

# BSBI News

September 2011

No. 118



**Edited by Trevor James & Gwynn Ellis**



*Mibora minima* habitat Southport (v.c.59)



*Mibora minima* with *Coincya monensis* ssp. *monensis* Southport (v.c.59)  
Both photos P.H. Smith © 2011 (see p. 28)

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Cover picture – *Mibora minima* at Southport (v.c.59). Photo P.H. Smith © 2011 (see p. 28)

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## IMPORTANT NOTICE

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### From The President

IAN BONNER, *Cae Trefor, Tynyngogl, Anglesey, LL74 8SD*  
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With some relief and much pleasure the Society is pleased to announce the appointment of Antony Timmins as Honorary Treasurer. Antony, a member of BSBI since 2002, lives in Brentwood and works as a chartered accountant for Price Waterhouse Coopers in London. We also record our thanks to Terry Swainbank, the retiring Hon. Treasurer, for the considerable improvements he instituted in our financial systems during his term of office and for continuing to manage our affairs so meticulously until the ongoing handover to Antony is complete.

Kevin, the Plant Unit Team and all of you who contribute data are to be congratulated – we are providing such essential plant data that the Country Agencies are grant aiding our work at an enhanced level for the current financial year.

This is allowing the Society to undertake modest; but much needed changes to our staff complement.

The first of these is to convert the P/T post occupied by Tom Humphrey into the full time post of Database Officer. Tom has developed the Big Database, and after six months trialing we have decided this offers everything the Society is looking for. So this will enable further development and data loading to proceed to make this our main database – the Distribution Database or DDB.

The second is to employ a P/T Administrative Officer to support the whole Society; but especially to help the Hon. Treasurer and PU Team in the ever more complex administration of our contract and grant-aided work. Clive Lovatt, a member since 1977, is being appointed to this post.

In the current economic climate the Agencies are no longer able to guarantee funding beyond the current financial year; but if we can deliver what we have been contracted to provide, we anticipate similar funding in 2012 and beyond.

However Council feel these steps are so important to the Society that should there be any shortfall in the immediate future we should cover this using some of the capital in our invested funds.

Finally on the staffing front you will have read previously of the approval to recruit an officer for Wales, with a remit similar to that performed so successfully by Jim McIntosh in Scotland. We are delighted that Dr Polly Spencer-Vellacott joined us as Wales Officer at the beginning of July. Polly has already spoken at the Wales AGM at Dale in Pembrokeshire and is well into a programme of meeting and helping vice-county recorders and other members. Polly is based at the CCW Office in Mold in Flintshire and her contact details are on the last page.

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## DIARY

N.B. These dates may be supplementary to those in the 2011 Calendar in *BSBI Yearbook 2011*

5 Oct	Records Committee, London.	16 Nov	Council, London.
12 Oct	Publications Committee, London.	26 Nov	Annual Exhibition Meeting,
15 Oct	Welsh Committee, Aberystwyth.		Natural History Museum, London.
26 Oct	Executive Committee, London.		
5 Nov	Scottish AGM and Exhibition, Edinburgh.		

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## EDITORIAL

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### Hail & Farewell

As you will read in the note from the President (p. 2) and Notes from the Officers (pp. 59-60) we welcome a number of new officers and say goodbye to one. May we add our thanks to the President's, for all the work Terry Swainbank did for the Society during his all too short stint as Treasurer.

### BSBI News and BSBI Yearbook

If anyone has any comments on how the content of these two publications has changed in the last year we would be very pleased to have them, especially if in time for the next meeting of Publications Committee on Oct. 12.

### Note from the Receiving Editor

It has been pointed out to me that we made an error in the last issue of *News* (117: 45-6), where the finding of *Taraxacum subericinum* in Britain was relegated to the 'Aliens' section. I understand it is one of those relatively less frequent native species of *Taraxacum* in the U.K., and should therefore have been in the 'Notes' section, along with all the other articles. My apologies to Tim Rich and John Richards for this misplacement.

### Changes to membership list

Since the latest Membership list was printed in April there have inevitably been a number of changes with new members joining, others resigning or moving house or, regrettably, dying (details of the latter may be found under Obituary Notes on page 50). Of the others, there are obviously far too many to list but a few of my (RGE) errors are given here.

Bob Crabtree (101132) has reported that his email address is rcrabtree@fastmail.co.uk

Alan Duff (103038) has reported that his house number should be 46/7 (rather than 45).

Prof I Phillips (083290) has reported that his correct address is Plazuela Santisimo Cristo, de la Sangre 2, (antigua Calle Gaona 20), MALAGA 29012, SPAIN

I also received a message on my answer phone from a member whose name sounded like "Jack Daws" complaining about his name and address being left off the new Membership List but with no other identifying details. I send him my apologies and will make sure his details are in the next list; once I discover who he is!

### Atlas of British and Irish hawkweeds

This has now been published and mailed to all who applied for the pre-publication offer. If any member who ordered a copy has still not received it, please contact the Membership Secretary (RGE).

### New Journal of Botany

The first issue of our impressive new journal has now been published and mailed to members. If anyone has not yet received their copy please contact the Membership Secretary (RGE).

### Cumulative index to Journal of Botany

RGE has just completed the first draft of a cumulative index to all 80 volumes of the 'old' *Journal of Botany*. Like my cumulative index to the first 110 issues of *BSBI News* (available for download on the BSBI website), this is a work in progress and is in 'computer generated' alphabetical order. All the entries from the individual volume indices are there, but in their original form with no attempt, yet, at standardisation or compaction.

If anyone would like a copy please get in touch with RGE, bearing in mind that the copy will be sent as a large pdf (up to 5MB) email attachment so you a decent broadband connection is advisable.

### South Yorkshire Plant Atlas

The authors wish to apologise for the delay in publication of this book which is now scheduled for delivery some time in November.

**And finally** – would photographers please try to remember to take 'portrait' as well as 'landscape' photos. It is often easier to fit the former onto the pages of *BSBI News*..

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## NOTES

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### The flora of Cornwall and Devon and that of north and west Brittany

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

It has always been difficult to acquire a picture of the detailed distribution of the British and Irish flora in the context of the rest of Europe. *Flora Europaea* covers all the plants in Europe, with lists of countries for each species, and every European country has a national Flora, of course, but often these, if not either old or very difficult to access, almost invariably describe the distribution, if at all, by large units (departments, provinces). Publications such as *Atlas florae Europaeae*, mapping at 50 × 50km, have made a start, but have only covered just over 20% of the flora in almost 40 years, and that scale, at 25 times the resolution of our national atlas, obscures much of the detail.

But there are now available comparatively recent dot map floras of Germany, Netherlands and Flanders and a long-running one of north-east France and adjoining areas of Belgium, which has recently been re-published in a single volume. Recently, too, a group of Floras of the Paris Basin have begun to appear, beautifully produced, and these will have relevance to the study of our flora. I have never seen any analysis of the data in any of the above *vis-à-vis* Britain and Ireland. In fact there are remarkably few comparisons, and I can only easily recall Prof. Good's work on Kent and the Pas de Calais in the 1920s and Francis Rose's work in the 1960s.

Britain and Ireland have few endemics, and possibly the most unique part of our flora (even more for lower plants) is our assemblage of Atlantic and sub-Atlantic species. So, of more interest to me, and probably of more relevance to us in our study of the plants of the Atlantic Arc (broadly, the area from Portugal round to the Scandinavian coast) are the distribution atlases for Brittany that have, it transpires, been appearing over the last ten years. Note the word 'appearing'. For,

despite a conference in Cornwall in 2003, and some contact both there and subsequently with colleagues across the Channel, I had only a vague idea that these were available, and, having found the website, it has taken another nine months to actually buy some of the books! In fact five volumes have appeared since 2001, covering Loire-Atlantique and the Vendée, Ille-et-Vilaine, Côtes-d'Armor (previously known as Côtes-du-Nord) (Phillipon *et al.*, 2006), Morbihan and, most recently, Finistère (Quérel *et al.*, 2008).

By and large their taxonomy, which is based on *Flora Europaea*, with modifications, including Stace (1997), and their assessments of nativeness and non-nativeness are remarkably and gratifyingly similar to the concepts that we adopted in the *New atlas*, with the qualifier that they are part of the continental land-mass. They do not recognise the concept of archaeophytes, however, just using the categories of 'indigenous', 'non – indigenous', and 'assimile indigène', which I take to mean 'looking like a native but not sure'!

This note covers the departments of Finistère and Côtes-d'Armor only. Their oceanic position seems the most relevant to a comparison with our flora – any further south and too many Mediterranean species appear, and any further inland, there are too many Continental species. Each volume covers all species recorded there, native and alien, with a short but succinct text, with comments on perceived changes for many, and a map for most, at 10 × 10km<sup>2</sup> scale (hectads) on the UTM grid, with records pre- and post-1980. I have to say that the alien plants are not quite as well covered as in many areas here. Each of these two departments has all or parts of around 100 × 10km<sup>2</sup> hectads (Cornwall has all or part of 55, Devon, 93) and thus the French totals may be viewed as rough percentages for each depart-

ment. In this note records from the Channel Islands are omitted from the British and Irish totals, as they are part of France from a

geographical perspective, and south-west England is defined as Cornwall and Devon.

Table 1. Species recorded as natives or native/alien in 10 hectads or less in Britain and Ireland (not including Channel Isles)(B&I) since 1987 (from *New atlas*) that have been recorded as natives in 10 hectads or more since 1980 in Finistère (F) and Côtes-d'Armor (C) combined.

Species	B&I	F	C	Comment
<i>Allium sphaerocephalon</i>	1	23	11	B&I - Bristol site possibly alien. In France a coastal species.
<i>Bupleurum baldense</i>	2	17	5	
<i>Centaureum scilloides</i>	2	9	3	B&I - includes Cornish site re-found in 2010.
<i>Corrigiola littoralis</i>	1	18	17	F&C - most records inland.
<i>Cynodon dactylon</i>	2	38	3	B&I - confusion over status of many English sites.
<i>Galium constrictum</i>	10	14	18	B&I - absent from SW England (but 4 old records).
<i>Gnaphalium luteoalbum</i>	2	23	4	B&I – considered a very doubtful native and absent from SW England. No hint on status in F&C.
<i>Herniaria ciliolata</i>	3	25	0	B&I – includes update for Cornwall, 2009.
<i>Hypericum linariifolium</i>	9	26	28	
<i>Illecebrum verticillatum</i>	5	30	15	B&I - only Cornwall records included (other records now presumed to be alien).
<i>Isoetes histrix</i>	3	12	2	
<i>Juncus capitatus</i>	7	28	12	
<i>Leersia oryzoides</i>	5	18	25	B&I – absent from SW England (although in Somerset).
<i>Lobelia urens</i>	6	53	66	
<i>Matthiola sinuata</i>	8	22	5	
<i>Mibora minima</i>	6	33	9	B&I - confusion over status of most English sites.
<i>Ononis reclinata</i>	10	10	1	
<i>Ophioglossum lusitanicum</i>	1	13	0	B&I – Isles of Scilly only.
<i>Ornithopus pinnatus</i>	3	19	10	B&I – Isles of Scilly only.
<i>Polycarpon tetraphyllum</i>	10	49	12	
<i>Romulea columnae</i>	2	31	25	B&I – includes Cornish site re-found in 2002.
<i>Scorzonera humilis</i>	3	77	86	B&I – absent from SW England. Welsh sites probably native, Dorset possibly so.

Species	B&I	F	C	Comment
<i>Serapias parviflora</i>	1	17	4	First B&I record 1989; a recent arrival in F&C too – first record 1993 – but presumed to be a natural colonist there.
<i>Spiranthes aestivalis</i>	0	17	1	B&I - previously (up to 1959) in New Forest. F&C – declining.
<i>Valerianella eriocarpa</i>	8	10	5	B&I - based on Pearman & Edwards (2002). Coastal in France as in England and Wales.
<i>Viola kitaibeliana</i>	2	12	1	B&I – Isles of Scilly only.

Table 2. Species recorded as natives in Finistère and Côtes-d’Armor since 1980 that are not currently known in B & I. Only those occurring in 10 hectads or more in the two departments combined are listed, and this then excludes many other species that just reach south Finistère. Abbreviations as Table 1.

