwort Plantain) and *Poa annua* (Annual Meadow-grass) amongst others! Of more interest were plants around the old quarry, which included *Alchemilla glaucescens*, a Nationally Scarce Lady’s-mantle.

Back at the centre we had a quick look at the caged *Cypripedium calceolus* (Lady’s-slipper), which was part of a re-introduction programme in the area and also saw *Saxifraga cymbalaria* (Celandine Saxifrage) on the wall below them. Having seen a Lady’s Slipper Orchid in the Falklands, the English plants were much larger than I expected. After dinner, Judith Allinson gave us an introduction to the plants of Malham Tarn in an illustrated talk.

A walking tour from the Centre took place on the Sunday, as the roads were expected to be full of tourists. We split into three groups, which were largely a fast group, a medium group and a slow group. Each would get to see some of the interesting plants around the Tarn, but the faster group were likely to see a larger range, whilst the other two groups recorded as they went. Between them the two groups made over 500 records of 254 species saying something about the diversity of plants on offer at Malham.

That evening there weren’t many plants that needed

identification back at the centre, so Jonathan Shanklin volunteered to give one of three possible talks. The participants decided that hearing about the Flora of the Falkland Islands, South Georgia and the Antarctic would be interesting, and Jonathan also covered climate change and the ozone hole. Several of the Falkland’s plants were originally from the UK and we saw a few of them during the week.

Monday was the day for site visits and three primary sites, all Yorkshire Wildlife Trust (YWT) nature reserves, had been chosen by the participants: Ashes Pasture (a traditional hay meadow) and Salt Lake Quarry (an old limestone quarry for the Ribbleshead viaduct), Southerscales (a large area of limestone pavement) and Grass Wood (a big limestone woodland with some areas more open grassland). FSC minibuses took the three parties to their chosen sites and left them there for the day. Each group had a wonderful day out, with rarely seen plants present at all of them. Grass Wood perhaps had the easiest walking, although being on a hillside there were uphill sections, which proved testing for some. Nicest find here was perhaps *Paris quadrifolia* (Herb Paris) in fruit, with an *Allium* nearby. This required some use of the key in Poland, and a bit of digging revealed the purple bulbils that determined it as *Allium scorodoprasum* (Sand Leek). After dinner, we were delighted to have

Graham Standing give a talk on the YWT reserves. He took us on a guided tour of some of those near to Malham Tarn as well as a few more distant, showing some of the highlights and explaining some of the management issues. His talk proved so inspiring that one group formed a break-away on the recording days to pay a visit to two of them.

The plan for the recording days was that the participants would split into car-loads, with each group visiting different tetrads. Drivers and recorders were pre-assigned, but there was a free choice for the rest of who to go with and then where to go from a wide range of selected tetrads. This system needed a bit of fine tuning, but was certainly easier to manage than trying to put everyone into cars from the start. Although the forecast for this second half of the week had been for some rain, we were lucky and it stayed dry until the Friday morning. The choice of locations included areas of limestone pavement, acid moorland, dale villages, steep hillsides and a few urban sites for those that preferred, more level ground.

Each group would have a different story to tell of their days in the field. Some were definitely more adventurous, with the 'rough crew' of David Barlow and David Morris scaling the heights of Pen y Ghent and finding plants such as *Carex bigelowii* (Stiff Sedge) and *Saxifraga oppositifolia* (Purple Saxifrage). My days were a little less arduous (at least for me), and for the first one I randomly selected a tetrad from the pile of maps. It turned out to be a lucky choice as it included areas of limestone pavement. With the centre having very good internet it

was possible to query the DDb to find out if there were any species to specifically look for. There were, with plants such as *Actaea spicata* (Baneberry) and *Gymnocarpium robertianum* (Limestone Fern). The hard part was finding them as the grid references were not very accurate and there were a lot of grykes to search, but find them we did. It was noticeable that whilst some plants are relatively common in the pavements, for others there are only one or two plants in a large area.

The next day my group headed out down a narrow road, following a suspiciously familiar car. Getting to the final gate it turned out that both groups had selected the same tetrad due to a duplication of maps on my part. We left them to get on with their first choice and headed for the tetrad to the south, which was mostly open access moorland. A couple of flushes provided good hunting, with *Carex dioica* (Dioecious Sedge) present in one.

A plantation had an unusual fir, which on return was keyed out as *Abies fraseri* (Fraser Fir).

On the final full day my group headed for Halton Gill, a small village adjacent to open access moorland, with its namesake Beck, the River Skirfare, and many Shake Holes giving the prospect of some limestone grassland species. We were not disappointed and found *Rumex longifolius* (Northern Dock) on a roadside verge by the village, *Cochlearia pyrenaica* (Pyrenean Scurvygrass) in the beck and *Chenopodium bonus-henricus* (Good-King-Henry) in a dry meander channel of the river. The grassland was in somewhat short supply and the best area that we found was close to the beck by the village.

Only on the last day did rain seriously interfere with recording, however waterproof paper recording cards allowed a few stalwarts to continue on their way home. As I was staying on nearby for a few additional days

Tea-break with Good-King-Henry (*Chenopodium bonus-henricus*).
Chris Smith



recording, I opted for a tetrad with some more limestone pavement, near Tenant Gill farm. The pavement was tricky as it was wet, but I re-found some scarce species such as *Dryopteris submontana* (Rigid Buckler-fern) that had recent records, and added records for many species that hadn't been seen since before 2000.

With all the records digitised there were nearly 9000 records of 866 individual species or other MapMate entities made during the week. 40 tetrads were well-covered and another 30 had some

casual records, all scattered over 14 hectads. The most frequently recorded species were *Prunella vulgaris* (Selfheal), *Holcus lanatus* (Yorkshire Fog) and *Cynosurus cristatus* (Crested Dogs-tail). The *Holcus* came second for the second year running, but the others were new entries in the top three. There were 52 species with a national status seen during the week – of these *Meconopsis cambrica* (Welsh Poppy) cropped up most frequently, though here it is as an escape from gardens. *Sesleria caerulea* (Blue Moor-grass) was the most frequent

native – Nationally Scarce, but quite widespread in this part of Yorkshire, which is close to its heartland in England.

Scotland is the destination for the 2020 ASM, with Guernsey booked for 2021. Do come to one if you can, they are a great opportunity to see new plants, to learn identification skills and to meet with other botanists.

Jonathan Shanklin
Field Meetings Secretary
jdsh@bas.ac.uk

BSBI ANNUAL EXHIBITION MEETING 2019

The 2019 Annual Exhibition Meeting was held on Saturday 23 November at the Natural History Museum, London, and attracted 237 people over the course of the day.

The Exhibits

There were 41 exhibits on a wide range of subjects. Orchids were featured, with Leif Bersweden's poster on the secret sex life of anthropomorphic orchids, while Sean Cole gave us a sneak preview of the forthcoming orchid field guide; Fred Rumsey and Rory Hodd alerted us to the discovery in Ireland of *Stegnoqrammitis jamesonii*, an overlooked tropical disjunct fern; Kevin Widdowson drew our attention to morphological differences between species of ragworts *Senecio* and *Jacobaea*; the Plant Alert exhibit asked us to record garden plants likely to become invasive in the future; Fal Sarker shared an experience of nature for the visually-impaired; and Sophie Leguil's exhibit

'More than Weeds?' challenged our perception of urban flora. The BSBI stand featured posters about the benefits of membership, Atlas 2020, BSBI's Grants Programme, the New Year Plant Hunt, the National Plant Monitoring Scheme and our new publication *Grassland Plants of the British and Irish Lowlands*. Visitors enjoyed taking part in John Poland's vegetative plant ID quiz and browsing Summerfield Books' pop-up bookshop where there was a guest appearance by Dan Eatherley, author of *Invasive Aliens*; there were also three fully-booked behind-the-scenes tours of the NHM Herbarium.

The Talks

Visitors enjoyed talks from six speakers, including a keynote from Prof Clive Stace on the Birth and Evolution of the *New Flora of the British Isles*. Other talks focused on BSBI publications, research, and events. Our incoming and outgoing Presidents gave short addresses

and we introduced a new feature: lightning talks, whereby nine exhibitors talked about their poster for one minute, and shared one slide. Feedback suggests that this new feature was very popular and we plan to repeat it at subsequent Exhibition Meetings.

New Honorary Member

David Pearman gave a speech to award honorary membership of the BSBI to Tom Cope, co-author of *Grasses of the British Isles* (2009) and BSBI Poaceae referee since August 1979. The award was warmly welcomed by the audience.

Missed the Event?

Pdfs of all the talks are available to view or download from the Exhibition Meeting webpage <https://bsbi.org/annual-exhibition-meeting>, where you can also view abstracts of all the exhibits and see contact details and website addresses for all the exhibitors. You can also see photos and comments from the event on

the BSBI Twitter feed under the hashtag #BSBIExhibitionMeeting: www.twitter.com/search?q=%23BSBIExhibitionMeeting&src=typed_query&f=live.

Thank You

We'd like to thank our hosts, the Natural History Museum, who made the venue available to us free of charge and opened up the Herbarium for tours. We'd

particularly like to thank Sandy Knapp, Fred Rumsey, Mark Carine and John Hunnex. Sessions were chaired by Jodey Peyton and Ciara Dwyer; Ellen Goddard coordinated the speakers; George Garnett co-ordinated the herbarium tours; Kylie Jones, Cathy Wilson and Ryan Clark handled registration. The success of the event is down to the hard work of all these volunteer

members of BSBI's Meetings & Communications Committee. We'd like to thank them and all the speakers, exhibitors and visitors who contributed to the day's resounding success.

Louise Marsh

BSBI Communications Officer
louise.marsh@bsbi.org

NOTES

PANEL OF VICE-COUNTY RECORDERS

There are quite a few changes to report. Starting in England, Peter Garner and Heather Davis have stepped down as VCRs for Herefordshire (v.c.36), with Stuart Hedley (s2arth@hotmail.com) now in post. Peter was VCR for 17 years, and Heather has been joint Recorder since 2016 to help with the digitisation of records and Atlas fieldwork. Both have been brilliant in achieving excellent coverage for the Atlas and encouraging young botanists via regular field meetings that focus on a small number of species in specific habitats, rather than attempting to find and identify everything everywhere and running the risk of 'information overload'. The recent publication of the *Rare Plants of Herefordshire* (Smith et al., 2017), co-authored by Peter, is the first major book about the county's flora for some considerable time, is wonderfully written and illustrated, and reflects his deep knowledge and love of the county and its flora. Stuart is a top-notch botanist, and is a wonderful

addition to the VCR network. In South Northumberland (v.c.67), Quentin Groom has stepped down after 17 years as VCR, and is replaced by Margaret (Megs) Rogers (margaretrogers180@btinternet.com), who takes up the joint-Recorder role with John Richards. Quentin is well-known to many BSBI members, has played a key role in data management at a county and national level, and co-authored the *Rare and Scarce Plants of South Northumberland* (available via the BSBI website), an impressive achievement in itself, but made all the more so by Quentin being based in Belgium. In South-east Yorkshire (v.c.61), Richard Middleton and Peter Cook have both retired after 14 and 13 years of service respectively, and are succeeded by Rohan Lewis (rohan2@rohan2.karoo.co.uk). Richard and Peter have produced three editions of the South-east Yorkshire Rare Plant Register, with the latest version available on the BSBI website, and have made a significant contribution to the

conservation of the county's flora. The list of England changes finishes in Sussex (v.cc. 13 & 14), where Matt Berry is stepping aside after six years as joint Recorder, but will continue with his excellent 'aliens' column in BSBI News.

In Wales, Sarah Stille has stepped down after nearly nine years as VCR for Merionethshire (v.c.48). During her tenure she wrote and published a *Rare Plant Register* for the county (available on the BSBI website), developed the Meirionnydd Local botany group, and set up and organised the yearly Caerleon residential, which has become a very popular and productive recording meeting. Sarah has recruited and trained her VCR successor, Jo Clark (j.clark315@btinternet.com) who will have assistance from Sally Peacock, and she now has her sights set on recording the flora near her second home in the Puy de Dôme.

In Scotland, Andy Amphlett (amphlett1958@gmail.com) is now joint Recorder for Easternness

(v.c.96) alongside Adam Fraser. Andy continues to play a major role in helping Scotland's VCRs become familiar with the BSBI's database, and with over 110,000 records to his name, has clearly been very busy with fieldwork for the forthcoming Atlas. Thanks to Andy for his help in Easternness, especially given his recent 'retirement' after 18 years as VCR for Banffshire (v.c.94). Simon Smart has been appointed joint Recorder for South Ebuades (v.c.102) with Malcolm Ogilvie. Simon has already made a fantastic contribution to the county over the past four years through his sterling efforts recording in the often remote, rough and mountainous terrain of the Isle of Jura. Marion Moir has been appointed joint recorder with Helen Jackson in East Lothian (v.c.82). Marion has been an active recorder in the county for several years, and has been especially busy organising the local botany group and helping to digitise a huge backlog of records. Pam Murdoch is retiring as Recorder for Dunbartonshire (v.c.99) after six years. Thanks are due to Pam for her fantastic contribution, and for

agreeing to stay on until the end of the year to help with the final year of Atlas recording.

In Ireland, Paul Green has stepped down as VCR for Co. Waterford (H6) after 18 years, but continues as VCR for Co. Wexford (H12), where he has been Recorder since 2003. I'm not sure that I really need to say much about Paul here. His efforts in Ireland and Wales (and Somerset – I could go on) are legendary, his *Flora of County Waterford* (Green, 2008) is exemplary, and he continues to be an inspiration to all that meet him in the field (or an indoor workshop). Sad to say that both Sharon Parr and Stephen Ward are retiring from Recorder duties in Co. Clare (H9) after 13 years in post, although I am sure that they will remain active in the county, not least with their involvement with the wonderful Burrenbeo Trust (<https://burrenbeo.com>), a charity based around a model of community-led conservation. And finally, Co. Louth (H31) now has not one but two new VCRs, with Cliona Byrne (clionaabyrne@gmail.com) and Kate Harrington (Harringtonkm@gmail.com) in post after helping

with recording in the county for the last two years under the mentorship of John Faulkner.

Very many thanks to all mentioned above for their service to the Society and to local botany.

There are VCR vacancies for eight vice-counties: Dorset (v.c.9) (alongside Robin Walls); South Hampshire (v.c.11) (alongside Martin Rand); Argyll (v.c.98) (alongside Gordon Rothero), Banffshire (v.c.94), Berwickshire (v.c.81); Co. Clare (H9); Co. Longford (H24); Co. Waterford (H6). If you are interested in becoming a VCR and want more details about what is involved, please do get in touch with the relevant Country Officer – your county needs you!

References

Green, P.A. 2008. *Flora of County Waterford*. National Botanic Gardens of Ireland.
 Smith, L., Garner, P. & Jannick, M. 2017. *Rare plants of Herefordshire*. Trollius publications.

Pete Stroh
peter.stroh@bsbi.org

SHORT NOTES

Long-standing members

We would like to offer our congratulations to the following who joined the BSBI in 1959, and have therefore completed 60 years of membership by the end of 2019: Mr J.E. Aslett, Dr C.D.K. Cook, Dr N. Jardine, Dr

G.F. Peterken, Dr J. Timson, Dr C. Turner.

Change of email

David McCosh would like members to note his new email address:
djmccosh1@outlook.com.

Correction

In the last issue of *BSBI News* (142, September 2019) the photograph on page 34 shows *Cirsium eriophorum* (Woolly Thistle), not *C. eriophorum* (Tuberous Thistle).

OBITUARIES

MARJORIE NETTA BLAMEY MBE (1918–2019)

Marjorie Blamey's watercolour illustrations are so well known in best-selling plant guides that it is a surprise to learn that it was not until she was in her late 40s that she began to paint seriously, and that only after a local Cornish gardener and author had seen her paintings at the county flower show in 1966. She opened a little gallery in Looe, and the story goes that the redoubtable Billy Collins, chairman of the eponymous publishers, saw her wildlife paintings in the window, and came in and asked if she did watercolours of plants. Marjorie said not really, but he suggested that she did some and then send them to him for approval. She did a few, and approval was obviously forthcoming, for this led to a long period of involvement with Collins (her first work for them was *Cottage Gardens*, by Roy Genders, 1969) including a commission to assist Richard and

Alastair Fitter in producing a new wildflower guide, a successor to the much-loved McClintock & Fitter, first produced in 1956, but covering NW Europe as well. This, *Wild Flowers of Britain and Northern Europe*, appeared in 1974. In full colour, dealing with 1200 species, with text opposite the illustrations, this new guide was an instant success. In its various editions, it apparently sold a million copies, and ushered in a period of intense activity for Marjorie that spanned the next 30 years. Plants were sent from all over northern Europe, often in flat aluminium boxes. One of her remarkable skills was taking a wilted specimen and making it look as though it was actually growing. Alastair Fitter comments that sometimes she would point out that there was too much or too little on a plate, especially when the plants were large, but generally she found a way to



Marjorie and Philip Blamey at Michael Walter's house in Provence, 1977, with Marjorie painting for *Alpine Flowers* and Philip bathing a tired foot. *Chris Grey-Wilson*

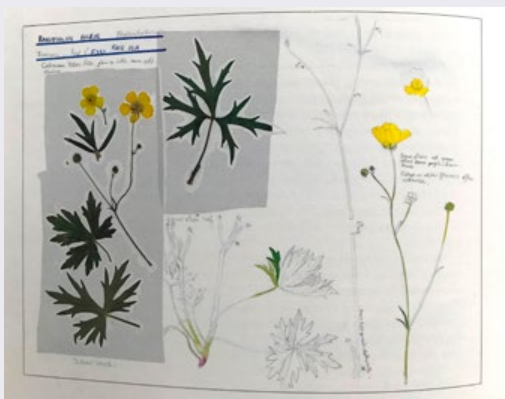
either shoe-horn them in, or to use the extra space effectively, which was immensely helpful because it meant that the necessary comparators were usually all on one plate. An expanded version of this guide, in larger format, was issued in 1997, though neither covered ferns, grasses, sedges and rushes. Alastair notes that due to the high cost of colour printing it was necessary to cover a wider area than Britain so that costs could be recouped by producing editions in many languages.

Marjorie Netta Day was born on 13 March 1918 in Talawakelle, Ceylon (Sri Lanka), where her father, Arthur, worked as a doctor. The family returned to Britain in 1921 to live at Sandown, Isle of Wight, and then Epsom, Surrey. Marjorie painted as a girl, and with her brother she enjoyed collecting hawk-moth caterpillars and rearing them on their appropriate food plants. By World War II she had shown promise as a young artist, as a photographer (with her own Leica) and as an actress, training at RADA and crossing paths with Ivor Novello and Laurence Olivier. In the war she volunteered as a nurse, drove ambulances and met her future husband, Philip, with whom she farmed in Cornwall from after the war until painting took first place.

As soon as her botanical work took off, Marjorie and her husband Philip worked very much as a team. Philip was her constant support throughout her painting career, and, indeed in a marriage that

lasted over 70 years. In the early 1970s they made frequent trips to Kew, to paint plants for their work, and they met Chris Grey-Wilson, then a scientific officer there. This led to their first collaboration with him, *Alpine Flowers of Britain and Europe* (1979), which involved trips to the Alps and Pyrenees, where Marjorie's astonishing facility for quickly capturing the form of a plant was displayed for the first time. Chris tells the story that one day in Andorra he and Philip collected 21 new plants, gave them to Marjorie that evening, and she had painted them by the next day! She and Philip bought a series of camper vans that were ideal for collecting and painting plants as they travelled around. Each plant was drawn, pressed and then mounted on a card giving all the salient details, shades of colour, etc. Although both artist and author were intensely disappointed with the colour reproduction of this book, nothing remotely comparable had been available for the British market. Both this and her 1993 work *Mediterranean Wild Flowers*, also with Chris Grey-Wilson, where for the first time her name preceded his, became constant and indispensable companions on all trips to Europe. *Mediterranean Wild Flowers* in particular broke new ground in coverage and complements the enduring guides by Oleg Polunin. This was when one of us (DP) first met author and artist, and Philip, and saw her techniques for preserving the plants overnight – in Tupperware-style containers lined with absorbent paper. Philip set these up ready for Marjorie, who would be up at 4.00 am the next day, painting these before breakfast and the next day's collections. The painted plant would then be pressed, and mounted, covered with a sort of adhesive acetate, on a card together with the sketch and notes including shades to be used.

Right from the start her editor at Collins was Michael Walter, who guided her and Philip throughout her career, both when he worked for Collins and later as a freelance, and it was doubtless him who opened the door for other collaborations in the Collins stable. For throughout this period there was a stream of other publications, with books on watercolour techniques, on *Bulbs of Europe* (with Chris Grey-Wilson and Brian Mathew), *Food for Free*



Marjorie Blamey's specimen and sketches of *Ranunculus acris*, now on long-term loan to the University of Plymouth.