Species	F	C	Comment
<i>Anacamptis laxiflora</i>	37	29	In Channel Islands and introduced to Sussex.
<i>Anogramma leptophylla</i>	13	11	In Channel Islands.
<i>Asphodelus arrondeaui</i>	14	2	Critical species.
<i>Cochlearia aestuaria</i>	11	0	Critical species and including some unconfirmed records.
<i>Euphoria dulcis</i>	18	8	
<i>Galium arenarium</i>	36	2	
<i>Helichrysum stoechas</i>	17	0	
<i>Jasione crispa</i>	22	6	
<i>Linaria arenaria</i>	17	1	B&I – planted at Braunton (N. Devon) c.1893 and a very recent find at Berrow (N. Somerset).
<i>Lotus parviflorus</i>	12		
<i>Micropyrum tenellum</i>	0	13	
<i>Parentucellia latifolia</i>	15	14	In F&C ‘assimile indigène’.
<i>Peucedanum lancifolium</i>	44	40	
<i>Phalaris minor</i>	36	10	Only as a casual alien in B & I (but long-naturalised in Channel Islands).
<i>Pseudarrhenatherum longifolium</i>	20	3	
<i>Ranunculus serpens</i>	6	5	
<i>Trifolium resupinatum</i>	22	2	Only as an alien in B&I

Table 3. Species that are quite common in Finistère and Côtes-d'Armor, which are rare or absent from South-west England (SW), though found elsewhere in B & I. All abbreviations etc. as in Table 1.

Species	SW	F	C	Comment
<i>Crassula tillaea</i>	6	86	74	SW populations all recent and ruderal, though treated as native.
<i>Erica ciliaris</i>	6	75	77	Rare elsewhere in B&I.
<i>Eryngium campestre</i>	5	45	3	Archaeophyte in B&I and a recent arrival, as a fodder impurity in most of SW.
<i>Frankenia laevis</i>	0	33	12	SW only as alien; presumed western native limit Hants/Isle of Wight.
<i>Hypochaeris glabra</i>	2	18	20	
<i>Luronium natans</i>	0	24	30	
<i>Lythrum hyssopifolia</i>	0	39	25	Archaeophyte in B&I.
<i>Mentha pulegium</i>	6	12	29	Rare elsewhere in B&I.
<i>Silene nutans</i>	2	8	21	
<i>Thesium humifusum</i>	0	19	4	B&I western limit Dorset/Wilts.
<i>Tuberaria guttata</i>	0	15	8	

Finally, there are a very few species that are relatively widespread in Cornwall and Devon, but not recorded from Finistère and Côtes-d'Armor: indeed I only noted *Hypericum undulatum* (Wavy St John's-wort), *Trifolium medium* (Zigzag Clover) and also *Sanguisorba officinalis* (Great Burnet), although this is not really common over much of SW England. Indeed, once one has eliminated the species in the three tables above then the floras of the two areas are remarkably similar.

The Finistère Flora has lists of assumed extinctions, and also of invasive plants, and again their experiences mostly mirror ours. I suspect that, as yet, they have been less assiduous in recording aliens. *Lamiastrum galeobdolon* ssp. *argentatum* (Garden Yellow Archangel) is noted but not mapped, yet I have seen it there, although *Cortaderia* (Pampas-grass) is noted as 'omniprésente' and *Sporobolus indicus* (American Dropseed) rapidly spreading. *Carex pendula* (Pendulous Sedge), treated as a native, has, as here, recently undergone a massive spread, with 'vastes peuplements presque monospécifiques'.

All that I have tried to do in this article is to list species of interest, without any interpretation other than necessary qualifiers. There must be further work to be done. For instance, it would be interesting to analyse the records by phytogeographic elements.

The most obvious conclusion is how similar are our floras and how a better knowledge of the Brittany flora can contribute towards informing decisions on the status of our flora. I remain a sceptic over the status of the Cornish record of *Serapias parviflora* (Lesser Tongue-orchid), discovered in 1989, but it could well be viewed as an extension of the recent colonisation of north Brittany, presumably driven by a warming climate. The records of *Valerianella eriocarpa* (Hairy-fruited Cornsalad) seem to endorse our opinion of the status of the coastal colonies here, and possibly the position of the Cornish records might be reviewed. They regard *Fumaria reuteri* (*martini*) (Martin's Ramping-fumitory) and *Spergularia bocconeii* (Greek Sea-spurrey) as probably alien, as we do, and equivocate over *Gaudinia fragilis* (French Oat-grass). *Scrophularia scorodonia* (Balm-leaved Figwort) is frequent there, and treated

as a native, yet here it has seemingly clearly spread from a few ports. The grasses *Digitaria sanguinalis* (Hairy Finger-grass), *D. ischaemum* (Smooth Finger-grass) and *Echinochloa crus-galli* (Cockspur) are frequent there and all treated as native. The *New atlas* equivocated over the true status of *Cynodon dactylon* (Bermuda-grass) in Britain and Ireland. Here it is shown to be widespread in Brittany, yet it is such a cosmopolitan weed that any final judgement is difficult. For others, such as *Allium sphaerocephalon* (Round-headed Leek) and *Mibora minima* (Early Sand-grass), the information is one more piece in the puzzle, as is the absence of any records from those two French departments of *Pancratium maritimum* (Sea Daffodil), recently found in Cornwall and Devon and postulated as a natural extension of French distribution.

It may be that some members knew of the existence of these Floras, but none of my associates did. They are very nicely produced, and now available from Summerfield Books at just over £50 each.

### References:

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- PHILIPPON, D., PRELLI, R., & POUX, L. (2006). *Atlas de la flore des Côtes-d'Armor*. Editions Siloë, Nantes.
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- Tutin, T.G. (*et al.*) (eds.) (1964-1993). *Flora Europaea*. (5 (6) vols.) Cambridge University Press, Cambridge.

## ***New flora of the British Isles, edition 3 (2010): first reprint (2011)***

CLIVE STACE, *Cringlee, Claybrooke Road, Ullesthorpe, Leicestershire, LE17 5AB*

The third edition of *New flora of the British Isles* is being reprinted in the late summer of 2011, and the opportunity has been taken to update nomenclature where space permits and pagination is not affected. One new combination is also required (indicated by \* in the text below).

The following are the nomenclatural changes that have been implemented:

Page 23 – English names provided:

*Asplenium* × *jacksonii* – Jackson's Spleenwort

*Asplenium* × *microdon* – Moore's Spleenwort

*Asplenium* × *confluens* – Confluent Spleenwort

Page 46 – *Picea omorika* Pančić *vice* *P. omorika* Pancic

Page 144 – *Parthenocissus inserta* (A. Kern.) Fritsch *vice* *P. vitacea* (Knerr) Hitchc.

Page 203 – *Sorbus* × *thuringiaca* (Nyman) Schönach *vice* *S.* × *thuringiaca* (Ilse) Fritsch

Page 203 – *Sorbus proctoriana* T.C.G. Rich *vice* *S. proctoris* T.C.G. Rich

Page 227 – *Cotoneaster calocarpus* (Rehder & E.H. Wilson) Flinck & B. Hylmö *vice* *C. calocarpus* Rehder & E.H. Wilson

Page 323 – *Salix euxina* I.V. Belyaeva (*S. fragilis* auct. non L.) *vice* *S. fragilis* L.

Page 323 – *Salix* × *fragilis* L. *vice* *S.* × *rubens* Schrank

Page 323 – *Salix* × *fragilis* nothovar. *basfordiana* (Scaling ex Salter) Stace\* *vice* *Salix* × *rubens* nothovar. *basfordiana* (Scaling ex Salter) Meikle

Page 329 – *Salix cinerea* × *S. myrsinifolia* = *S. × puberula* Döll

Page 362 – *Ludwigia hexapetala* (Hook. & Arn.) Zardini, H.Y. Gu & P.H. Raven (*L. grandiflora* auct., *L. uruguayensis* auct.) vice *L. grandiflora* (Michx.) Greuter & Burdet (*L. uruguayensis* (Cambess.) H. Hara)

Page 443 – Change English name: *Fallopia × bohémica* – Bohemian Knotweed vice Conolly's Knotweed

Page 594 – *Chaenorhinum* (DC.) Rchb. vice *Chaenorhinum* (DC. ex Duby) Rchb.

Page 628 – *Thymus* 'Culinary Lemon' (*T. × citriodorus* auct.) vice *T. × citriodorus* Pers.

Page 746 – Bilbao's Fleabane vice Bilbao Fleabane

Page 782 – *Escallonia rubra* (Ruiz & Pav.) Pers. var. *macrantha* (Hook. & Arn.) Reiche vice *E. macrantha* Hook. & Arn.

Page 821 – Under *Apium leptophyllum*: *Cyclospermum* vice *Ciclospermum*

Page 890 – *Crocus × luteus* Lam. vice *C. × stellaris* Haw.

Page 896 – AMARYLLIDACEAE (Daffodil family) vice ALLIACEAE (Onion family)

Page 968 – add authority: *Carex viridula* Michx.

Page 1054 – Species name for × *Triticosecale*: × *Triticosecale rimpaui* Wittm. ex A. Camus

\* *Salix × fragilis* nothovar. *basfordiana* (Scaling ex Salter) Stace, comb. nov. Basionym: *Salix × basfordiana* Scaling ex Salter, *Gard. Chron.*, n.s. 17: 298 (1882).

#### [Editor's note:

Readers will have noted with dismay, probably, that the familiar Crack Willow is no longer *Salix fragilis*, as noted briefly in Clive Stace's summary of nomenclatural changes given above.

It may help people to know a bit more about this, the confirmation of which stems from molecular studies, although the situation has been known in the taxonomic world for some while.

Essentially:

- More than 90% of the plants we have called *Salix fragilis* (including the commonest variety *russelliana*) are in fact the hybrid that, until now, has been called *Salix fragilis × alba* = *S. × rubens*. The true species is what we have called *S. fragilis* var. *decipiens*, which is not common in this country, with only male trees recorded.
- The type specimen of *S. fragilis* (var. *fragilis*) has been identified also as the hybrid. The epithet *fragilis* is earlier than *rubens*, and therefore the hybrid becomes *S. × fragilis*.
- The epithet *decipiens* is not available as the name for the species we used to call *S. fragilis*, because it is actually an illegitimate replacement for *S. fragilis*.
- The Russian botanist I.V. Belyaeva, who has published these changes (Belyaeva, 2009), therefore had to give a new name for the species - *Salix euxina*. This species is a native of eastern Turkey and the Caucasus.
- The hybrids in Britain involving *S. euxina* actually stem from crosses with *S. × fragilis*, and are therefore triple hybrids: e.g. *Salix alba × euxina × pentandra* = *S. × meyeriana*.

I am grateful to Clive Stace for having drawn my attention to the original paper by I. V. Belyaeva in *Taxon*, from which these details are taken.

#### Reference:

BELYAEVA, I. (2009). 'Nomenclature of *Salix fragilis* L. and a new species, *S. euxina* (Salicaceae)'. *Taxon* **58**(4): 1344-1348.

TREVOR JAMES]

## The demise of *Teesdalia nudicaulis* (Shepherd's-cress) in South Lancashire (v.c.59)

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### Introduction

*Teesdalia nudicaulis* (Shepherd's-cress) is a native winter annual of acidic, well-drained soils on heathlands, sand dunes, shingle, gravel and mountain screes, and on waste-tips, especially where the ground surface is disturbed (Pearman, 2002; Rich, 1991). Ellenberg indicator values (Hill *et al.*, 2004) show that the plant is light-loving (L = 8), prefers dry sites (F = 3), is found mainly on acid soils (R = 2), is indicative of infertile habitats (N = 2) and is not adapted to saline conditions (S = 0). It is widely scattered but local in England, Scotland and Wales and rare in Ireland. However, this species has seriously declined throughout its British range and, although most losses were before 1930, it has continued to decline, especially in eastern and north-eastern England, with a national change index of -0.81 (Pearman, 2002). As a result of these trends, the plant is Red Data Book listed as "Near Threatened" (Cheffings & Farrell, 2005). It is also a "Species of Conservation Importance in North West England" (Regional Biodiversity Steering Group, 1999).