(for Richard Mabey), *Scented Plants* (for Roy Genders) and even the cover of John Raven's *A Botanist's Garden* (1971) and a little work on herbs and spices. She occasionally used her existing illustrations, but usually supplied new paintings, and some think that her little vignettes of flowers, such as those in *Fruits, Nuts & Berries* (1984), are amongst her most satisfying images. She certainly knew how to compose a scene. These paintings, with their accompanying notes and pressed plants, eventually totalled over 10,000, and are now on permanent loan to the University of Plymouth. The most important and perhaps the most pleasing publication of this period was *The Illustrated Flora of Britain and Northern Europe* (1989), also with Chris Grey-Wilson, in a larger and very pleasing format, with thumbnail sketches of key features down the margins of each plate, making a useful and visually attractive whole. Paintings for this might well have led to a curious tale of discovery in Cornwall a few years ago. DP with Anita, his wife, and Ian Bennallick, were recording on the West Looe River, south of Liskeard in Cornwall, and found, to their surprise, a large colony of Purple Toothwort (*Lathraea clandestina*). We followed the patches for several miles upstream, then up a side valley and the trail ended at the gate of an isolated house. We knocked on the door, asked for permission to come in, and the owner casually told us that the house used to belong to the Blameys! The plant was obviously a relic of her painting, escaped from the garden and washed downstream.

Her family say that her favourite book was *Marjorie Blamey's Flowers of the Countryside* (1980), written with her husband, Philip – a delightful assembly of text on plants of various habitats, painting techniques, folk-lore and much else; again with lots of vignettes.

There was no let-up in her work. Once when her family hadn't heard from her for some weeks – she was in Bhutan – and they were worried, they asked why she couldn't instead go on a nice Saga holiday? Her final works included *Marjorie Blamey's Wild Flowers by Colour* (1997), an ambitious guide to 'easy flower identification', and lastly, *Wild Flowers of Britain & Ireland* (2003), back with Richard and

Alastair Fitter again. This was painted when she was 85, and covers, for the first time, grasses, sedges and ferns, together with a host of new ideas. It is still one of the key field guides. Even in her nursing home she told one of us (TN) that she really wanted to paint for a book on the plants of the Isles of Scilly.

Most of us acknowledge the ability of a watercolour drawing to give a three-dimensional representation of a plant, as opposed to the flatness of a photograph. We all have our favourite illustrator, with some wedded to Keble Martin and others to Garrard & Streeter, and certainly Collins did her no favour with some of the colour reproductions in the earlier volumes. But no other illustrator has matched her skill with such an amazing output, coupled with her lovely little vignettes. She was awarded an MBE in 2007, at age 89, and won three Gold Medals from the RHS and two from the Alpine Garden Society. Her books were translated into at least 10 languages, including Japanese. She had been a BSBI member at various times. Her original works are in public and private collections, and we even found some on the walls of holiday houses on Tresco when we visited this year.

After Philip died in 2014, in her increasing blindness Marjorie decided to go into a nursing home near her family in Wadebridge, where one of us (TN) visited her regularly. Although 100 she was as sharp as anything; when we tried to describe a yellow Clematis naturalised on the dunes nearby, and couldn't think of the name, she immediately said 'Ah, yes, *Clematis tangutica*'! She died, after a short illness, on 8 September 2019, aged 101. In old age her memories of the farm, her Guernsey cows, the plants, birds and butterflies that she had seen, and in many cases incorporated into her botanical illustrations, remained as fresh as ever. It was lovely to reminisce with her, and she leaves a treasure trove of books.

We would like to acknowledge the help that we have had from Anne Irons, Marjorie's daughter, Chris Grey-Wilson and Alastair Fitter.

Tina Nightingale & David Pearman

ALAN GEORGE HILL (1935–2019)

Alan Hill was born in England on 27 March 1935 and grew up in Portsmouth. He attended Portsmouth Grammar School but, as he once told me, he derived little benefit from his formal education and left school with few if any qualifications,

Alan's father was a boiler inspector for the Admiralty, and as such was posted to various shipbuilders and naval bases around the UK. In the early 1950s he moved to Belfast, bringing Alan and his sister Beryl with him. Needing to find employment, Alan got a job as a rent collector for an estate agent in Belfast. This rather lowly start was the beginning of a long career in the house letting and mortgage industry. Pursuing part-time studies in building surveying, he became a Chartered Surveyor and finished his career as a senior surveyor for Abbey National Building Society in its Belfast office.

His job as a house mortgage surveyor took him all over Northern Ireland, and he simultaneously developed an interest in the natural history of the Province. Initially this interest was primarily

ornithological, and he became an accomplished 'twitcher', but during the 1980s he developed an interest in botany, and I first met him when he attended a plant identification course that I was running under the auspices of the Extra-mural Department of Queen's University, Belfast (QUB). He also began to make botanical trips to the Continent around this time, including a trip to the Pyrenees in 1990 led by Ralph Forbes of QUB's Extra-mural Department which I also took part in. This was, in fact, the first of a number of continental botanical trips that Alan and I took together, sometimes joined by the late Patrick Carruthers, a retired Irish linen manufacturer, as well as several that he made with other friends or even, latterly, by himself. He made his final foreign trip, with me, to the island of Rhodes in 2008. In the years between 1990 and 2008 he visited, among other regions, Slovenia, Normandy, the French and Spanish Pyrenees, Andalusia, the Cantabrian Mountains, Sardinia, the Dolomites, the Black Forest, Turkey, Greece, Hungary, the Algarve, Switzerland, Bulgaria, the Amalfi coast and the Gargano Peninsula.

It was during the 1980s that Alan joined the Belfast Naturalists' Field Club, and he served on its Committee for several years, including one year as its President. In 1986 he joined BSBI and was a frequent attender of field meetings in Ireland. He was the Vice-county Recorder for Co Monaghan (H32) between 2001 and 2008. There are 7,400 records from Ireland in the BSBI database attributed to him, almost all of them made between 1987 and 2005, and the vast majority (95%) with one or more companions rather than on solo excursions. He became a member of the Irish Regional Committee and served as its Field Meeting Secretary from 1995 to 1999 and as the Northern Ireland representative on the Records Committee from 2002 to 2005. He was a sensible and calm presence on committees, making succinct and helpful comments on matters that directly concerned him.

During the years that I knew them, Alan and his wife Elma lived in Holywood, Co Down, on



Alan Hill (left) on a pondweeding excursion with Chris Preston and Paddy Reilly in Co Cavan, July 1996. *Anne Carter*

the outskirts of Belfast; they had no children. Elma died very unexpectedly in February 2011 and almost simultaneously Alan fell and broke his leg. By that time his health had deteriorated markedly and he had ceased to attend botanical field excursions, although he did make occasional bird watching trips locally with an old bird-watching acquaintance. He died on 9 March 2019.

On continental trips and on our many excursions around Ireland Alan was a considerate companion with a sense of humour marked by a strong sense

of the ridiculous. He acquired an impressive knowledge of the continental orchid flora as well as a good knowledge of the Irish flora and built up a considerable library of identification aids and manuals, most of which he generously passed on to me when he decided around 2015 that his field excursion days were over because of ill-health. I look back on our excursions together with great pleasure.

Paul Hackney

JOHN ROBIN PALMER (1931–2019)

John Palmer was a most enthusiastic hunter of alien plants, resulting in about 60 publications in *BSBI News*. John was born on 29 May 1931 in Derby, the son of a schoolmaster. He was educated at Bemrose School and the London School of Economics. After graduating, he was called up to do his National Service in the Royal Army Educational Corps, where the lowest rank is Sergeant, thereby making the Corps a much sought-after placement, granted to few. During his LSE vacations he had met Pauline, and they became engaged on his demobilisation in 1954. For a year and a half John worked at a bank in Loughborough, then in 1956 a lot happened: he and Pauline got married, he landed a job with the Prudential Assurance Company, his employer for the rest of his working life, and they moved to Bromley, with easy rail travel to Holborn Viaduct station a mere five minutes' walk from the company's head office in High Holborn. They later moved out to a new house in South Darenth in Kent outside the recently extended boundary of London, still with ready access to the same railway line, but now with good access to proper countryside.

In childhood John had enjoyed what is now the Peak District National Park with his parents, and this was continued on marriage with Pauline – they even spent their honeymoon there. Acquisition of *Collins Pocket Guide to Wild Flowers* and their consequent joining of the Wild Flower Society prompted a new enthusiasm, and soon after John also joined the

London Natural History Society and Kent Field Club. Through the LNHS he met Eric Clement, and through the KFC Eric Philp; he was to remain friends with both for the rest of his active life. In the WFS the regional branch secretaries, more numerous then than now, all had their addresses printed in its magazine, and it seems that he corresponded with many of them about locations of rarer plants which could be visited. His rapid rise through the lower ranks of the WFS had meant that by now he needed the opportunities to add aliens to his cumulative totals, and for a few years these opportunities were provided by visits to refuse tips, of which there were very many between South Darenth and the Thames, and by LNHS visits to Blackmoor Fruit Farm in Hampshire, led by J.E. Lousley, then chairman of the LNHS Botany Section, whose main interest in that period was in wool aliens. In the late 1960s there were at least two years in which John stood up after the annual formal business of the WFS to announce an unprogrammed meeting the next day to visit tips in cars. The first formally programmed meeting he led was for the KFC in May 1969 which visited seven sites in v.c. 16, with many aliens recorded. There were several others in later years, for the LNHS, WFS, KFC and BSBI in various combinations.

The LNHS gave John his first opportunity to get records published; Lousley's report on 'Botanical records for 1963' mentions 'a useful list of aliens including *Artemisia biennis* from a garden in Queen

Anne Avenue, Bromley [the street where he lived] ... and *Hibiscus trionum* from Hayes Common'. He continued to send lists of records (not all of aliens) for the rest of his botanising life to the LNHS botany recorder: first Lousley and then the writer. For many years they were in the form of photocopies of densely written A4 pages. Other copies went to Eric Philp as BSBI recorder for Kent, Eric Clement for 'Adventive News' in *BSBI News*, and his WFS branch secretary, for whose benefit there was a column at the left hand margin with a running total of the year's additions to his cumulative WFS list. (There were up to 14 pages in any one year, and picking out the relevant records and copying them into the appropriate places was a mammoth task.) John had joined the BSBI in 1965, gaining access to referees and vice-county recorders, but the supply of information soon started going the other way once he had ceased seeking out native rarities from distant parts. Cornwall was a favourite destination for family beach holidays, and his records from there, now on the BSBI database, go back to before he joined. Among later Cornish records are the first British records of *Eccremocarpus scaber*, *Pittosporum ralphii* and *Olearia solandri* and the only British records of *Elaeagnus* × *reflexa* Morren & Decne 'scandent and rooting in a hedge near Durgan SW72T' and *Veronica* × *kirkii* J.B. Armstrong 'on side of stone wall, not near houses, Phillack SW53U'.

In the 1970s John and others were increasingly finding plants of soya bean *Glycine max* on tips and other sites in north-west Kent, with an assemblage of species indicating a probable North American origin. John located the source of these, an oil milling plant at Erith, and was able to get the manager of the company interested in it. John's account of his researches, including a list of 57 taxa, 'Oil-milling adventive plants in north-west Kent, 1973–76' (*Transactions of the Kent Field Club* 6: 85–90, 1977), is the longest of his publications. In 1978 his discovery of *Cerastium brachypetalum* in Kent, its only other known British site being on the Beds/Northants border, was probably his best record. He later found it in other sites near the first one, and he argued fairly convincingly for its native status in Kent.

It was not until 1980 that the first of John's *BSBI News* notes appeared. Most of them were very brief, but the value of several was greatly enhanced by drawings by Hilli Thompson. Those BSBI members who came to the Exhibition Meetings in 1981–84 got a much better impression of the intensity of his activity. In the last of these exhibitions, he showed specimens of 35 taxa, one of which was the native *Pyrola rotundifolia*; he claimed to have found an inland site for ssp. *maritima*, but a later study at the same site shows that the distinction between the subspecies breaks down there. Many other specimens exhibited were of *Cotoneaster* species. From about 1976 he spent much more time investigating a wider range of habitats than rubbish tips, and shrubs becoming naturalised from old plantings or bird sowings received a lot of attention. Particularly rewarding sites were the surrounds of two buildings destroyed in the Second World War, an isolation hospital deep in Darenth Wood and a mansion at Hextable. John was BSBI referee for *Cotoneaster* 1985–96, and in 1988 he produced 'A check-list for *Cotoneaster*s naturalised in the British Isles' in *BSBI News* 50: 32–33, a list of 44 names, all of plants which he had seen himself, though many, marked with an asterisk, had only shown their potential to become naturalised. An example of these was *C. nitens*, dealt with in *BSBI News* 65: 40–41 (1994), where the material supplied to Mrs Thompson was small plants dug up near Hyde Park Corner and grown on to maturity.

His last observation of a growing plant in *BSBI News* was in 1997, but he continued to send records to the *Bulletin of the Kent Field Club*, LNHS and WFS for another nine years. He had never used a computer, and at the end was finding that he could no longer remember what he had already recorded. His family donated his specimens to the Natural History Museum in 2015. John died on 6 February 2019. Surviving him are Pauline, their children Mark and Angela, and three grandchildren.

Rodney Burton

THOMAS BRUNO RYVES OBE (1930–2019)

Bruno Ryves, as he was always known, was a gentle giant who died at his home at Kingston Hill, Surrey on 10 May 2019. Although a member of the BSBI since 1990 (plus an earlier lapsed membership), he was little known as a field botanist, attending very few meetings – and then shyly. He was very reluctant to add to any tetrad scores and hence never joined the Surrey Botanical Society or its forerunner the Surrey Flora Committee. But he was a good correspondent, and much enjoyed his beer, whisky and pipe. He put so little tobacco into his pipe that he used up more matches than tobacco! He rarely used a notebook, and took no photographs.

Bruno's botany started at the very early age of 8 when he was escorted by an elderly lady botanist in search of *Arabis scabra* (Bristol Rock-cress) in Clifton Gorge. Natural history was in the family. His grandfather Alfred Ryves, a high court judge in India, had discovered a new species of spider (about the size of a pinhead!). His uncle Ryves was also a keen entomologist and a butterfly expert. A more distant relative, B.H. Ryves ('Ted'), wrote *Birdlife in Cornwall* (1948). But botany was yet to flourish in the family.

Bruno was the son of a doctor, born in Lee Green, south-east London, on 1 October 1930, together with his twin sister Marga who was delivered first (and in the previous month!). He was evacuated in May 1940 to Cheltenham and attended Cheltenham College, from where he went up to read physics at Trinity College, Oxford. Here he cycled the lanes looking for plants with Ian Prance, later to become Director of the Royal Botanic Gardens, Kew. This and other distractions, including courting his future wife, Ann, led to a disappointing class of degree. National Service followed, and he then proceeded with an external degree at London University where he achieved the top marks in the country. His scientific career in nuclear physics began at Harwell, and continued at the National Physical Laboratory at Teddington, Middlesex. Here he remained very contentedly completing his experiments until his retirement. He sought no promotions, very happy



Bruno Ryves in his garden in Galsworthy Road, Kingston Hill, Surrey, c.2005. *Maryann Irvine*

scurrying around in a white coat, but his great value and expertise were appreciated in 1990 by the award of an OBE from the Queen.

Bruno's interest in botany was likewise recognised in 1990 by his election as a Fellow of the Linnean Society of London. His interest in plants soon developed into a fascination with alien (non-native) species, especially those with minute flower parts. Garden escapes scarcely counted! Rubbish tips and wool alien fields were his delight. He was, twice, the co-leader of a BSBI tour of tips in the London area, making use of a 30-seater coach. A unique achievement! Searching for wool aliens in Bedfordshire and especially on a fruit farm at Blackmoor, N. Hampshire, was a favourite pastime. Such hunts were great fun, but tiring, walking up and down rows of crops. By evening it was time to

reflect over a drink on the finds of the day which might include *Ammi majus*, *Ammi visnaga* and *Am I sober?* By good fortune, Dr C.E. Hubbard lived near to Bruno, at Twickenham, and so Bruno could deliver, in person, fresh alien grasses for a reliable identification. The results were written up by Bruno in *Watsonia* in 1974 and 1988, together with shorter articles on other groups of plants such as *Lepidium* where he described a plant new to science, *L. fallax* Ryves, in 1977.

Bruno's interests then concentrated solely on the Poaceae, and he became a very capable agrostologist, spending much time in the herbarium at Kew. Here Tom Cope remembers having trouble naming a specimen and leaving it out on a bench for further consideration. Bruno walked past it and with barely a glance said 'OK, that's so-and-so'.

Bruno became the BSBI referee for alien grasses (and also earlier for *Amaranthus* as a stop-gap), and he welcomed grass specimens from anywhere in the world. He visited many countries in this pursuit, either with his family, his work, or with me. His career duties took him to perform experiments in Belgium, China and south-western North America. The family (or part thereof) went to the Amazon, South Africa and Pakistan. The Ryves family were far from the norm. When the car broke down high up in the Karakorum Mountains (in bandit country) out rushed Bruno happily to the nearest crags, his youngest son David descended to the River Indus to collect water samples (he later became a fine palaeoecologist at Loughborough), whilst Ann, a well-known Surrey artist, and her daughter Maryann started on sketches to turn into paintings back in England.

Between 1988 and 2001, Bruno and I explored some twelve countries including northern Argentina, central Chile, Sri Lanka, Trinidad & Tobago and south-west Turkey. Duplicates of all major finds ended up in K, with the surplus going into BM, RNG, TRIN, herb. E.J. Clement and elsewhere. A warning on our numbering systems seems necessary here: we collected independently so that a voucher

numbered Ryves & Clement 89 will not be the same gathering as Clement & Ryves 89.

When Bruno retired in 1995 he spent two days a week at Kew. The day started with a preliminary glass at the nearby public house, followed by the production at his desk of the notoriously difficult crossword in *The Listener* (which often took the full week to solve) until he later descended to the *Times* crossword. With few overseas trips, he began to offer to name for any British herbaria any undetermined Poaceae. Even the Natural History Museum took up the offer. One result of this was the 'discovery' of a grass from Angola, new to science. It was dutifully written up in 2003 in *Kew Bulletin* (58: 739–741) as *Styppeiochloa catherineana* Cope & Ryves, which is closest to *Danthonia* in the British flora. It was named after Bruno's wife (Ann Catherine Ryves) in acknowledgement of her patience in allowing Bruno to spend so much time at Kew.

Bruno was very proud of his book *Alien Grasses of the British Isles*, published by the BSBI in 1996, and co-authored by his two scribes, E.J. Clement and M.C. Foster. It gave references to all species ever found in Britain, with illustrations by G.M.S. Easy of many of them, and keys to some of the larger groups. There is still, worldwide, no equivalent book. *A Supplement*, by T.B. Ryves and E.J. Clement, was also distributed by Summerfield Books in November 2003. Such was the thoroughness of the original book that the supplement is only four pages long, and it has been much overlooked.

In 2018 Bruno suffered a stroke – this came after a serious fall down the steps into the wine-cellar at home when he suffered concussion before being found some hours later. Before this tragedy struck, Bruno had very generously given his entire grass herbarium, some 7500 specimens, and his associated books to NMW. At first offer (following delays by others) Tim Rich rushed down to collect the bounty, fully recognising its scientific value.

Bruno died in his sleep at home, aged 88 years – a scientist to the end, his body going to further medical research. He will be greatly missed by his

wife, sister, four children, ten grandchildren and many friends.

More about Bruno can be culled from *Alien Plants* by C.A. Stace & M.J. Crawley (2015), including full bibliographical references to the works mentioned above. I am indebted to the family for information presented in this obituary, with Tom Cope providing all the references to Kew. A celebration of Bruno's life was held at Pembroke Lodge in Richmond Park

on 9 June, where a family relative, Susan Metcalf (née Gritton) represented the BSBI. Bruno enjoyed 65 years of happy marriage; often pleasingly eccentric, he lived by his fine principle that the most important quality of life was kindness. He loved children and was wonderful at entertaining them.

Eric J. Clement

OBITUARY NOTES

Since we compiled the last Obituary Notes, news has reached us of the death of the following members or former members. We send our sympathy to all their families and friends. An obituary of Marjorie Blamey appears in this issue and we hope to publish obituaries of Bert Reid and Alan Showler in future issues.

Mrs Marjorie Blamey of Wadebridge, Cornwall. The many published obituaries include those in *The Guardian* (19 September), *Independent* (11 October) and *The Times* (22 October 2019).

Mr G. Bristoe of Barnsley, a member for six years.

Mr G.A. Lines of Penrith, a member for almost 26 years.