### Status in south Lancashire

*T. nudicaulis* was listed for the Southport area (v.c. 59) 180 years ago (Whittle, 1831). It was also included in the Liverpool floras of both Hall (1838) and Dickinson (1851), the latter describing it as common near the shore at Formby and frequent on dry banks at Bootle, these localities being on what is now the Sefton Coast, north Merseyside. Indeed, the plant seems to have been relatively widespread in the vice-county during the 19<sup>th</sup> century. Thus, the *New flora of south Lancashire* (2011 archive version) lists 30 records between 1826 and 1891, 12 of them supported by voucher specimens in MANCH or BM (D.P. Earl, *in litt.*, 2011). Sixteen of these records were from the Sefton Coast sand dune system, the rest being from inland localities.

During the 20<sup>th</sup> century, the status of *T. nudicaulis* in v.c. 59 seems to have changed dramatically. Green (1933) states that the plant is "Rare in Lancashire", giving only three localities (Formby, Haskayne and Bickerstaffe), while Savidge *et al.* (1963) describe it as "Occasional, locally common" between Hightown and Birkdale on the coastal dunes. They also mention a "large colony" at Ainsdale sand dunes in 1961. However, the *New flora* database contains only one 20<sup>th</sup> century record away from the Sefton Coast – in 1963 at Crow Hill, Worston. All others are in the Freshfield/Ainsdale area on the coast. In summary, *T. nudicaulis* has been recorded in 21 tetrads in v.c. 59, all but eight being on the coastal dunes, recent records being confined to two adjacent tetrads (SD21V and SD31B) at Ainsdale (D.P. Earl, *in litt.*, 2011).

### The Ainsdale colony

Since 1979, *T. nudicaulis* has been recorded at four localities defined by six-figure grid references adjacent to the railway line south of Ainsdale, three of them being within Ainsdale Sand Dunes National Nature Reserve (NNR) (D.P. Earl, *in litt.*, 2011). These were visited in late April and early May 2011. *T. nudicaulis* was found only at the northernmost site on an 80 × 30m (0.24ha) strip of acid grassland at SD304111 between the railway and a "Woodland Walk" footpath. This locality has been known to us for many years and is probably the large 1961 colony mentioned by Savidge *et al.* (1963).

The habitat here is slightly undulating fixed-dune near the eastern extremity of the surviving dune belt. Although Sefton dune sand initially contains up to 5% calcium carbonate derived from sea-shells, this is leached out over time and, after about 300 years, the upper soil layers become acidic and deficient in calcium (Salisbury, 1952; Smith, 2009).

The vegetation is an open mossy sward dominated by *Anthoxanthum odoratum* (Sweet Vernal-grass), *Carex arenaria* (Sand Sedge), *Luzula campestris* (Field Wood-rush) and *Rumex acetosella* (Sheep's-sorrel). There are scattered trees and bushes, mainly of *Betula* (birch) and *Acer pseudoplatanus* (Sycamore), but these have been removed or coppiced in a central strip below a power cable. The activities of Rabbits (*Oryctolagus cuniculus*) and reserve managers have created scattered patches of short turf (mean height about 6cm) and bare sand, these being where almost all the *T. nudicaulis* plants were found. We estimated a population of several hundred individuals, these appearing healthy, with abundant flowers and fruits (see Colour Section, Plate 1).

To determine the plant community, five 2 × 2m quadrats were recorded in representative vegetation supporting *T. nudicaulis* using UK National Vegetation Classification (NVC) methodology (Rodwell, 2000), the results being analysed by a modified TABLEFIT programme (Hill, 1996). Very poor statistical fits were obtained to SD12a: *Carex arenaria-Festuca ovina-Agrostis capillaris* dune grassland, *Anthoxanthum odoratum* sub-community and to SD11a: *Carex arenaria-Cornicularia aculeata* dune, *Ammophila arenaria* sub-community (Table 1, p. 13). Rodwell (2000) lists *T. nudicaulis* as a component of the latter but not of the former. However, there is a closer visual resemblance to SD12 than to SD11, the latter being characterised by a grey carpet of lichens not seen at the Ainsdale site. On the Sefton dunes, SD12 is often associated with glades and fringes of conifer plantations or in the dune-heath zone where leaching over time has removed calcium carbonate (Gateley & Michell, 2004). Nationally, SD12 is found on stabilised acidic sands, especially towards the north and west, the community often being maintained by grazing pressure, in the absence of which succession towards heath or woodland is likely (Rodwell, 2000).

Twenty-four vascular associates of *T. nudicaulis* recorded in the quadrats are listed in Table 2 (p. 13). The most frequent are *Agrostis capillaris* (Common Bent), *Aira praecox* (Early Hair-grass), *Anthoxanthum*

*odoratum*, *Carex arenaria*, *Luzula campestris* and *Rumex acetosella*. Nationally/regionally notable taxa include *Myosotis ramosissima* (Early Forget-me-not), *Vicia lathyroides* (Spring Pea) and *Viola canina* (Heath Dog-violet). Most of the associates are characteristic of older and more acidic fixed dune and dune grassland communities on the Sefton Coast (Smith, 2009).

### Discussion and conservation

Evidently, *T. nudicaulis* in v.c.59 has declined from being fairly widely but locally distributed in the 19<sup>th</sup> century to near extinction today, there being only one known extant locality at Ainsdale NNR. This species is also declining elsewhere in Britain. Thus, Stewart & Pearman (1991a, 1991b) list *T. nudicaulis* as one of 320 scarce native species meriting special attention by recorders and as “top priority” for adoption in BSBI’s *Scarce Plants Project*. Many losses are no doubt attributable to such effects as development, the intensification of agriculture and eutrophication of low-fertility habitats, these having been identified as key factors causing distribution changes in many British plants (Braithwaite *et al.*, 2006). However, the ecology of *T. nudicaulis* seems to make it particularly susceptible to habitat change. Thus, Newman (1964, 1965) shows that seeds germinate in autumn. Plants pass the winter in a vegetative state, flower and set seed in spring and then die. Almost all seed germinates in the year of production and, as there appear to be no special features to aid seed dispersal, most probably germinates within a metre of the parent plant. Also, there is a negligible seed-bank in the soil. In effect, population survival depends on satisfactory seed production and germination in every year at every site. Even a short period with unfavourable habitat characteristics is likely to result in rapid local extinction.

At Ainsdale, as elsewhere, the key to survival of *T. nudicaulis* seems to be the year-on-year availability of disturbed ground for seed germination and establishment of young plants. Thus, PAL recollects that when engineering works on the adjacent railway created a large area of bare soil, *T. nudicaulis*

became exceptionally abundant the following year. Being now confined to such a small area, the plant is vulnerable to overgrowth of coarse vegetation and trees. Indeed, this seems to be what has eliminated it at three more sites between Ainsdale and Freshfield, where it was recently recorded. The southernmost of these is now occupied by a row of planted conifers, while the others support grassy swards with little bare ground. Disturbance by Rabbits seems crucial at the remaining extant locality, but this species is susceptible to outbreaks of myxomatosis that greatly reduce populations in some years. The NNR managers are aware of the plant's presence and have organised volunteers to scarify the ground surface on several occasions in recent years. This seems to have been beneficial and should ideally continue on an annual basis.

### Acknowledgements

We are grateful to Natural England for information on management history and for permitting access to conduct the study. Dave Earl kindly provided much useful information from the *New flora of south Lancashire* database. We are also indebted to Pauline Michell for the analysis of quadrat data.

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Table 1 Results of TABLEFIT analysis of five 2 × 2m quadrats

NVC code	Community	Sub-community	% fit	Match
SD12a	<i>Carex arenaria-Festuca ovina-Agrostis capillaris</i> dune grassland	<i>Anthoxanthum odoratum</i>	37	Very poor
SD11a	<i>Carex arenaria -Cornicularia aculeata</i> dune	<i>Ammophila arenaria</i>	35	Very poor
SD11	<i>Carex arenaria -Cornicularia aculeata</i> dune		34	Very poor
SD12	<i>Carex arenaria-Festuca ovina-Agrostis capillaris</i> dune grassland		33	Very poor

Table 2. Vascular associates of *Teesdalia nudicaulis* at Ainsdale NNR, May 2011

NT = Near Threatened; SCI = Species of Conservation Importance in north west England; Freq. = no. of occurrences in five 2 × 2m quadrats

Taxon	English name	Status	Freq.
<i>Acer pseudoplatanus</i>	Sycamore		1
<i>Agrostis capillaris</i>	Common Bent		5
<i>Aira praecox</i>	Early Hair-grass		5
<i>Ammophila arenaria</i>	Marram		1
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass		5
<i>Aphanes arvensis</i>	Parsley-piert		2
<i>Cardamine hirsuta</i>	Hairy Bitter-cress		1
<i>Carex arenaria</i>	Sand Sedge		5
<i>Centaurea nigra</i>	Common Knapweed		1
<i>Cerastium diffusum</i>	Sea Mouse-ear		2
<i>Cerastium fontanum</i>	Common Mouse-ear		1
<i>Cerastium glomeratum</i>	Sticky Mouse-ear		3
<i>Festuca ovina</i>	Sheep's-fescue		1
<i>Holcus lanatus</i>	Yorkshire-fog		2
<i>Luzula campestris</i>	Field Wood-rush		5
<i>Myosotis discolor</i>	Changing Forget-me-not		4
<i>Myosotis ramosissima</i>	Early Forget-me-not	SCI	3
<i>Rubus fruticosus</i> agg.	Bramble		2
<i>Rumex acetosella</i>	Sheep's Sorrel		5
<i>Stellaria pallida</i>	Lesser Chickweed		1
<i>Veronica arvensis</i>	Wall Speedwell		1
<i>Vicia lathyroides</i>	Spring Pea	SCI	1
<i>Vicia sativa</i>	Common Vetch		1
<i>Viola canina</i>	Heath Dog-violet	NT SCI	4
Total 24 taxa			

## Numbers of locations and population sizes of some ‘Critically Endangered’ and ‘Endangered’ Red List taxa

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The GB *Red List* (Cheffings & Farrell, 2005; with recent amendments summarised in *BSBI News* **104**: 19-21, **113**: 43-44 and **116**: 51-56) classifies threatened British native and archaeophyte vascular plant species as ‘Critically Endangered’ (CR), ‘Endangered’ (EN) and ‘Vulnerable’ (VU), according to an assessment of each plant’s risk of extinction in the wild against internationally agreed IUCN threat criteria<sup>1</sup>. For some CR and EN taxa the assessment of their threat status depends either wholly or partly on criteria relating to number of sites/populations or the number of individuals known to exist (i.e. IUCN criteria B, C and D, including VU D2 – see Cheffings & Farrell (2005) for detailed explanation of these criteria). The collation of site/population information is vitally important in assessing the fortunes of these taxa and is therefore seen as a priority for the GB Species Status Assessment Group (SSAG) which is currently undertaking a full-scale review of all *Red List* taxa with a view to publishing a revised assessment in 2018.

The most recent estimates for the number of sites and population sizes, excluding reintroductions, for our most threatened (CR and EN) taxa are listed in Table 1, p. 16 (excluding 33 hawkweeds and 23 apomictic *Sorbus* species). Unless stated, these are the figures published in the GB *Red List*, which were based on pre-2005 estimates of populations in Britain, i.e. England, Scotland and Wales, excluding the Channel Islands and Isle of Man. Note that the nomenclature in Table 1 follows Stace (2010), so for a few taxa the names differ from those originally published in the *Red List* (Cheffings & Farrell, 2005). As is clear from the table, information is lacking for many taxa, or else needs updating following taxonomic changes

(e.g. *Epipactis sancta* (Lindisfarne Helleborine)), recent discoveries (e.g. *Centaureum scilloides* (Perennial Centaury), *Epipogium aphyllum* (Ghost Orchid)) or reported declines due to changes in climate or land use (e.g. *Alchemilla subcrenata* (Large-toothed Lady’s-mantle)). As can be seen in Table 1, threat assessments in the *Red List* were frequently based on either the number of locations or number of individuals, but not both. In these cases, we are wanting to gain both a revised assessment of the figures used in the *Red List* and a figure for the category currently lacking data (shown as ‘nd’ in Table 1). For all taxa we would therefore welcome any recent data which would help to update the figures presented in Table 1, or to insert figures where none are currently shown. In particular, we would be keen to learn of any recent discoveries, or of any local/county/ regional/national species surveys that have generated data on numbers of localities and/or population sizes. We are also keen to collate information for these taxa concerning introductions, reintroductions and/or population augmentations. For some species we are aware that introductions or reintroductions have been carried out (see notes in Table 1), but frequently we are lacking (a) information on when and where these took place, and (b) an up-to-date assessment of numbers of plants and whether the introduced/augmented populations appear to be self-sustaining.