Dr Ruth Pollock of Cranforth, a member for 28 years.

Mr A.W. (Bert) Reid of Pershore, Worcestershire, a member for 38 years and formerly joint V.c. Recorder for v.c.37 and *Taraxacum* referee.

Dr Alan J. Showler of High Wycombe, a member for 38 years.

Miss R.M. Wallace of Bristol, a member for 17 years.

Mr Martin J. Wigginton of Warmington, a member at various periods between 1976 and 1998, co-author with G.G. Graham of *Guide to the identification of some of the more difficult vascular plant species* (1981) and editor of the third edition of *British Red Data Books 1 Vascular Plants* (1999).

Mr Nigel Wood of Brixham, Devon, a member for 15 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



Grassland Plants of the British and Irish Lowlands: Ecology, Threats and Management

Peter Stroh, Kevin Walker, Stuart Smith, Richard Jefferson, Clare Pinches & Tim Blackstock
BSBI, Durham, 2019
Pp. 399; 248 figures; hbk £35.00.
ISBN 978-0-901158-61-1

So profound has been the decline in vascular plant diversity, that if you visit your local grassland it is almost certain that you will find precisely none of the 109 species described in this book. Sixty years of ploughing, re-seeding, fertilising and herbiciding have reduced most of our grasslands to species-poor swards of depressingly low botanical interest. Even those grasslands conserved specifically because of their high plant diversity are in jeopardy, through a pernicious combination of under-grazing (leading to scrubbing up) and eutrophication (atmospheric inputs of nitrogen, favouring the growth of rank grasses and bulky herbs).

Experiments on the determinants of grassland biodiversity are amongst the oldest and most celebrated in

plant ecology. Most famous of all is the Park Grass Experiment at Rothamsted in Hertfordshire, which was started in 1856 and is still going strong. Park Grass illustrates with crystal clarity that it is the low-growing, charismatic herbs that are lost when grassland production is increased by the combined application of nitrogen and phosphorus fertilisers, and when soil acidity is increased by atmospheric inputs and inappropriate choice of fertilisers. We have known for well over 150 years what to do if we want to conserve species-rich grasslands: they need to be grazed or mown to prevent succession to woodland, and they need to be treated in a manner that does not lead to dominance by a few bulky grass species.

The criterion for inclusion in this book is that the authors consider a species to be of the greatest conservation concern. Most of the species are assessed as Critically Endangered, Endangered, Vulnerable or Near Threatened, but a few species of Least Concern are included when they have undergone significant declines in distribution and/or abundance. As you might expect, there are a great many orchids but rather few grasses and sedges (just three by my count: *Koeleria vallesiana*, *Carex ericetorum* and *Blasmus compressus*).

The authors have set out to describe threatened species from all of the various lowland grassland communities: wet and dry, acidic and calcareous, from coastal gazing marsh to alluvial meadows. Each species account

provides two photographs (one habitat shot and one plant portrait) along with detailed notes on identification, similar species, habitats, biogeography, ecology, threats and management. The production standards are high, with glossy paper, superb photographs and a non-fussy layout.

This would make an excellent present for someone who might want to embark on a quest to see all of these grassland plants in their natural habitats. There is enough detail on location to know exactly where to go to find them, even if it is depressing that the surviving sites are so few and far between. The authors have done a terrific job and a great service to plant conservation.

Mick Crawley
m.crawley@imperial.ac.uk



Gentians of Britain and Ireland

Tim Rich & Andy McVeigh
BSBI Handbook No. 19, BSBI, Harpenden, 2019
Pp. vi + 174, with 162 figures; pbk £17.50.
ISBN 978-0-9011585-5-0

To clear up one matter before we start, this delightful book is not only about gentians. It is also about felworts and centauries, in fact all the Gentianaceae of the British Isles. It is very timely, not only because a remarkably high proportion of our Gentianaceae are under conservation threat, but also because the taxonomy of the two major genera treated here, *Gentianella* and *Centaureum* has changed importantly over the last few years, not least with regard to several of our few endemic taxa.

In common with other BSBI Handbooks, this is essentially an accessible monograph. Unlike some of the others, it ticks all my boxes in terms of structure. Most of the book is occupied by systematic accounts, and each follows a rigid format of (heads in italic) scientific name, popular name, full description, diagnostic characters, discussion of status, *History* (of our knowledge), *Variation*, *Distribution* (with 10 km square map and vice-comital list) and changes in distribution, *Habitat*, *Reproductive Biology*, *Conservation Status*. Unexpectedly, accounts of the varieties described for *Centaureum littorale* and *C. erythraea* appear as appendices rather than in the systematic accounts.

Inset into the text for each taxon are several colour photographs of the plant, of the habitat, and one to several line drawings of the plant. Most of these are excellent, but the reproduction of several of the habitat photographs is rather small and these are not always informative. There is a succinct introduction which aims to put our species in the wider context of the family Gentianaceae, a section on important features

for identification, a note on hybridisation, keys to, and within, each of our seven genera, a glossary, and a very compendious reference list.

For those who, like me, have not been keeping up with recent taxonomic decisions, it would have been helpful if the scientific name in the systematic accounts had been followed by a synonymy. Several of these changes result from molecular studies. Plants from the Bristol Channel, previously identified with the northern European *Gentianella uliginosa*, are now considered to be an endemic subspecies, *occidentalis*, of *G. amarella*. As *Gentianella anglica* has also been reduced to a subspecies of *G. amarella*, our endemic felworts have lost their specific status. Since *Centaureum intermedium* is a true-breeding allohexaploid endemic, it is raised to specific status, while Dorset plants of *C. tenuiflorum* are given subspecific status as ssp. *anglicum* and become yet another endemic.

I have a few very minor quibbles. *Blackstonia perfoliata* is mapped but not listed for my vice-county, South Northumberland. Although its distribution over the last 20 years is quoted as stable, there has in fact been a massive increase since its first record in 1990 and it is now widespread and locally abundant here. Conversely, *Gentianella campestris* is said to be relatively frequent in the Pennines despite its catastrophic decline in the south. Unfortunately, in our sector of the Pennines over the same period it has declined from 50 sites to virtual extinction. For *Gentiana verna*, the newly discovered Ingleborough sites are

not mapped or discussed, neither is the quoted reference listed.

All in all, this is a super little book and a worthy addition to the BSBI Handbooks.

John Richards

hightreesgarden@btinternet.com



The Rare Plants of Herefordshire

Les Smith, Peter Garner & Mark Jannick

Trollius Publications, Penrith, 2019
Pp. vi +188; hbk £29.50.
ISBN 978-0-953971-89-3

On the botanical scene Herefordshire has been a Cinderella county for well over a century. Since the only reasonably comprehensive *Flora of Herefordshire* (1889) by Purchas & Ley, there has only been a checklist published in 1976 and an immensely elusive tetrad atlas compiled by the Herefordshire Botanical Society in 2001. Both of these adequately covered the flora as a whole, but neither did any justice to the rich and interesting flora of the county. Rather than embark on a full *Flora*, this current publication concentrates on the rarer and more interesting species.

The book covers 280 species, listed in alphabetical order,

including not only those that fall within the normal BSBI criteria (Nationally rare and scarce, Herefordshire rare and scarce) but a few denizens too. Each account gives any post-1987 records, together with a full history of occurrences, back to around 1666. Thus *Campanula patula* (Spreading Bellflower), perhaps one of Herefordshire's greater glories, is represented by a short account, dozens of records arranged in tetrad order, a note that it is a native plant with records from 1666 to 2017, and in this case a map of the records. Grid references are given, usually to 6-figure, but occasionally only to tetrad level. The A4 layout allows for generous presentation and a superb set of photographs, in sections throughout the book, with never more than four to a page. These illustrate around 90 of the species covered in the book. Almost all of these are taken within the county; the few exceptions being most likely extinct.

After the main text come sections on critical groups, covering *Euphrasia*, *Hieracium*, *Rosa*, *Rubus*, *Sorbus* and *Taraxacum*, each written by experts on those genera: probably a sensible treatment which authors of other Rare Plant Registers might copy. And lastly is a chapter on Herefordshire's most special plant, the Ghost Orchid *Epipogium aphyllum*, rediscovered for Britain by one of the authors in 2009.

All in all, this book admirably fulfils its purpose. It has an adequate map of the county, the criteria are clearly set out, and it is sturdily bound and a pleasure to browse through. If I had any adverse comment it would be that 1987, the opening date of

the 'recent' records, is a long time ago. I suppose that in a largish county, with only a few BSBI members (18 in total), that might be inevitable.

David Pearman
dpearman4@gmail.com



Field Guide to the Orchids of Europe and the Mediterranean

Rolf Kühn, Henrik Æ. Pedersen & Phillip Cribb

Kew Publishing, Royal Botanic Gardens, Kew, 2019
Pp. x + 430, with c.1,850 colour photographs; pbk £30.00.
ISBN 978-1-84246-669-8

Orchid enthusiasts who have exhausted the modest number of native taxa in Britain and Ireland have long headed across the Channel, to southern Europe especially, in search of a flora that is considerably more diverse but offers similarities in terms of being exclusively terrestrial and mostly assignable to familiar genera. To facilitate these exploits there has been a succession of European field guides differing in quality, inclusiveness and geographical extent. Authors of each new book have had to face a number of challenges. One is seemingly

to provide an even more lavish collection of illustrations of their highly photogenic subjects. Another is to be up-to-date with the huge amount of scientific information being published on orchid biology and systematics, biased these days towards characterisation of genotypes rather than morphometrics and ecology. A final challenge, which I'll return to later, is to decide which of several competing taxonomic treatments to follow in order to provide as meaningful and useful a guide as possible.

This highly impressive new guide represents a labour of love by three specialists who have collectively devoted over 120 years to studying the biology, taxonomy and conservation of wild orchids. It follows a conventional structure, starting with an introduction to anatomical terms (aided by labelled photos of major genera), pollination biology, ecology, habitats and conservation. There is then a chapter entitled 'Taxonomic concepts' detailing some of the issues with defining a genus and a species. Given that the book also makes substantial use of infraspecific ranks, the section covering subspecies, varieties and forms is disappointingly short of definitions and therefore uninformative. The remainder of the book is an account of genera, species and lower taxa arranged in conventional taxonomic order. In contrast to Pierre Delforge's *Orchids of Europe, North Africa and the Middle East* (2006 edition, now sadly out of print), there are no keys to identification but the account for each taxon includes synonyms and notes on distribution, habitat, flowering time and distinguishing features.