Given the difficulties involved in defining a ‘population’ or counting the number of plants within a population we accept that most assessments are likely to be only crude estimates. However, we hope the following notes will be of use, especially for botanists planning to undertake surveys of any of the species listed

<sup>1</sup> For definitions of these and other Red List categories – ‘Extinct’, ‘Extinct in the Wild’, ‘Data Deficient’, ‘Near Threatened’, ‘Least Concern’, ‘Waiting List’ and ‘Parking List’ – see Cheffings & Farrell (2005).

in Table 1, or to submit data to us in order to update the figures presented.

### Locations

The biological rather than physical extent of a population is defined by many factors, including a plant’s breeding system, life-history, dispersal and regenerative ability. However, for this assessment we use the term ‘location’ (= ‘site’) in a very loose geographic sense to indicate the number of ‘management units’ in which a species has been recorded, as threats facing plant populations in the same unit are likely to be similar (Dines & McCarthy, 2008). This is a relatively straightforward concept in enclosed habitats, such as fields and woods, but is much more difficult to apply in unenclosed landscapes, where boundary features are often absent or poorly defined and habitats occur within intimate mosaics or ecotones (e.g. coastline, moorlands, water-bodies, etc.). For the latter it seems more sensible to define ‘units’ or ‘locations’ as blocks of habitat that are bounded by clearly differentiated natural or man-made features, such as headlands/bays, valley sides, moorland blocks bounded by tracks. Smaller, homogenous blocks of habitat, such as marshes, flushes and mires, within larger complexes of other habitat can also be relatively straightforward to define as discrete ‘units’. Clearly such decisions require a lot of judgement ‘on the ground’ and are more difficult to make where a species is abundant and populations are scattered across large areas. In these cases it may be more advisable to record the number of locations based on the number of fixed or ‘movable’ 1 × 1 km grid cells (so-called ‘Wells sites’), as used in many of the BSBI’s County Rare Plant Registers (see the guidelines for these on the BSBI website).

### Abundance

Similarly, estimating the number of individuals present on a site is often dependent on life-form (i.e. the extent which a species spreads clonally) and life-history (i.e. longevity). The majority of annuals and biennials and some perennials (e.g. hemi-cryptophytes) produce discrete individuals that can be counted directly (e.g. *Arenaria norvegica* ssp. *anglica* (English Sandwort), *Woodsia alpina* (Alpine Woodsia)). However, this is not the case for

the majority of perennials that spread by vegetative structures (e.g. stolons, rhizomes, etc.) to produce apparently new ‘individuals’ close-by (e.g. *Cypripedium calceolus* (Lady’s-slipper Orchid)) or form extensive patches. The latter are particularly difficult to census, with individuals often extending over several metres and producing hundreds, if not thousands, of flowers (e.g. *Asparagus prostratus* (Wild Asparagus), *Rumex rupestris* (Shore Dock)). In such cases, one individual can quite easily ‘merge’ with another, making it impossible to know for sure where one individual ends and the next begins. Indeed, without detailed genetic assays we will probably never know the actual number of individuals for such taxa, and so the best we can hope for are estimates of extent (e.g. area occupied or size and number of ‘patches’) and/or flowering performance (e.g. numbers of flowering stems, etc.).

When estimating population sizes, therefore, it is important to record what is actually being counted. As a general rule we can divide ‘individuals’ into three classes: (1) discrete individuals (e.g. rosettes, single stems/patches); (2) individuals which appear to be discrete but may be connected by vegetative organs; and (3) clonally reproducing species forming extensive (interconnected) patches where the number of genets is impossible to define. For all three we can attempt to count the number of individuals, apparent individuals and patches on the following scale, sometimes termed the ‘broken-log’ scale: the actual number where less than 100; 101-300; 301-1,000; 1,001-3,000; 3001-10,000; >10,000. Estimates for large populations can also be extrapolated from sub-samples (e.g. quadrats), although the margins of error, even for relatively easy-to-census species such as *Scorzonera humilis* (Viper’s-grass), can be quite large, and so results need to be treated with caution (Gurney, 2008).

If you have, or are aware of, recent information on localities or population sizes of any of the taxa listed in Table 1, please send details to Kevin Walker (kevinwalker@bsbi.org.uk). The SSAG next meets in October and March, and any information or ‘leads’ provided before either of these meetings would be especially

Table 1. CR and EN taxa for which threat status in the *Red List* depends either wholly or partly on number of locations and/or population size. *Red List* figures are the same as in the published version (Cheffings & Farrell, 2005). Threat assessments in *Red List* may have been based on either numbers of locations or individuals, or a combination of the two; ‘nd’ = no data presented in *Red List*. More recent figures are given where available.

Taxon name (names in Red List are given in parentheses where different)	Red List	Locations – Red List	Locations – revised	Individuals – Red List	Individuals – revised	Notes:
<i>Alchemilla micans</i>	EN	4	5?	<800		A new population in 2010
<i>Alchemilla subcrenata</i>	EN	<5		nd		Evidence of recent decline
<i>Alisma gramineum</i>	CR	nd	c.5	<250		Intermittent at some sites, population size fluctuating from year to year; includes a number of reintroductions
<i>Arabis alpina</i>	EN	nd		83		
<i>Arenaria norvegica</i> ssp. <i>anglica</i>	EN	27	27	<10000	<500	Assessed in 2011
<i>Asparagus prostratus</i> ( <i>officinalis</i> ssp. <i>prostratus</i> )	EN	nd	29	nd	1200	Assessed in 2009, repeat survey of Cornish sites in 2010-11 will lead to further update
<i>Atriplex pedunculata</i>	CR	1		nd		Introduced populations excluded from Red List figure
<i>Campanula patula</i>	EN	nd		330		
<i>Carex depauperata</i>	EN	nd	3?	<100		A number of reintroductions
<i>Centaurium scilloides</i>	EN	2	3	nd		A new population in 2010
<i>Cephalanthera rubra</i>	CR	nd		c.30	39	Count is for 2009; all populations subject to annual monitoring
<i>Clinopodium menthifolium</i>	CR	1	1	<250		
<i>Corrigiola litoralis</i>	CR	1	1	<50		A number of augmentations at sole native site
<i>Cotoneaster cambricus</i> ( <i>integerrimus</i> )	CR	1	1?	6		
<i>Crepis praemorsa</i>	EN	1	1	200		
<i>Cypripedium calceolus</i>	CR	1		1		A number of introductions and reintroductions excluded from Red List figures
<i>Dactylorhiza incarnata</i> ssp. <i>cruenta</i>	EN	nd		nd		Listed as ‘Data deficient’ in Red List. Amended to EN in 2010

<i>Dactylorhiza incarnata</i> ssp. <i>ochroleuca</i>	CR	nd	1?	nd		Listed as ‘Data Deficient’ in Red List. Amended to CR in 2010
<i>Damasonium alisma</i>	CR	1		2		A number of (unsuccessful) reintroductions; review being carried out by Plantlife in 2011
<i>Epipactis sancta</i>	EN	nd	1	nd		Known only from Lindsifarne
<i>Epipogium aphyllum</i>	CR	nd	1	nd	1	Listed as EX in Red List. Single plant discovered in 2009, so now CR
<i>Euphrasia cambrica</i>	EN	nd	4	nd	<1000	
<i>Euphrasia rotundifolia</i>	EN	2		<250		
<i>Gentianopsis (Gentianella) ciliata</i>	CR	1	1	15	<5	Evidence of recent decline
<i>Homogyne alpina</i>	EN	1		200		
<i>Illecebrum verticillatum</i>	EN	nd	11	nd	<300	A recent assessment of the Cornish (= native) populations indicate a threat status of EN under A and C criteria rather than VU under A
<i>Juniperus communis</i> ssp. <i>hemisphaerica</i>	CR	nd	1	16	13	A 2010 assessment showed the 5 Welsh plants are not this subspecies and that there were an extra 2 plants on the Lizard
<i>Liparis loeselii</i>	EN	nd		<1000		
<i>Luzula pallescens (pallidula)</i>	CR	1		<50		
<i>Orobancha picridis (artemisiae-campestris)</i>	EN	4?		<100		
<i>Phyteuma spicatum</i>	EN	11	8	400	197	A survey of all sites was undertaken in 2010
<i>Polygala amarella</i>	EN	nd		nd		Listed as ‘Least Concern’ in Red List, but amended to EN in 2010 due to evidence of recent severe decline in Kent and moderate decline in N England
<i>Potentilla rupestris</i>	EN	4		176		
<i>Pulmonaria obscura</i>	EN	3		600		
<i>Rumex rupestris</i>	EN	nd	>36	nd	>560	Post-2005 records show large population fluctuations on some sites from year to year

<i>Saxifraga cespitosa</i>	EN	nd			nd				
<i>Schoenoplectus triqueter</i>	CR	1	1		1				A number of reintroduced plants (Tamar)
<i>Scirpoides holoschoenus</i>	EN	2	2		nd				
<i>Scleranthus perennis</i> ssp. <i>perennis</i>	CR	1			32				Introduced populations excluded from the Red List total
<i>Senecio paludosus</i>	CR	nd			<50				A number of reintroductions
<i>Sorbus domestica</i>	CR	5			<30				Planted trees excluded from totals
<i>Teucrium scordium</i>	EN	2			nd				A number of reintroductions
<i>Veronica triphyllos</i>	EN	5			<250				
<i>Veronica verna</i>	EN	nd			nd				
<i>Viola canina</i> ssp. <i>montana</i>	EN	nd			<250				
<i>Woodsia ilvensis</i>	EN	nd			c. 100				Introductions have taken place on a number of sites

helpful. All information supplied would be treated as confidential and would only be used for the purpose of this assessment or if publicised only in summary form. We would, however, seek permission to incorporate any new information into the BSBI’s Distribution Database (DDb), where such data would be available to ‘trusted users’ unless providers requested it be made confidential.

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## Dittander takes to the road

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On 8<sup>th</sup> July, 2010, I was amazed to see a colony of *Lepidium latifolium* (Dittander) in full bloom on the central reservation of the M56 in Cheshire (see Colour Section, Plate 3). It was about 20 feet long and looked well settled. My amazement was compounded when, in June this year, Julie Clarke and Marion Chappell told me they had seen it in two places on the M6. There are two colonies near Knutsford, one of which covers about 200 metres, the other being a little shorter. There is also a patch near Sandbach. The size of these suggests they pre-date the M56 plants.

You cannot miss them in flower but the Knutsford stretch of the M6 does not take me anywhere useful, so I very rarely use it, and did miss them!

I can see the salt-marsh connection with Dittander’s native habitat, but this seems a remarkable development. I have seen it on railway sidings in Birmingham and Manchester, but cannot see any link to those. The BSBI maps show a linear set of records, which might be the M1, so I am wondering if this habitat is being utilised elsewhere. Any comments would be welcome.

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## Dittander by roads in the south-east

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Graeme Kay’s note prompts me to say that *Lepidium latifolium* (Dittander) has long had two habitats in Hertfordshire: old gravel pits and riversides in south-west Herts., and, for approaching a century, a colony by the Icknield Way (formerly part of the A505) at Baldock on the Chalk in the north of the county. Both of these occurrences remained fairly low key until recently, since when Dittander has taken off, particularly by roads, and not just motorways. It has sprung up around Hitchin on roads leading from the town, and I have also seen it by the A1, both

in Herts., and in south Bedfordshire (v.c.30). It has, especially, spread eastwards from Baldock along the A505 to Royston (and probably beyond). While, as yet, none of these colonies are as massive as those Graeme has seen, its widespread occurrence where it was formerly very local is something new.

Obviously, as Graeme implies, the salting of roads may have been an element in its spread, but it is also obvious that there must be something other than this that is encouraging it, perhaps more broken, open communities by roads owing to drought summers?