The line-drawn maps have distributions showing up clearly in green, and arrows to assist when the geographical range is tiny. The bulk of the space is taken up by photographs of whole plants and individual flowers demonstrating key aspects of morphology and variation that are truly superlative in the terms of quantity and quality, including quality of reproduction.

In their 'Taxonomic Concepts' chapter the authors state: 'The greatest contention among specialists working on European orchids is how to circumscribe the species' and then go on to discuss the 'splitting and lumping' schools of thought. The clearest evidence of such contention relates to the entomomorphic genus *Ophrys*. This book has 22 species described at species level. Delforge's treatise contains around 255 species, admittedly arranged into species groups corresponding somewhat to the species recognised by Kühn et al. Much of the variation encompassed by Delforge's species is presumably subsumed into infraspecific taxa in the volume under review, which, for example, lists 24 subspecies of Early Spider-orchid *Ophrys sphegodes* and 18 subspecies of Late Spider-orchid *Ophrys fuciflora*. It would be good to reach a consensus species concept for this genus!

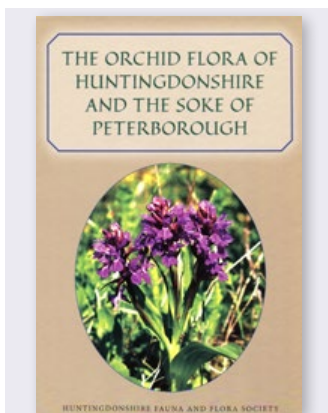
I have a particular fondness for *Dactylorhiza*, and here Kühn et al. do the British and Irish taxa a disservice in two respects. One is perpetuating the bizarre continental approach of treating our Common Spotted-orchid, *D. fuchsii* as a subspecies of *D. maculata*, which contains our Heath Spotted-orchid. These taxa

differ substantially in appearance, ecology, ploidy and I don't think they hybridise that readily. Clearly they shouldn't be conspecific!

Our four tetraploid species – *purpurella*, *praetermissa*, *kerryensis* and *traunsteinerioides* – are all sunk as subspecies into *D. majalis* whereas it is known from genetic evidence that they evolved independently as allopolyploids from parents not included in *D. majalis*.

I'm sure that reviewers in many countries could find issues incongruent with their views from a more local perspective, but this shouldn't detract from the overall value of such a comprehensive and well laid out volume. It is bound as a softback. My review copy has not yet been subjected to trench warfare in the field but it has been well-thumbed and feels robust. With 430 pages and a cover size of 23 × 15cm it is reasonably portable, and given the outstanding quality of printing I consider it to be reasonably priced. Highly recommended!

Ian Denholm
i.denholm@herts.ac.uk



**The Orchid Flora of
Huntingdonshire and the
Soke of Peterborough**

Peter Walker, Barry Dickerson & Roger Orbell

Huntingdonshire Fauna and Flora Society, 2019
Pp. v + 13; hbk; £20 (plus £3 p&p) from Barry Dickerson, 27 Andrew Road, Eynesbury, St Neots, Cambridgeshire PE19 2QE
ISBN 978-0-9514427-7-7

British and Irish botanists have through the years benefited from a series of excellent floras devoted to our native orchids, my own embryonic orchid enthusiasms having been guided primarily by Victor Summerhayes' excellent *Wild Orchids of Britain* (and Ireland). More recently, Scotland, Ireland and Wales gained their own orchid floras. The latest publishing trend reflects even greater geographical constraint, as the Chilterns, Suffolk, Dorset, Hampshire, Sussex, Bedfordshire, Kent and now Huntingdonshire gain their own customised orchid floras. Published by the Huntingdonshire Fauna and Flora Society to mark their 70th birthday, this latest addition to the pantheon is very much a team effort, the acknowledgements exceeding a page in length.

The area covered echoes that of Terry Wells' 2003 flora. Huntingdonshire (v.c.31) forms an irregular medallion that hangs from the Soke of Peterborough – a west–east bar of land composed of fragments 'stolen' from v.c.32 and v.c.29. Although small, the Soke plays an important role in this book because a modest patch of limestone centred on Barnack Hills and Holes – the orchidological jewel of the region – allows the westernmost third of the Soke to inject several additional orchid species into the flora. Of the 30 species discussed,

at least nine have been extirpated from the area; unsurprisingly, most of the losses are those that most resent habitat disturbance. The second half of the book describes in detail each of the surviving species, supported by updated tetrad maps and several illustrations, much of the information inevitably reiterating innumerable earlier publications.

Much of the first half of the book is also recycled, in this case from earlier Annual Reports of the Society, but for me it was of greater interest. Knowledgeable authors have produced short chapters that vary greatly in topic (and age). Several contributions justly pay homage to the late lamented orchid demographics guru Terry Wells, while I found particular resonance in the chapter damning Muntjac deer for their especially destructive approach to orchidophilia. Careful reading of the overall text gleans much about specific orchid sites within the region.

Admittedly, this book is not without fault. At least three of the images depicting dactylorhichs are misidentified, most notably that of the herbarium specimen on page 6 – actually *Dactylorhiza praetermissa* – that forms the basis of the area’s misconceived claim to have supported the rarer *D. traunsteinerioides*. The extensive glossary is welcome but some of its definitions are somewhat eccentric. And although this an A4 book printed on quality paper, the page and cover designs hark back to the 1950s, and softback publication would surely have permitted an even more affordable price. This potpourri of a book will nonetheless appeal to many

of the multitude of orchid enthusiasts.

A more pertinent general question is whether we can now expect to see published numerous vice-county-based accounts of less charismatic groups such as grasses, sedges and brambles? I’m not holding my breath.

Richard Bateman
r.bateman@kew.org



Vickery's Folk Flora: An A-Z of the Folklore and Uses of British and Irish Plants
Roy Vickery
Weidenfeld & Nicolson, London, 2019
Pp. xxiv + 888, with 16pp. of colour images and numerous line-drawings in the text; hbk £30.00.
ISBN 978-14746-0462-8

Vickery's *Folk Flora* is an illustrated edition of his *A Dictionary of Plant Lore* (Oxford University Press, 1995), reviewed by D.E. Allen in *Watsonia* 22: 124–125 (1998), although the link with this earlier *Dictionary* is not made in the imprint details: specifically, *Vickery's Folk Flora* is not designated as a 'second edition'. No doubt, the new publisher

had good reasons for avoiding such a designation. Vickery himself describes the *Dictionary* as the precursor of his *Folk Flora* although this is concealed on p. xx of the introductory chapter titled 'The collection of folk-lore in Britain and Ireland'. For this reviewer, this very 'economical' signalling of the close connections between the two books seems rather cynical.

How do they differ, if they differ? Some differences are clear from Vickery's 'Notes for readers'. You won't find any non-vascular plants in his *Folk Flora*: no entries about seaweeds or dulse, nothing about *Sphagnum* or stinkhorns. However, innumerable entries do not differ from those in the *Dictionary*, apart perhaps, from the new prominence accorded to vernacular names in English – plant names in the other native languages of Britain and Ireland are usually excluded. Numerous entries have been embellished with engravings by Walter Hood Fitch and Worthington George Smith from George Bentham's *Handbook of the British Flora*, and a selection of colour photographs by Roy Vickery has also been inserted – most of these are of plants but a few are of events or customs involving plants: a game of conkers, a gooseberry show, a Welsh rugby fan bedecked with artificial daffodils! There is certainly new material, collected since the mid-1990s, in *Vickery's Folk Flora* but, given the thoroughness of the original *Dictionary*, the additions are not necessarily obvious.

While non-vascular plants are excluded, Vickery has captured lore about many plants that are not native to either Great

Britain or Ireland but are either now naturalised in the wild, or are cultivated in gardens, or are sold in shops and markets: that 'cyclists and marathon runners put bananas in their pants to stop them getting sore bums', according to 'Streatham, London, September 2006', was previously recorded by Roy Vickery in his book *Garlands, Conkers and Mother-die: British and Irish Plant-lore* (Continuum, 2010)! Some plants like the Horse-chestnut are now so entrenched in the islands' landscapes and gardens that most people do not wonder how the game of conkers originated. Like lucky white Heather, conkers appeared first in the Victorian era. So did the Monkey-puzzle, although Vickery has nothing about the origin of its extraordinary English moniker and does not attempt to explain why Fenland folk believe it is an unlucky tree.

Like its precursor, Geoffrey Grigson's *An Englishman's Flora*, endless hours can be whiled away dipping into Vickery's *Folk Flora*. It would make a grand present for any plant enthusiast, and will provide endless material for pub quiz-masters. At more than 900 pages, this hefty encyclopaedic volume is a work of the highest calibre with endnotes providing Vickery's sources, a thorough bibliography, an index to plant names and a brief geographical index. The printing is spacious and the print-size large, making for comfortable reading.

E. Charles Nelson
 tippitiwitchet@phonecoop.coop



Morphology and Identification of the World's Conifer Genera

Dörken, V. M. & Nimsch, H.

Kessel Publishing House, Remgen-Oberwinter, Germany, 2019
 Pp. 186, with 151 figures; pbk €29.00.
 ISBN 978-3-945941-53-9

In British and Irish botany, conifers, it could be argued, are the poor relations. They are often ignored or overlooked in botanical surveys, yet, despite us having only three native species, there are 500–600 extant species worldwide, over one hundred of which have been recorded 'in the wild' in the British Isles, with many more in parks and gardens. Perhaps this apparent reluctance to record conifers is just a case of not knowing where to start in their identification. This is where *Morphology and Identification of the World's Conifer Genera* may be of some help.

On first impression, the book is colourful and well laid out. Delving deeper does not detract from this initial view. It has a glossy soft cover, is slightly less than A4 in size, but moderately slim and with a comprehensive index. Following the acknowledgements and table of contents, there is a lavishly illustrated introduction

to extant gymnosperms, which of course includes the conifers, along with less familiar groups such as the cycads, as well as the better known, monotypic *Ginkgo*.

The second part is a relatively brief but informative and accessible description of conifer systematics. Here we learn about the extensive changes and new combinations of recent years, with splitting and merging at all taxonomic levels. One notable change is the inclusion of Taxodiaceae in Cupressaceae, the former including familiar conifers such as the redwoods (*Sequoia*, *Sequoiadendron* and *Metasequoia*), now all considered cypresses. Within the Cupressaceae, the relatively new genus *Xanthocyparis*, which emerged from *Chamaecyparis* and included the familiar Nootka Cypress (*C. nootkatensis*), has now become *Cupressus*. This has resulted in the demotion of one of our most loathed and loved conifers, the Leyland Cypress, to a mere interspecific hybrid (*Cupressus* × *leylandii*) rather than the intergeneric hybrid (× *Cupressocyparis leylandii*) that we have become more accustomed to. The changes are summarised under the six families, where the genera are listed. These lists differ from Sell & Murrell (2018) but fully concur with the more recent 4th edition of Stace (2019).

Immediately following is a set of three main keys. The first separates the three major groups of gymnosperms, Ginkgo, Cycads and Conifers, then splits off the closely-related Gnetales. The second of the keys splits the conifers into their component families. The third and final

key is divided into six separate sub-keys, one for each family, which ultimately work through to genera. The keys are well laid out and as far as I can ascertain accurate but, unfortunately for the field botanist, the second key relies upon seed and pollen cones as diagnostic features, as does the third key to a large extent, though here leaf morphology and arrangement come more in to play. The latter is much more useful in the field as seeds and cones are not always present and, even when they are, they are frequently well out of reach.

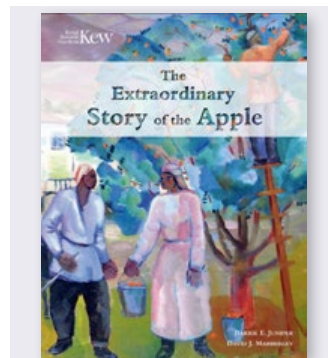
Nevertheless, despite the limitations with the keys, by far the most useful and interesting part of this volume is the main section, which accounts for more than two thirds of the book. Here, each of the genera is described in detail, one per page, along with detailed line drawings beneath the text. On the facing page there are six colour photographs showing key features such as leaf (needle or scale) arrangement, seed and pollen cones, seeds, and individual leaves. The generic descriptions and respective photographs are laid out in the same format so that like can easily be compared with like. Particularly helpful, within the descriptions of diagnostic features, are notes in parentheses to point to where there are notable differences in similar genera. For example, under *Abies*, there is a note telling us that its leafless shoots are smooth, whereas in *Picea* the fallen leaves leave 'pegs' on the shoots.

Technical terms used in the keys and genera descriptions are kept to a minimum but a glossary would have been helpful, especially for the non-specialist

as some of the terms, whilst orthodox botanical terms, are seldom used for taxa beyond the conifers.

Overall, the minor shortcomings regarding the keys and lack of glossary are greatly outweighed by the informative, well-formatted and illustrated descriptions. I found this book to be immensely useful in teasing out the differences between the conifer families and genera, the best first step to correct identification in my view, and would highly recommend it to any botanist who wishes to get to know more about this interesting and diverse group of plants.

Cameron S. Crook
cameron.crook@btopenworld.com



The Extraordinary Story of the Apple

Barrie E. Juniper & David J. Mabberley

Kew Publishing, Royal Botanic Gardens, Kew, 2019
 Pp. i-xvii + 278, c.100 illustrations, 10 maps; hbk £40.00.
 ISBN 978-1-84246-655-1; e-ISBN 978-1-84246-698-8

This lavishly produced volume could be described as containing everything one would want to know about apples. It is a new edition of *The Story of the Apple* by the same authors,

published in 2006, with very many more illustrations, relevant updates and expansions of various sections and (important in such a diversely informative book) a greatly improved index.

The book starts with the history of the apple and its relatives through geological time, their geographical dispersal through Asia and Europe, and the history of apple domestication. Recent DNA evidence on the evolution of the domesticated apple and its cultivars, work on which is still ongoing, is described in detail and has been considerably updated. There are numerous digressions on such topics as pollination, dispersal of the seeds by bears, horses and camels, seasonality of cropping and the vernacular naming of apples. Cultivation techniques, especially grafting, are described in detail. The movement of eating apples from China westwards via the ancient Silk Roads, and their introduction to the British Isles around the time of the Roman invasion, and the subsequent immense popularity of the fruit here with all its nutritional, folkloric and iconic popularity, are described in great detail. Even some three dozen famous paintings including apples are listed, and the story of Newton's apple is carefully examined. Apples in the Bible and other literature, from Sappho and Petronius Arbiter to Shakespeare and William Tell show how deeply they are embedded in our culture. The health benefits are convincingly detailed, and it is good to know that, when made into 'cyder or hard cider', these benefits are largely retained. Cider-making, apple preservation and ornamental apples are all well covered.

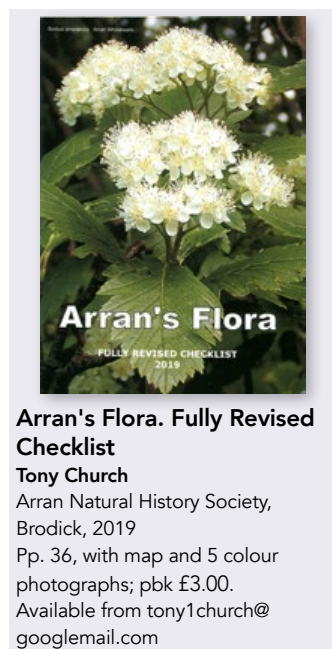
It now seems certain that the extremely variable wild apple of Central Asia, *Malus sieversii*, was the chief precursor and origin of *M. domestica*, which centred on the Tian Shan mountains, now a veritable paradise of edible fruits. Now we have some 2,500 cultivars in the British Isles (the national collection at Brogdale has some 2,100), and there are many local groups working to conserve this extraordinary range of variation. There may be some 20,000 named cultivars in the world.

In the 2006 edition, the domestic apple was called *Malus pumila*, but the more familiar though later name *M. domestica* has since been nomenclaturally conserved and is now used, to the relief of most of us. The relationship between the wild crab apple, *M. sylvestris*, and *M. domestica* remains obscure. The authors in both editions mention 'the extreme rarity of *M. sylvestris* in lowland Britain', say that the pubescence of the sepals is the only good character for separating them, and while hybrids between the two have not been proven in Britain (they have on the Continent) they cite recent work showing that in northern Britain 'wild *M. sylvestris* seems to be contaminated with genes from introduced *M. domestica*'. While it seems clear the *M. sylvestris* did not contribute to the evolution of the domestic apple, exactly what is going on at present between them remains obscure. The varied treatments in recent county Floras in Britain certainly reflect this confusion.

This book should have a very wide appeal to botanists, horticulturists and historians of all sorts, to those interested in folklore, art, anthropology

and linguistics, and to anyone interested in the relationship between us and plants. It is fluently written, well referenced and attractively presented, and is strongly recommended even to those who have the earlier edition.

Arthur Chater
aochater4@gmail.com



Arran's Flora. Fully Revised Checklist

Tony Church
Arran Natural History Society,
Brodick, 2019
Pp. 36, with map and 5 colour
photographs; pbk £3.00.
Available from tony1church@
googlemail.com

Arran is best known to botanists from elsewhere for its three endemic *Sorbus* species which, unlike so many in this difficult genus, are actually quite easily recognisable. One of them, the eponymous *S. arranensis*, is beautifully illustrated on the front of the cover, which also carries photographs of a few other Arran plants and a map showing the demarcation of the ten hectads covering the island.

Under the title 'Arran's green mantle', the author starts by giving us a short but very readable

and informative account of the vegetation. This uses only English names, but these can be translated if necessary by finding their page references from the index. But the main part of the booklet is a list of the species recorded in the island since 1970, arranged alphabetically under the Latin name, followed by the English name and a complete listing of the hectads in which each has been found. The non-native species are helpfully asterisked, which shows us clearly that such species as *Acer campestre*, *Carex pendula*, *Hordeum secalinum* and *Primula veris* are aliens in Arran. At the end is a depressing three pages that catalogues the species that were recorded before 1970, but not since. The latest year of record would have been a useful addition. Depressing, because they include many natives, such as *Coeloglossum*, *Hammarbya*, *Tofieldia* and *Trollius*, that one might expect to find in a rich Scottish locality. One fears that depression might be deeper if one knew the additional hectads from which species in the main list have been recorded only before 1970.

This smart little booklet is described as a fully revised version of the first Arran list, produced in 1985. Although it does not state it, Arran and adjacent islets comprise only part of vice-county 100, Clyde Islands. The production of such lists performs a valuable service by providing an up to date list of the plants in a well-defined area where a full 'county flora' is either not possible or would be uneconomic. *Arran's Flora* is a most welcome contribution.

Clive Stace
cstace@btinternet.com

LETTERS

BRIDGE THE GAP

In a recent *BSBI News* Carol Wilson drew attention to the increased prevalence of ‘plant blindness’ amongst the population of our islands, and urged that when the recording for Atlas 2020 was completed we should devote more time to introducing people to wild plants: ‘We should become more proactive... to ensure that the next generation engages with the natural (especially the floral) world’.

She suggested that we need to get people to learn how to identify plants, and while I agree that this is desirable, is the identification of species really going to fire the imagination of what is known as the ‘general public’? Are people fired with enthusiasm by having the parts of a flower explained to them and then counting stamens? Do they really want to know about phyllaries and tepals? Inevitably there are some who want to learn how to identify, but others attend events for different motives. It might simply be that although they enjoy being outside they’re afraid to wander around alone, they want to be part of a group. Often families are present, how can we speak to a wide range of age groups?

I suggest that a way forward is to use traditional knowledge – the folklore – of plants to do this. Such an approach has several advantages: it stimulates inter-reaction between participants; ‘when I was young we used to...’, it can attract all ages, and it does not need sites of great biodiversity. The plants which attract the most folklore and have most uses are those which are most common and widespread, and, assuming there are not too many cyclists or pedestrians, events can be held anywhere. An example of how common plants can be celebrated is the Nettle Days which were held in the Natural History Museum’s Wildlife Garden between 2006 and 2014. These celebrations of a common and often unconsidered plant, *Urtica dioica* (Common Nettle), were tremendously appreciated. While people are unlikely to see rarities such as Corn Buttercup (*Ranunculus arvensis*) every day, the

chances are that they will see, or feel, a nettle within a week, and thus be reminded of what they learnt. They will appreciate the ‘ordinary’. At a time when climate change is rising on the political agenda, and when cheap air travel could be declining, we need to rediscover the local and realise that it’s unnecessary to travel far to find extraordinary plants.