## *Fumaria reuteri* in Surrey (v.c.17)

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On the 17<sup>th</sup> October 2010, while having an end-of-the-day scratch around scruffy places at Virginia Water station in Surrey, looking for anything that might have sprung up in them, I came across a large-flowered fumitory growing in a neglected raised bed right next to the ticket office at TQ00106795. The inflorescence was longer than the peduncle and had c.20 flowers, each c.12mm long. The sepals were ovate, c.5mm long and scarcely toothed, the lower petals had narrow margins, the upper petals were rose-pink with blackish-red tips and I could see no obvious central papilla on the stigma. There were no ripe fruits and the plants were overtaken by winter before any were produced. (see inside back cover) Using the BSBI handbook *Fumitories of Britain and Ireland*, I made a provisional identification of *Fumaria muralis* (Common Ramping-fumitory) because that species has been recorded a number of times in Surrey and my experience of fumitories is limited. I didn't even consider *F. reuteri* (Martin's Ramping-fumitory) because I couldn't see a central papilla between the stigma lobes and I was a good 150 kilometres as the crow flies from the Lake Allotments on the Isle of Wight, the plant being very rare elsewhere in the British Isles. Nevertheless, there was a nagging doubt in my mind, so the specimen was duly pressed and sent to Rose Murphy, the BSBI *Fumaria* referee. Rose responded with admirable promptness, determining it as *F. reuteri* Boiss, later confirmed by Peter Sell.

This species has previously been recorded in v.c.17 from Reigate Hill in 1912 and in an

arable field near Kingswood for a few years until 1958, when it was lost as the field reverted to grass. Rose also tells me that it has recently been found in S. Hants (v.c.11) and on the east side of Scotland, away from its classical sites. The plant is a southern-temperate species, so these records may be the first evidence of spread northwards in response to global warming, although the chill of December 2010 may give it second thoughts.

The plant is extremely vulnerable in the raised bed at Virginia Water. I have no idea how the plant arrived, how long it has been there, what was growing in the bed before its current use as a temporary storage area for pipes, fencing and metre-cube polystyrene blocks associated with structural work on the nearby railway and what the future of the bed will be when these items are removed. As I write, at the end of February 2011, there are a few fumitory plantlets struggling in the weedy areas between those things and only time will tell whether they will survive and whether they are *F. reuteri* or another type of fumitory. If the former I will have another chance to look for that elusive papilla between the stigma-lobes.

I would like to thank Rose Murphy for her promptness, her helpfulness and for the detailed and informative exposition of her determination.

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## Biodiversity – a response

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I am not sure that I can improve on either John Presland's or the IUCN definition of biodiversity, as invited in the April issue. John's contrasting the word with 'nature conservation' did however prompt me to write.

No doubt there are reasons for coining this term, perhaps rooted in an unconscious wish to make conservation seem more modern, more technical, to 'sex it up'. Although some writers initially criticised the word as inaccessible jargon, I have been surprised by the readiness with which people have adopted it over the last 20 years. I notice, for example, it cropping up from time to time in Ambridge. Whilst it was initially applied at the global scale, a very large number of biodiversity action plans later cascaded the concept down to more local levels. This shift has, I think, brought an important issue to the fore.

Anyone involved in nature conservation will be aware of the group of criteria first set down by Ratcliffe (1977) which offer a framework for explaining what we value about nature. Indeed, they became known as the 'Ratcliffe Criteria'. There are ten of them, only one of which is diversity (given the context we can take the 'bio' part as read). But some of the criteria are more important than others, and diversity is one of only two, I think, which are fundamental. Alongside it, the other really important criterion is naturalness, and it is worth going back to the Ratcliffe Criteria to acquaint ourselves anew with why exactly we conserve what we do. In what follows, I do not want to be hijacked by the polemic "Ah! But what is natural?!" There have been innumerable discussions around this subject and they seem to have done nothing to dull the convictions of those who love wildlife, nor the intuitions of almost everyone else.

In the clamour over biodiversity, we have forgotten it is only half the picture. In a crowded world, the most biodiverse places are zoos and botanical gardens. We dismiss these as irrelevant because we take naturalness for granted in the argument. But we shouldn't take it for granted. We should explain it more often.

Planting *Gentiana clusii* in chalk grassland makes the grassland more biodiverse, but less natural, because *Gentiana clusii* isn't native in Surrey. On a recent GoogleEarth excursion to Askania Nova, Europe's last sizeable steppe grassland in the southern Ukraine, I was surprised to find that the photos I clicked upon opened to show not *Echium russicum*, but bison, then giraffes, then zebras. These steppes had also been made more biodiverse (the imperative an economic one – the safari park) but stuffing them full of big game seemed an affront to the last fraction of a percent of one of the planet's great biomes.

As one goes pole-wards, or up, ecosystems tend to become poorer in species. An apparently empty pool in a patterned mire, an expanse of snow and ice. It is interesting to note that grassland of Heath Rush *Juncus squarrosus* is usually dismissed as abundant, anthropogenic, dull vegetation of northern Britain generally lacking in diversity, and features little if at all in UK or European biodiversity action plans. On our alpine summits, however, similar swards of Heath Rush may be as precious and rare a bit of naturalness as you could hope to find. As with the bog pool and ice-field, as spontaneous manifestations of life on earth they have a parity with tropical rainforest, and conserving (or restoring) their naturalness, as examples of what the earth can come up with when left to gently simmer for 4,600,000,000 years, may sometimes mean reducing their biodiversity.

It is easy to forget this in organisations of flower-lovers like ours, or when some draw analogies – incorrectly, I believe – with immigrant people setting foot in a new country. There is a real risk that we forget about naturalness. So although 'biodiversity' looks like it is here to stay, I for one would like to retain *nature conservation*.

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## Forbes' Plant and Seed Catalogue, Hawick, 1914

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

For a while now I have been trying to find out where the owners of so many mansion houses in the Scottish Borders obtained the seed of *Poa chaixii* (Broad-leaved Meadow-grass) and *Luzula luzuloides* (White Wood-rush) which they sowed in their policy woodlands in the nineteenth century and where they naturalised. When I read George Thorburn's article on Forbes' Nurseries, Hawick in the *Transactions of the Hawick Archaeological Society* I thought I might have an answer, as Thorburn has some of their old catalogues. As it happens I have been disappointed in my quest, but, thanks to Thorburn, I have now been able to enjoy perusing the 1914 catalogue of the firm, which was in business from 1870 to 1969.

The nursery was a large one, selling plants and seed by mail order which were delivered by rail to all parts of Britain, and it was then in its heyday. The catalogue numbers against the species on offer go up to 4232. Although only about half the numbers were in use in that particular year, the total does give a measure of its scope. The firm was particularly famous for its *Pelargonium* varieties, but a very wide range of 'herbaceous and rockwork perennials' was on offer as well as bedding plants, as were vegetables, trees and shrubs.

Thorburn's article mentions that two dwarf weeping ash trees grew at the nurseries and that they survive within the Stonefield housing estate that was built on the site. This turned my mind to the similar one in the garden of my former office and to others that I have noted about the town. I then wondered about other species still in cultivation or escaped to the wild that might have their origins in the nursery. When I started to make lists it became clear that I could not hope to pin down more than a few species to this particular nursery as plant introductions had, of course, been ongoing in a big way for a century before 1914 and were to continue. Nevertheless the exercise has proved stimulating and I would

encourage you to seek out an old nursery catalogue if you have never done so, ideally one from your own area, and to let your mind run wild as you turn the pages.

So what did I find? One of the species listed is *Pratia angulata* (Lawn Lobelia). This particularly excited me as it has been naturalised for very many years on the lawns of the Wilton Lodge Park Museum in Hawick. It is recommended for rockwork and there is indeed a rockery, with a fine fountain on the top, in the lawns in front of the museum. *Arenaria balearica* (Mossy Sandwort) is another interesting find. This species has been recorded as naturalised in the grounds of The Hirsell, Berwickshire, whose owner, "The Right Hon. The Earl of Home", is listed as a patron of the firm. *Arum maculatum* (Lords-and-Ladies) is listed (but not the now much more often cultivated *A. italicum* (Italian Lords-and-Ladies)) as "a curious and well-known plant of easy culture", perhaps indirect evidence of its likely introduction to the Scottish Borders a century or more earlier. *Cerastium tomentosum* (Snow-in-summer) is listed as "fine for edgings". *Claytonia sibirica* (Pink Purslane) follows, a species now very widely naturalised in the region. *Chamerion angustifolium* (Rosebay Willowherb) is listed under *Epilobium* as "very free", along with the white-flowered variety 'Album' at the same price of 6d. One day in the 1970s I spotted a plant of the white variety at the back of a car park while on business about the town and went back in the evening to gather a specimen. It had gone! '*Heracleum vilosum* (syn. *giganteum*)' is offered as a "strong growing plant well adapted for banks of lakes, ponds etc." I am unsure whether this is the same as the *H. mantegazzianum* (Giant Hogweed) so notoriously naturalised in the catchment of the River Tweed. *Hordeum jubatum* (Foxtail Barley) is quite a surprising listing. Thorburn, who worked in the nurseries as an apprentice in the 1960s, tells me that he has grown it

himself and found that it liked impoverished soil. However it was not recorded in the wild in the Scottish Borders until 1983. The only *Impatiens* is 'Sultani', described as "a magnificent species of Single Balsam; large rosy scarlet flowers, 3 ft.", perhaps a bit small to be a slip for the all-too-familiar *I. glandulifera* (Himalayan Balsam). The white form of *Lunaria annua* (Honesty) is offered as seed along with the purple form. This white form is still quite often grown in Hawick and we have introduced it to our own garden, but I have only seen the purple form in the wild. *Mimulus cupreus* is listed alongside "florists' varieties" of the Monkey-flower genus. Its hybrid *Mimulus* × *burnetii* is one of the taxa naturalised in the burns of the Scottish Borders. *Sedum album* (White Stonecrop), now a serious pest in some choice natural rocky habitats, is included with its "creeping

habit" noted. *Verbascum nigrum* (Dark Mullein) is quite well naturalised on waste ground in Hawick but, while it too is listed, any connection with the nursery must be tenuous.

Equally interesting are the introductions which I expected to be in the catalogue but which are not there. These include *Allium carinatum* (Keeled Garlic), *Anemone ranunculoides* (Yellow Anemone) and *Valeriana pyrenaica* (Pyrenean Valerian), all of which are naturalised by the River Teviot near Hawick and which were presumably cultivated in or about the town. Who, I wonder, was selling these?

#### Reference:

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## Mycophily and its possible role in plant micro-distribution within habitats

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Endophytic fungi are present everywhere throughout the vast majority of living plants. They invade stems and leaves without apparently causing any symptoms of disease. Their role and use for the plant are as yet unknown.

Earlier this year I highlighted the possible involvement of these endophytic fungi in the growth and development of insects with particular reference to butterflies (Kemp, 2010). I proposed that a tripartite relationship exists between the fungus, the plant and any potential insect herbivore/predator. Sometimes for the insect the fungus would be beneficial, providing essential nutrients, and sometimes harmful, and thus help the plant to combat herbivory. The association of living plants and animals with fungi I called mycophily. Mycorrhiza are well known

examples of plant mycophily. I now believe the endophytic fungi may have a further role. As I write this in the depths of autumn it is difficult to deny the dominance of fungi in any damp habitat. Moreover there are believed to be at least 10-15,000 species in the UK alone. This further role for endophytic fungi could be in the determination of the position a plant occupies within a given habitat. By supplying nutrients to the plant, producing antibiotics against competing neighbours, as well as being toxic or beneficial to predators, the fungus determines the plant's resultant habitat niche.

I suggest the important subject of plant mycophily merits further investigation.

#### Reference:

KEMP, R.J. (2010). *Antenna* 34(1): 13-15

## Vigour, woodiness, branching & other recurring aberrations in Rosebay Willowherb

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Twenty-eight British and European floras, three world flower volumes, two botanical (R.H.S) encyclopaedias and five special accounts containing detail and illustrations of *Chamerion angustifolium* (Rosebay Willowherb) all failed to encompass the extraordinary variability of plants north of West Woods in Wiltshire. In some seasons in some situations, some or even many of these local Rosebay Willowherb plants come close to accepted flora descriptions. Others do not, confusingly. A patch with 2.5 - 2.7m verticals and branched racemes in one year may be less impressive a year later, when an adjacent patch takes over the great displays. Several authors of the above 38 publications refer to Rosebay Willowherb as one of our most beautiful plant species; but none of their illustrations match some of our big or branched farmland-fringe or bracken bed specimens (Oliver, 2005).

### Branching and renewed green infructescence shoots

Fig. 1 (page 27) shows part of a 2.4m vertical, just below the (mainly) dehisced October infructescences. There were 31 non-flowering branches over 25cm of the main axis. Most were 5-10cm long. Fig. 2 (page 27) shows renewed green shoots from the tops of two infructescences (26/10/2010). Arrows show new shoots from the tips of the main axes and from green bracteoles subtending spent or aborted capsules. There were still some flowers and flower buds remaining lower down the stems, but the whole splendid but rather chaotic arrangements (which include other similar racemes on the same verticals) had suffered from two night frosts.

### Branched inflorescences

Above the bracken level, the top 110cm of a 2.2m vertical had 34 branches over 10cm long and 20 shorter green leafy shoots (0.5 – 9.5cm). 23 of these 54 branches ended in flowering racemes. A count on 4<sup>th</sup> October 2010 gave 313 flowers, flower buds and fruit-

ing capsules (not counting aborted capsules). Microscopic examination of some of the tiny seeds on 27<sup>th</sup> October 2010 indicated that most seemed to be duds, as if the plant had spent all its reserves on branching. The cut stem at 1.4m was woody and ridged, 8mm in diameter with sap and tiny irregular remnants of green tissue (24/10/2010).

### Comparisons

Of the 40 illustrations from the 38 publications, only Akeroyd (1996) has a photo almost typical of many inflorescences of our local willowherbs. He also gives a realistic height range for Wiltshire plants (80cm – 2.5m). Phillips shows a main axis raceme with one satellite from its base. Akeroyd's picture shows six satellite racemes. All 38 other illustrations are limited to single racemes on the single verticals. Table 1 (page 26) sets out the main differences between local Rosebay Willowherb populations and those described elsewhere. 2010 had some dry summer months. In years when the fruiting capsules develop earlier, the supra-infructescence terminal renewed greenery can form larger spiralled leaves on elongating high rosettes.

### Heights

33 of the 38 Rosebay Willowherb accounts gave height maxima or ranges. Two of these played safe with "over 60cm". One gave a maximum height of 70cm, one of 100cm and another one "over 1 metre". Twelve publications, the largest group, gave 1.2m (4ft) as the maximum, with the favourite range as 30cm – 1.2m. Five accounts raised the level variously to "over 1.2m", 1.3m or 1.4m. Six more permitted 1.5m, with another 1.8m and two more 2.1m. Top of the range were two British and one European flora giving the maximum as 2.5m. Arctic plants can flower at 10cm, but can reach 2.1m (Everard & Morley, 1970). Local plants can reach 2.7m. In some patches in some years, it is difficult to find any verticals less than 1.2m (see Oliver, 2005). The

green renewed shoots at the top of the October infructescences usually only account for an extra 3–4cm before the first frosts. This means either that the local populations are exceptional, or that the maxima given in most floras are inadequate.

### Variability, vigour and special attributes

The commonest variables once considered at length in the literature were var. *macrocarpum* (Syme) vs. var. *brachycarpum* (Syme), but these have slipped out of the recent floras (e.g. Stace, 1997). Local August or September infructescence capsules mostly match var. *macrocarpum*, whereas many topmost (or late September and October capsules) match var. *brachycarpum*. Variations discussed in the old literature seem trivial in comparison with those shown on table 1, with the single exception of the Arctic height ranges. Grime *et al.* (1988) mention a woodland margin phenotype with thin leaves and fewer flowers, and non-European subspecies with alternative chromosome configurations ( $2n=72(4x)$  and  $2n=108(6x)$ ).

Burning, bomb-sites, forestry clearances and vigour from the mix of native with possible Scandinavian and Canadian strains are all factors said to account for the phenomenally rapid post-war spread of Rosebay Willowherb in Britain (for instance: Mabey, 1996). This favourite British plant has been investigated by many renowned botanists, and attracts special attention for the following eight reasons: beauty, vigour, varied ecology, history in Britain, speed of rhizome and lateral root colonisation (1m per season), “snowstorm” seed production (“80,000 seeds per plant per year” (?per vertical)), light-dependent germination, and special pollination mechanisms. Many flower books tend to give Rosebay Willowherb priority coverage. In Fitter & Attenborough’s (1987) *New Generation Guide*, for instance, it is discussed under six different headings and illustrated under four.

### Possible explanations

Variability within a single patch militates against the idea of a newly-evolved taxon, as only the tendency to exceptional height is

constant. Most of these aberrations recur unpredictably, so the opposite consideration, namely “one-off” classifiable anomalies occurring during growth and development cannot suffice (Cragg-Barber in Perry & Ellis, 1994; Presland *et al.*, 2009). Multiple branching, Mezereon-like greenery above dehisced infructescences, satellite racemes from the central raceme, tree-like propensities of some verticals in some years cannot be attributable to invertebrate galls or disease.

I have been impressed by a succinct explanatory formula used by Tom Cope in relation to the comparably varied anomalies seen in south Gloucs. and north Wilts. woodland fringe and glade populations of the grass *Brachypodium pinnatum* (Cope & Gray, 2009). “The inflorescence of this species is particularly unstable”. Taking this idea one stage further, there would seem to be survival of active meristematic tissues in the upper branching of some verticals in September and October, before the frosts (see both the branching subheadings preceding). The possible diversion of some plants’ energy reserves from healthy seed development to renewed upper stem branching and complex inflorescences might indicate altered plant hormone controls. If not a new taxon, at least the potential for sustained changes exists, were the environment to permit.

### Summary

Some Rosebay Willowherb verticals in some populations north of West Woods in Wiltshire exceed all flora maximum heights, can sometimes branch vigorously, produce multiple satellite racemes per vertical, and/or develop green Mezereon-like extensions to high September/October infructescence axes. Woodiness may, very occasionally, extend up from the bases. Were it not for our winter frosts, some of the verticals would seem to have tree-like potential.

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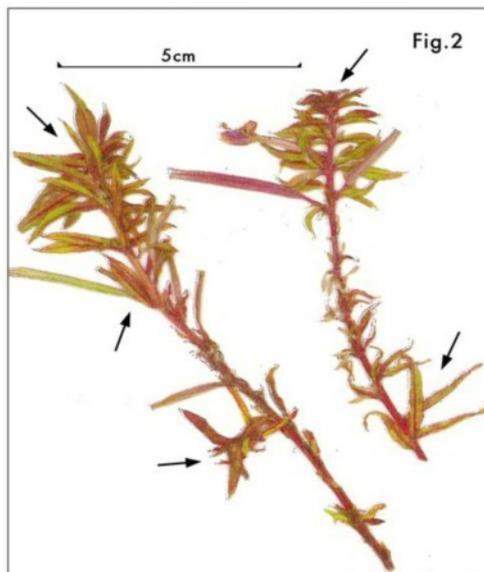
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Table 1. Variability in Rosebay Willowherb growth: local versus other populations

Observed characters	British, European and world accounts (38)	Some colonies north of West Woods, Wiltshire
Heights (incl. inflorescences)	Most: 30cm – 1.2m, down to 10cm (Arctic). Reaching 2.5m (2 British; 1 European floras)	Usually (1.2) 1.3 – 2 (2.5)m, but some verticals in some years 2.5 – 2.7m.
Non-flowering branching of verticals	Seldom mentioned, but in 3 accounts: 'usually unbranched'. No illustrations showing branching.	Occasional tree-like, dense branching (Fig. 1) below September and October infructescences. Up to 35 non-flowering branches and shoots
Satellite racemes around central raceme	Only depicted in 2 floras, both British, as 1 and 6 satellites originating from the base of the central raceme	Up to 23 satellite racemes usually from the base of the main central raceme. Semi-paniculate branching (within the raceme) only rarely seen.
Green non-flowering shoots from main infructescence axis	Unrecorded	Sometimes involving 1 in 5 verticals, mostly terminal (like Mezereon). Less often from green bracteoles of dehisced capsules. September, October; but killed by frosts.
Woody stems	Not described or discussed. All illustrations show smooth stalks.	Upper levels of some verticals go woody late in the season, with raised ridges. Most very woody at base by October.



*Chamerion angustifolium* . 31 non-flowering branches & new shoots (some branches & leaves removed), at levels 1.8 to 2.05m, on a 2.4m October vertical. The arrow shows base of the infructescence.



*Chamerion angustifolium*. Two tops of October infructescence of a 2.5m vertical. The arrows show the start of new green leafy rosette shoots. See text for details

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## Plants and security

RICHARD CHANCELLOR, 10 Chapel Lane, Wymondham, Norfolk, NR18 0DL

I was recently shocked to find a fraudster in eastern Europe had withdrawn £227.04 on several occasions from my bank account. So I had to change card, PIN number and password. I currently use many passwords but have exhausted all names and phone numbers of relatives, friends and even a few ancestors, so I have turned to plants. Some, such as 'bellis' or 'lolium' are good for six letter passwords, while 'medicago' or 'duckweed'

are good for eight, and even 'avenafatua' and 'brizamedia' for ten. If a number is also necessary then I add a couple at the end: 'buckbean44'. But I was surprised last week when entering 'lamium' to be told this was already taken, so perhaps security is already alive with floral passwords and my idea is not new. However, I should conclude by saying that all the names given here have been changed for security reasons!

## Changing status of *Mibora minima* on the Sefton Coast, Merseyside (v.c.59)

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### Introduction

Said to be the smallest grass in the world (Rich, 1997), *Mibora minima* (L.) Desv. (Early Sand-grass) is a nationally rare winter annual largely confined to sand-dunes in Anglesey and Gower in Wales and to cliff-tops in the Channel Islands, at which localities it is thought to be native. It has also been found more recently in English dunes at Studland, Dorset and on the Sefton Coast, Merseyside, where it may or may not be native (Cope & Gray, 2009). The Sefton locality on about 4ha of relict sand-dunes west of Southport Marine Lake (National Grid Reference SD336185) was discovered in April 1996 by David Earl and Joyce Buckley-Earl, having perhaps been overlooked previously because of its diminutive size and early flowering season (Earl & Buckley-Earl, 1997). The plant's distribution was mapped in March 1999 and again in 2004, when it was found to have increased in area from 1465 to 2158m<sup>2</sup> (Smith, 2005).

A Species Action Plan for *M. minima* was included in the North Merseyside Biodiversity Action Plan (Merseyside Biodiversity Group, 2001) a recommendation being that the plant should be monitored at regular intervals. In February 2007, about 3ha of the Marine Lake dunes, including a large part of the area occupied by *M. minima*, was fenced off by a private landowner, an intention being to prevent public access to the site. Concern was expressed that this would reduce recreational trampling, leading to overgrowth of competitive vegetation which could adversely affect both *M. minima* and *Coincya monensis* ssp. *monensis* (Isle of Man Cabbage), another nationally notable plant that occurs on the site (Smith, 2007). Accordingly, in March/April 2011, it was decided to revisit the Marine Lake dunes to determine the current status of *M. minima* and the impact of the fence.

### Methods

The site was visited on six occasions from mid-March to mid-April 2011, its area being estimated using *Google Earth*. Patches of habitat supporting *M. minima* colony were delineated using canes and mapped on a copy of an aerial photograph, grid references being obtained using a hand-held GPS device. Approximate linear dimensions of habitat patches were determined by pacing. Notes were taken on habitat condition, while associated vascular plants and bryophytes were listed. Five 2×2m quadrats were recorded in representative vegetation using UK National Vegetation Classification (NVC) methodology (Rodwell, 2000). The data were analysed using a modified TABLEFIT programme (Hill, 1996).

### Results

#### Distribution

Flowering vigorously, (see Front Cover) *M. minima* was found to be patchily distributed and locally abundant within the study area from SD3389 1870 in the north to SD3365 1843 in the south, a linear distance of about 354m within a sand-dune area of about 2.5ha. As in previous surveys (Smith, 2005), the centre of its distribution was the "bulge" on the western side of the Marine Lake. As before, the largest colony was on more-or-less level ground to the southwest of the higher dunes, where flowering stems were so abundant as to colour the ground surface purple in early April (see inside front cover). This section is just south of the area fenced off in 2007. Most of the population to the north-east of the bulge was found on southeast-facing slopes within the fenced area. A few patches were noted up to 60m northeast and 55m southwest of previous positions. Another change from earlier surveys was the discovery of eleven new colonies on northwest-facing

slopes adjacent to the Marine Drive carpark, some 15m to the northwest of the plant's distribution in 2004 (Fig. 1, page 34).

Previously, many plants were associated with the edges of informal sandy footpaths on the dune ridge in the central part of the fenced area. Most of these paths were found to have become grassed over, *M. minima* being no longer present.