Three near ubiquitous plants which might be introduced to people are Cow Parsley (*Anthriscus sylvestris*), Elder (*Sambucus nigra*) and Groundsel (*Senecio vulgaris*). Cow Parsley was considered to be ‘unlucky’; picking it would lead to the death of one’s mother. According to a Wakefield woman born in 1927: ‘I always knew Cow Parsley as Mother-die – we children told each other one’s mother would die if one picked it’. A Manchester area name for the plant was Stepmother’s Blessing – if taken indoors the picker’s mother would die, and a stepmother could step in to replace her. Other ‘negative’ names include ‘Adder’s Meat’ in Cornwall, ‘Deadman’s Flower’ in Dublin and ‘Dead-man’s Oatmeal’ in Northumberland. Despite this, children often gathered the hollow stems to use as pea-shooters, in Middlesex using Hawthorn (*Crataegus monogyna*) fruit in place of peas.

Elder was praised by herbalists in the 1940s, when wartime conditions encouraged the re-examination of Britain’s herbal traditions. According to one elder had ‘the unusual distinction of being useful in every part’. Another quoted a gypsy friend: ‘the healingest tree that on earth do grow be the elder’. It is possible that the value of the tree led to taboos which deterred people from damaging it. In some areas it was associated with fairies, and in others witches, both of whom would be annoyed if a tree was harmed. Apart from its value in folk medicine elder was valued as a fly deterrent, the leaves were used as a tobacco substitute, the hollowed stems were made into pop-guns, whistles and pea-shooters, and the berries were used as bait to tempt coarse fish.

Groundsel can easily be found on most patches of waste ground. In Leicestershire it was said to

grow where witches had urinated. It was collected for feeding to cage-birds; in the 1840s some 1,000 people made a living by hawking it on London's streets. It was used as a poultice to treat cuts, its boiled flowers were used to treat sore eyes, and in Cornwall used to cure fevers: 'put a handful of groundsel into a small linen bag, pricking the side next to the skin full of holes, and wear it at pit of stomach and renew every two hours until well'. But its most widespread medicinal use was to treat constipation; in the words of an elderly Dorset man in 1993, if you boiled groundsel in lard and took it you would 'shit through the eye of the needle'.

Until recently it was difficult to obtain reliable information on plant folklore; often writers on the subject treated it as being rather frivolous, 'let's have a giggle about our ancestors' quaint beliefs', though often the most bizarre of these beliefs were those of the educated elite, not the more pragmatic and practical 'folk'. Now we have a growing number of sources which are both informative and entertaining (see the list below and the website www.plant-lore.com). Anyone planning an event to introduce

the public to wild plants is urged to consult these works and use them to stimulate audiences. Such material might not stimulate people to develop into competent identifiers or enthusiastic recorders, but if more people could be encouraged to identify, say, 25 common species, they would be healthily reconnected with the natural world.

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Roy Vickery

9 Terrapin Court, Terrapin Road, London, SW17 8QW
roy@plant-lore.com



The writer demonstrating 'Granny jump out of bed' with flower of Large Bindweed (*Calystegia silvatica*), Wimbledon Common, London, August 2017. *Auriel Glanville*

DORSET WILD FLOWER WEEK

The article under this title by Carol Wilson in *BSBI News* 142 was illustrated with a photograph of Jim White 'introducing members of the public to wild flowers in a Dorset reserve, as part of a series of wild flower walks.' Readers might like to know that this 'series' was Dorset Wild Flower Week, an event organised by Dorset Flora Group, which has taken place nine times during the spring bank holiday week (summer half term) nine days.

About 16 walks have been arranged throughout the county during each of these Weeks. Members of the Flora Group and other naturalists have led two-hour walks, planned for beginners. Many, but not all of the walks, have been on nature reserves.

The Weeks have been publicised by leaflets or posters displayed in country park visitor centres, wildlife trust visitor centres, National Trust visitor centres, tourist information offices, libraries, heritage centres, caravan site offices, larger hotels, as well as on our website and latterly our Facebook page.

There have been many appreciative comments. We would like to commend the idea to other county botanical groups.

Edward Pratt

7 Bay Close, Swanage, BH19 1RE

edwardpratt39@gmail.com

ERADICATION OF IMPATIENS GLANDULIFERA?

Mike Atkinson (*BSBI News* 142, September 2019) declared an affection for *Impatiens glandulifera* (Himalayan Balsam) and thought it would be sad if this 'beautiful and interesting' plant was ever to be completely eradicated. He would not be alone – beekeepers love it because it is a rich source of nectar and pollen and has a long flowering period. However, bees can become fixated on it. A study at Lancaster University revealed that in a small proportion of the hives they studied more than 90% of the pollen came from *I. impatiens*. This may not be desirable for two reasons: (1) the nurse bees in

the hive blend different pollens to achieve the best nutritional mix for the larvae and this is not possible if all the pollen comes from one source; and (2) native plants are neglected by the bees and may not be adequately pollinated. Some websites that consider means of eradicating *I. glandulifera* also suggest types of plants that might be introduced to replace it as a source of nectar and pollen.

The rust fungus being studied by CABI seemed to offer the best chance of total eradication of *I. impatiens*. It was shown to be highly specific and approved for release in 2014. Since then field trials have revealed its effectiveness is affected by environmental conditions and that some plants are immune to the strain of rust fungus being used. Some, but different plants were also immune to a second isolate of the rust fungus, indicating a complex, and probably dynamic interaction between virulence in the rust fungus and resistance genes in the *I. impatiens*.

I think Mike Atkinson has nothing to worry about. *B. impatiens* is now very widely distributed in the British Isles and eradication will be nigh impossible. We found it required a sustained effort to eradicate it from a relatively short length of riverbank (Trudgill, 2019). Based on that experience, I would quail at the thought of trying to eradicate it from a large river system. The effort required would be massive and need to be ongoing over several years. It would need to start at the top of the main river and all its tributaries, and to take in ditches, hedges and gardens. It would need a dedicated and well-resourced team, to be based on accurate and comprehensive surveys and to be very well organised and planned. The aim needs to be to get every plant before it starts to shed its seed – more difficult than it sounds as flowering plants continue to appear over a period of about 3 months. And, believe it or not, even the most experienced will miss a small proportion of plants. Half measures will not do, as it produces so much seed, and the seed spreads so readily that it would keep 'popping up' again in areas thought to have been cleared.

Whilst writing this I wonder why some, a minority, use 'Indian' as part of the common name

when ‘Himalayan’ is more used and appropriate as, I understand, it is ‘native to the foothills of the Himalayas in India and Pakistan’. It is a source of honey in Nepal. Consequently, I am sticking with Himalayan, even if it is more difficult to spell.

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Dave Trudgill

The Steading, Newmill, Blairgowrie, PH10 6SG
davetrudgill@googlemail.com

Indian Balsam was used in older floras, but I notice that it has been changed to Himalayan Balsam in ‘Stace 4’ in line with current use. Editor

THE GOOD, THE BAD AND THE UGLY – ANOTHER PERSONAL VIEW ON *IMPATIENS GLANDULIFERA*

Mike Atkinson’s letter in *BSBI News* 142 (Atkinson, 2019) strongly reminded me of a quite similar experience in my early youth. In 1973, when I was 13 years old, I discovered botany as life-long passion and started strolling around equipped with a set of small illustrated field guides showing the most frequent and some rare wildflowers. In May of the following year I succeeded in discovering *Dactylorhiza majalis* (Western Marsh-orchid) on a wet meadow not far from my home. The beautiful shining purple colour together with an aura of rarity and some mystery generally attributed to orchids left a lasting impression associated with such kinds of flowers. In August of the same year I found a plant with quite similarly looking attractive bilateral deep purple flowers which I spontaneously considered as an orchid, too. The clearly dicotyledonous appearance and somewhat ‘ordinary’ riverbank habitat, however, rose serious doubts about its identity, but there was no way to identify it with my illustrated beginner’s pocket guides. It was not until a few years later that I learned, that my ‘pseudo-orchid’ was not a ‘good’ plant like *Dactylorhiza*, but rather belonged to ‘The

Bad’: *Impatiens glandulifera* (Himalayan Balsam), which was suspected to displace the native vegetation on riverbanks within the near future.

Indeed, the species has spread considerably since, and its large stretches along ditches, brooks and moist forest margins add a late summer burst of colours to the landscape here in the foothill of the Alps. The flower colours range from almost white to deep purple and obviously follow some kind of Mendelian inheritance pattern. I do not feel able to assess if this aesthetic aspect is associated with an impairment of the accompanying native vegetation. Here a systematic investigation would be needed, like that performed by John Presland 10 years ago in England (Presland, 2011). In an excellent scientific study encompassing the riverside of the River Avon in Wiltshire the author demonstrated that even considerable ‘infestation’ by *Impatiens glandulifera* did not cause any statistically significant negative impact on native species.

For this reason, I fully agree with the statement of Pearman et al. (2019) that ‘aliens can make a bad situation worse’ but are ‘only a really small part of the equation’. According to their findings, abandoned formerly extensively used semi-natural habitats in Cornwall and Dorset suffer much more from the expansion of native ‘thugs’ than from ‘bad’ neophytes. In order to complete the allusion to the famous spaghetti western by Sergio Leone, I would like to apply here the term ‘The Ugly’ for this kind of potentially invasive native species. Just like the ambiguous character enacted by Eli Wallach whose

Different colour forms of *Impatiens glandulifera* in a mixed stand near Memmingen (Southern Bavaria, Germany). Bernd Sonnberger



moral behaviour strongly depends on the actual situation, they play quite different roles in nature. For example, species like *Bromopsis erecta* (Upright Brome) and *Brachypodium rupestre* (Tor-grass) are characteristic members of ecologically valuable well-managed grasslands but may displace other characteristic but more specialised and therefore rare species if management ceases (see first photo in Pearman et al., 2019).

The orchid meadow which at the moment of my discovery in 1974 had obviously not been managed for very long, progressively degraded over time. The orchids disappeared in the early 1980s, after suppression by ‘The Ugly’ – *Filipendula ulmaria* (Meadowsweet) and other common wetland species. Ironically, when I visited the site again after three decades, I found the former locations of *Dactylorhiza majalis* occupied by – *Impatiens glandulifera*, which apparently had colonised the then already almost completely degenerated meadow a few years before. I am convinced, that a set of appropriate measures like regular mowing, scrub and litter removing and

so on could be able to restore the former ecological value of the meadow, and even make it suitable for orchids again. In contrast, merely fighting ‘The Bad’ by pulling them out or killing with herbicides as described by Trudgill (2019) would not have any benefit for ‘The Good’ but would instead stimulate another spread of ‘The Ugly’.

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Dr Bernd Sonnberger

Am Wallersteig 13, D-87700 Memmingen,
Germany

familie.sonnberger@t-online.de


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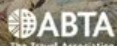
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