Within the study area, approximately 3136m<sup>2</sup> of habitat patches supported *M. minima*, compared with 2158m<sup>2</sup> in 2004 and 1465m<sup>2</sup> in 1999. This represents a 45% increase in distribution since 2004 and a more than doubling of the occupied area since the first survey in 1999 (Figs 2 & 3, page 34).

### Associated species

Totals of 42 vascular and four bryophyte taxa were listed as associates of *M. minima*, compared with only 16 vascular plants in 2004 when bryophytes were not included (Table 1, page 32). This change may reflect an apparent increase in vegetation cover since the earlier survey. Of the species recorded in 2004 only one, *Senecio vulgaris* (Groundsel), was not seen in 2011. Of particular interest is the close association, in two areas, of *Coincya monensis* ssp. *monensis* with *M. minima* (see inside front cover), this being thought to be the only place in the world where these taxa grow together (Earl & Buckley-Earl, 1997). Cope & Gray (2009) state that associates of *M. minima* in a range of sites include *Anthyllis vulneraria* (Kidney Vetch), *Aira praecox* (Early Hair-grass), *Cerastium diffusum* (Sea Mouse-ear), *C. semidecandrum* (Little Mouse-ear), *Erophila verna* (Common Whitlow-grass), *Ononis repens* (Common Restharrow) and *Thymus praecox* (= *T. polytrichus*) (Wild Thyme) but it is often found on its own or in a moss carpet among *Ammophila arenaria* (Marram) or *Carex arenaria* (Sand Sedge). Most of these plants were present with *M. minima* at Southport. Several of the associates, including *Aira praecox*, *Arenaria serpyllifolia* (Thyme-leaved Sandwort), *Cerastium diffusum*, *C. semidecandrum*, *Erophila verna*, *Phleum arenarium* (Sand Cat's-tail), *Myosotis ramosissima* (Early Forget-me-not), *Stellaria*

*pallida* (Lesser Chickweed), *Veronica arvensis* (Wall Speedwell) and *Vicia lathyroides* (Spring Vetch) are winter annuals, most also being found with *M. minima* in its Anglesey dune haunts (Pemadasa *et al.*, 1974)

### Habitat

*M. minima* was invariably found in areas of open semi-fixed dune with plenty of bare but not mobile sand. Associated vegetation was usually short (to 5cm), evidently being maintained by moderate Rabbit (*Oryctolagus cuniculus*) grazing and recreational pressure, as well as the infertile substrate. Occasionally, plants were also found on bare sand under patchy Marram canopy. Being especially rich in shell fragments, the Marine Lake dune soil is highly calcareous and presumably relatively alkaline, though this could not be tested. The semi-fixed nature of the habitat is supported by the presence of frequent to abundant mosses, especially Sand-hill Screw-moss (*Syntrichia ruralis* ssp. *ruraliformis*) (Rodwell, 2000).

### Vegetation

The results of the TABLEFIT analysis of quadrat data are shown in Table 2 (page 33). Very poor matches were obtained to MC5d: *Armeria maritima*-*Cerastium diffusum* maritime theophyte community, *Arenaria serpyllifolia* sub-community (30%), SD8a: *Festuca rubra*-*Galium verum* fixed dune grassland, typical sub-community (29%), SD8b: *Luzula campestris* sub-community (29%), SD7d: *Ammophila arenaria*-*Festuca rubra* semi-fixed dune *Elymus pycnanthus* sub-community (28%) and SD8c: *Festuca rubra*-*Galium verum* fixed dune grassland, *Tortula ruralis* sub-community (28%). These inconclusive results may be partly due to the fact that TABLEFIT does not recognise *M. minima*, presumably because of its rarity.

Reference to the NVC keys in Rodwell (2000) suggests that MC5d, a vegetation of maritime cliffs mainly in southern England, is a completely inappropriate match to the Southport samples and that SD8 or SD7 are much more likely options. SD8 is characteristic of more calcareous fixed-dunes, especially where accretion of fresh sand has

largely ceased. Some organic matter accumulation is usual but major plant nutrients are generally limiting. Calcium carbonate content is often high, so the sward is usually calcicolous, while drought-resistant species predominate. Winter annuals, such as *M. minima*, can be frequent where open patches develop, either due to drought or to grazing by Rabbits or livestock (Rodwell, 2000). A major vegetation type on less mobile sands, SD7 occurs where Marram is still usually dominant but increasing stability allows the development of a rich associated flora, various perennial dicots appearing amongst the grassy sward. Bryophytes can become locally extensive and a range of annuals is often seen (Rodwell, 2000).

During their 2004 NVC survey of the Sefton sand-dunes Gateley & Michell (2004) mapped most of the higher dunes at Southport Marine Lake as a mosaic of SD5: *Leymus arenarius* mobile dune and SD7, while the lower-lying areas, including the largest patch supporting *M. minima*, were largely designated SD8. They recorded *M. minima* in two quadrats within SD7 and SD5 communities, while two target notes also mention this species within SD7 vegetation.

In the seven years since Gateley & Michell's survey, the community composition of the Southport dunes seems to have changed little, though some of the *Leymus* dune may have been replaced by *Ammophila*-dominated communities. Most of the vegetation currently occupied by *M. minima* at Southport seems to accord with SD8 but the recently discovered colonies adjacent to the coastal road carpark appear closer to SD7. Although this was not highlighted in the TABLEFIT analysis, some areas visually resemble the SD19: *Phleum arenarium*-*Arenaria serpyllifolia* dune annual community, which is widespread but declining on the Sefton Coast (Gateley & Michell, 2004). This type occurs on essentially stable sand where semi-fixed and fixed dune swards are opened up by drought or locally disturbed, often by Rabbits or human activity (Rodwell, 2000). Twenty-three of the 46 associated taxa found in 2011 are included in

the floristic table for SD19 by Rodwell (2000), who also lists *M. minima* as a component of this community. He also specifies *M. minima* as a "rare species" associated with both SD7 and SD8 but does not include it in floristic tables for these two communities.

### Discussion & conservation

The habitat of *M. minima* at Southport accords with literature descriptions, this species being mainly associated with nutrient-poor bare sand which is moist in winter and not too mobile. It prefers patches of open ground in sandy grassland, such as Rabbit scrapes and path sides (Cope & Gray, 2009). In common with other winter annuals, *M. minima* is unable to establish itself on shifting sand or in closed perennial communities, while even shallow burial in sand has been shown significantly to reduce seed germination (Pemadasa & Lovell, 1975). The Southport Marine Lake dunes are isolated from beach sand-supply by a seawall, promenade and linear carpark; therefore, accretion of fresh sand is limited to small-scale drift during high winds. However, increasing stability and the development of closed vegetation by natural succession is a likely consequence of such isolation unless succession is modified by disturbance, such as human trampling and the activities of Rabbits (Rodwell, 2000). Trampling and grazing, together with the effects of summer drought, can create open patches and assist the establishment of winter annuals but heavy grazing is deleterious as it may remove flowering or fruiting shoots and reduce recruitment the following year (Watkinson, 1990).

Since the northern part of the study site was fenced in 2007, some of this area has become more heavily vegetated, including the grassing over of trackways between the carpark and the Marine Lake, resulting in the loss of some *M. minima* habitat. Evidently, the size of the Rabbit population here has been insufficient to prevent the coarsening of this vegetation. However, the fencing is becoming increasingly dilapidated, dog-walkers and others re-establishing informal access to the area, with eroded pathways and small blowouts beginning to appear again. It is hoped that this will

restore suitable conditions for *M. minima* to return to these areas. Fortunately, the largest patches occupied by plant are south of the fenced area; here the habitat has remained open with short, trampled and Rabbit-grazed vegetation supporting *M. minima* in great abundance (see inside Front Cover).

*M. minima* has spread 55-60m to the northeast and southwest and 15m northwest of its haunts in 2004. This relatively slow rate of spread is not unexpected as seed dispersal by wind is known to be restricted by the plant's short flowering stems (Permadasa & Lovell, 1974). Movement northwestwards, against the prevailing wind, is somewhat surprising and may have been influenced by activities of pedestrians and dogs. There remains an estimated 0.8ha of ostensibly suitable habitat, both to the northeast and southwest of its current distribution, where further colonisation may occur, given time.

### Conclusions

*M. minima* remains well-established at the Southport Marine Lake dunes with large populations occurring locally in suitable open, sandy habitat, its preferred vegetation resembling the NVC's SD8 and SD7 fixed and semi-fixed dune communities. The plant shows some limited dispersal from its original 1990s locations but has disappeared from part of its range due to growth of grassland on formerly sandy tracks following the fencing of part of the duneland in 2007. Overall, the area occupied by the plant has more than doubled since 1999 and has increased by 45% since the last survey in 2004. Maintenance of suitable habitat conditions for *M. minima* is crucially dependent on moderate recreational trampling and Rabbit grazing, coupled with the low nutrient status and drought prone nature of the substrate. Areas of apparently suitable habitat are present to the northeast and southwest of the species' current distribution and it will be interesting to see whether these will be colonised in the future.

### Acknowledgements:

We are grateful to Pauline Michell for analysis of the quadrat samples and for supplying details of the 2004 NVC survey. John

Gramauskas of Sefton Council kindly produced the distribution maps.

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Table 1. Associates of *Mibora minima* at Southport Marine Lake dunes

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

NS = Nationally Scarce; SCI = Species of Conservation Importance in North West England

Taxon	English name	Frequency 2011	Frequency 2004	Conservation Status
<i>Achillea millefolium</i>	Yarrow	r		
<i>Agrostis capillaris</i>	Common Bent	o		
<i>Ammophila arenaria</i>	Marram	f	f	
<i>Anthyllis vulneraria</i>	Kidney-vetch	f	a	
<i>Arenaria serpyllifolia</i>	Thyme-leaved Sandwort	o		
<i>Carex arenaria</i>	Sand Sedge	o	o	
<i>Cerastium diffusum</i>	Sea Mouse-ear	f	a	
<i>Cerastium fontanum</i>	Common Mouse-ear	o		
<i>Cochlearia danica</i>	Danish Scurvygrass	r		
<i>Coincya monensis</i> ssp. <i>monensis</i>	Isle of Man Cabbage	r	r	NS, SCI
<i>Dactylis glomerata</i>	Cock's-foot	r		
<i>Elytrigia juncea</i>	Sand Couch	lf		
<i>Erodium cicutarium</i> .	Common Stork's-bill	o		
<i>Erophila verna</i>	Spring Whitlow-grass	f	a	
<i>Euphorbia paralias</i>	Sea Spurge	r		SCI
<i>Festuca rubra</i>	Red Fescue	a		
<i>Geranium molle</i>	Dove's-foot Crane's-bill	r		
<i>Hypochaeris radicata</i>	Cat's-ear	o	f	
<i>Leontodon saxatilis</i>	Lesser Hawkbit	o		
<i>Leymus arenarius</i>	Lyme-grass	f	o	
<i>Lotus corniculatus</i>	Bird's-foot-trefoil	f	f	
<i>Myosotis ramosissima</i>	Early Forget-me-not	o	f	SCI
<i>Oenothera sp.</i>	Evening-primrose	o	o	
<i>Ononis repens</i>	Common Restharrow	r		
<i>Phleum arenarium</i>	Sand Cat's-tail	o		SCI
<i>Plantago coronopus</i>	Buck's-horn Plantain	lf		
<i>Plantago lanceolata</i>	Ribwort Plantain	f	o	
<i>Poa annua</i>	Annual Meadow-grass	o		
<i>Poa pratensis</i>	Smooth Meadow-grass	r		
<i>Raphanus raphanistrum</i> ssp. <i>maritimum</i>	Sea Radish	r		
<i>Sedum acre</i>	Biting Stonecrop	o	o	
<i>Senecio jacobaea</i>	Common Ragwort	o		
<i>Senecio squalidus</i>	Oxford Ragwort	o	o	



*Teesdalia nudicaulis* at Ainsdale NNR (v.c.59). Photo P.H. Smith © 2011 (see p. 10)



*Sequoiadendron* seedling under mature tree near the entrance to the Pinetum at Wisley (v.c.17). Photo B. Phillips, RHS © 2011 (see p. 45)



Categories of *Tilia cordata* fruit

- 1. Unfertilised fruit with 5 empty chambers
  - 2. 1 enlarged hollow chamber indicating an undeveloped seed
  - 3. Fertile fruit with large white fully-developed seed
- Images by Colin Smith, Edge Hill University (see p. 45)



*Lathraea clandestina* by the lake in Cambridge University Botanic Garden (v.c.29); left photo April 2009; centre April 2010; right May 2010



Excavated plant showing underground rhizome with scale-leaves, buds and yellow roots



Excavated root of *Gunnera manicata* with parasitic root of *Lathraea clandestina* attached by a haustorium



Parasitic root of *Lathraea clandestina* attached by a haustorium to *Gunnera manicata* (detail)

All photos P.H. Oswald, lower 3 May 2010 (see p. 44)



*Lepidium latifolium* in full bloom on central reservation of the M56 (v.c.57). Photo G. Kay © 2011 (see p. 19)



*Sarcocornia* zonation, Fig. 3. Reproduction of a hand-tinted black and white photograph: a closer view of the zonation. The dark patches within the green zone are of *Sarcocornia perennis*. Photo D. Hamblen © 1951 (see p. 35)



Upper and lower photos - Conifer look-alikes from Wisley (v.c.17), L-R *Thuja plicata*, *Calocedrus decurrens*, *Chamaecyparis lawsoniana*  
Both photos B. Phillips, RHS © 2011 (see p. 45)



*Ludwigia grandiflora* ssp. *hexapetala* growing at the base of young trees, Wisley (v.c.17).  
Photo B. Phillips, RHS © 2011 (see p. 46)



The new BSBI Welsh Officer, Polly Spencer Vellacott on fieldwork on the Pembrokeshire coast (v.c. 45). Photo P. Spencer-Vellacott © 2010 (see p. 60)

Taxon	English name	Frequency 2011	Frequency 2004	Conservation Status
<i>Senecio vulgaris</i>	Groundsel	0	o	
<i>Stellaria media</i>	Common Chickweed	r		
<i>Stellaria pallida</i>	Lesser Chickweed	lf		
<i>Taraxacum officinarum</i> agg.	Dandelion	o	f	
<i>Trifolium arvense</i>	Hare's-foot Clover	r		
<i>Trifolium repens</i>	White Clover	o		
<i>Veronica arvensis</i>	Wall Speedwell	r		
<i>Veronica persica</i>	Common Field-speedwell	r		
<i>Vicia lathyroides</i>	Spring Vetch	lf		SCI
Total 42 taxa				
<b>Bryophytes</b>				
<i>Brachythecium albicans</i>	Whitish Feather-moss	f		
<i>Bryum dichotomum</i>	Bicoloured Bryum	r		
<i>Ceratodon purpureus</i>	Redshank	r		
<i>Syntrichia ruraliformis</i>	Sand-hill Screw-moss	a		
Total 4 taxa				

Table 2. Results of TABLEFIT analysis of quadrat samples

NVC code	Community	Sub-community	% fit	Match
MC5d	<i>Armeria maritima</i> - <i>Cerastium diffusum</i> maritime theophyte	<i>Arenaria serpyllifolia</i>	30	Very poor
SD8a	<i>Festuca rubra</i> - <i>Galium verum</i> fixed dune grassland	Typical	29	Very poor
SD8b	<i>Festuca rubra</i> - <i>Galium verum</i> fixed dune grassland	<i>Luzula campestris</i>	29	Very poor
SD7d	<i>Ammophila arenaria</i> - <i>Festuca rubra</i> semi-fixed dune	<i>Elymus pycnanthus</i> (= <i>Elytrigia atherica</i> )	28	Very poor
SD8c	<i>Festuca rubra</i> - <i>Galium verum</i> fixed dune grassland	<i>Tortula</i> (= <i>Syntrichia</i> ) <i>ruralis</i>	28	Very poor

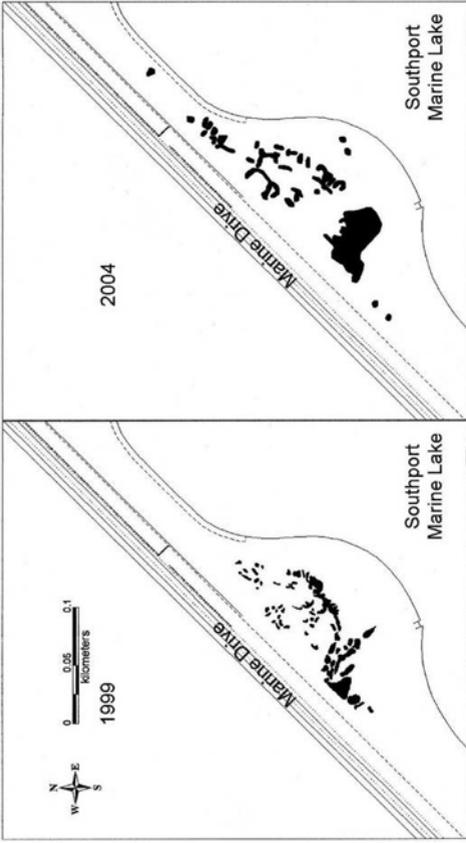


Fig. 2. Distribution (in black) of *Mibora minima* at Southport in 1999 and 2004

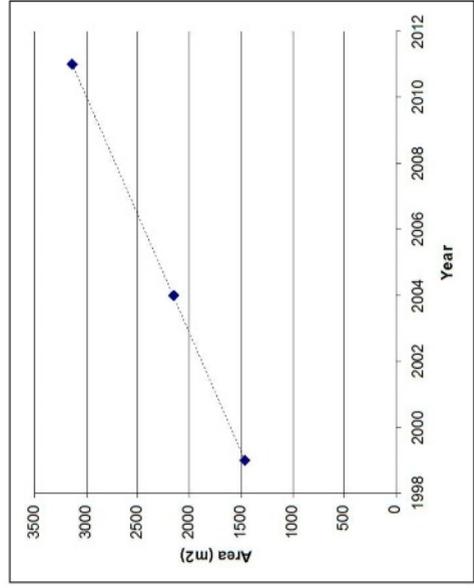


Fig. 3. Changes in area of habitat occupied by *Mibora minima* between 1999 and 2011



Fig. 1. Distribution (in white) of *Mibora minima* at Southport in 2011

## ***Salicornia* ‘sorts’ (2): zonation, dispersal, seeds and sorting**

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This note draws attention to the zonation (in 1951) of species and ‘sorts’ of *Salicornia* on a sloping shore: that of the Chetney Canal in the River Medway estuary. The species present comprised two aggregates later recognised by Clive Stace: *S. europaea* L. agg. and *S. procumbens* Sm. agg., defined by morphology (and putative chromosome number). The former was represented by two ‘sorts’, defined by stature and colour. An hypothesis is developed suggesting that different specialisms in seed characteristics play a part in the origin and maintenance of such zonations, and, inferentially, in the somewhat cryptic distribution of different sorts and species of *Salicornia* in more complex vegetation.

Chetney Canal (TQ883669) was a tidal waterway not present on an OS map of 1797, but shown on an OS map of 1862. It was excavated around 1810 to isolate Chetney Hill, the proposed site of a never-completed lazaret (an international quarantine facility) from the partially reclaimed and farmed land of Chetney Marshes. It was open at both ends to ordinary tides of the Medway estuary until 1953 (after the observations reported here), when a causeway was built blocking it and replacing the hard shown on earlier maps. On 1862 and 1896-1899 OS maps a very narrow strip of vegetation, labelled ‘saltings’ on the latter (Fig. 1, page 39), was indicated along the shore. This site provided, in 1951, an unique opportunity to investigate a primary Salicornetum that had been renewed annually, for a century and a half, on a relatively stable, even slope composed of sandy boulder clay.

### **Competition, salt marsh patterns and *Salicornia***

In the absence of competition from species of other genera, *Salicornia* could probably occupy all levels on any European salt marsh and adjacent episodically flooded land. It is

evident in the field that distinct ‘sorts’ of Glasswort may exist in very close proximity in an estuary. However, various accounts ascribe different species to contrasting habitats, usually to different levels in relation to the tides, to the composition of the substratum or to both. Only where there is a sloping tidal shore with minimal competition from other genera is it feasible to compare the performances of different sorts or species in relation only to ‘level’. Zonation of recognizable sorts and aggregate species within the Salicornetum of such a shore will provide coherent evidence for ecological optima in relation to tides. The sorting processes, resulting in zonation of mature plants, may involve more than post-germination competition. This possibility is discussed here.

### **Pattern of sorts in a Salicornetum**

On a sloping shore several sorts of *Salicornia* may be present in, or dominate, different zones of a Salicornetum. The photograph (Fig. 2, page 39) illustrates such a zonation, showing sheet-like bands of vegetation parallel to the water-line on the ‘mainland’ shore of Chetney Canal. These were sharply differentiated by colour (Fig. 3 see Colour Section, Plate 3).

### **A possible intraspecific zonation**

The uppermost, red, zone comprised small little-branched *S. europaea* agg. plants, perhaps owing both their colour and their small (?stunted) stature to edaphic stress. The closed vegetation limit was at precisely the highest level reached by spring tides, and above this the substratum was barren, apart from scattered *Suaeda maritima*, suggesting that the *Salicornia* alone was dependent on tidal immersion. In the uppermost part of the green zone were larger, more-branched, green plants also assignable to *S. europaea* agg. This zonation might then be regarded

as intraspecific (or intra-aggregate), and might be comparable to the observations of Jefferies *et al.* (1981), with the main growth phase of upper-marsh seedlings (in Norfolk) being relatively, and heritably, delayed. The upper and lower marsh populations were stated by these authors to most closely resemble (my italics) the descriptions of *S. ramosissima* and *S. europaea* (*sensu stricto*) respectively.

A true interspecific zonation involving two *Salicornia* aggregate species existed within the green zone. This was less visibly obvious but is revealed in the down-shore transect showing the numbers of plants in contiguous 6-inch-square quadrats (Fig. 4, page 40). The diploid *Salicornia europaea* agg. was most abundant higher up and a tetraploid (*S. procumbens* agg., *c.f.* *S. fragilis*) was most abundant lower down. This zonation must be related to the tidal influence; that is, to the number and duration of submergences endured during the growing season by plants at different levels. Locally, probably invasive *Sarcocornia perennis* reveals its ‘preferred’ intermediate level on the photographs. It is instructive to consider how different sorts of *Salicornia* might arrive at such a site, and how a zonation such as that described here is established and maintained.

Dispersal is regarded here as travel of seeds in various directions, and for significant distances. According to Kadereit *et al.* (2006), diploid *Salicornia* must have evolved first (in Eurasia in Late Eocene/Early Oligocene) and its present world-wide distribution suggests an extraordinary ability of its propagules to travel. Indeed, a high intercontinental dispersibility on a global scale is attributed to the entire *Salicornia/Sarcocornia* lineage by these authors. Despite this, the seeds *per se* have no obvious dispersal aids, and are unequipped for flight or unaided flotation: such seeds may be suspended by wave energy in shallow water; those sinking in deep water will be lost. Although it is well

known that the seeds are eaten by some birds (examples include Twite *Carduelis flavirostris*, and dabbling ducks *Anas* spp.), causing disintegration of senescing plants and likely release of uneaten seeds, I can find no evidence in the literature of the ‘safe’ passage of seeds through a bird’s gut, nor of seeds travelling on birds’ feet or plumage, although the hooked hairs on the mucilaginous testa of some seeds suggests the last possibility. Flooding was found (by ornithologists studying the exploitation of *Salicornia* seeds by birds) to induce gradual release of seeds from plants on a Danish salt marsh (Therkildsen & Bregnballe, 2006).

I found that although most of the mature seeds from a roughly-shaken *S. c.f. ramosissima* specimen would sink immediately in sea water, some ‘escaped’, with broken remains of the perianth attached. These floated for much more than a week. A summary of such ‘accidental’ dispersal through flotation (seeds within floating uprooted plants, stuck to seaweed etc. and flotation of seedlings) is provided by Davy *et al.* (2001). It may well be that if seeds are to be dispersed by water they ‘need’ a buoyancy aid. Seeds of *S. pusilla* (not part of the *S. europaea* aggregate) are helped in long-distance travel by flotation for up to three months within disarticulated parental parts. Dalby (1963) reported that entire fruiting heads of this species containing 4-10 seeds are shed after development of an abscission layer – an unique, and evolved property, with the parent plant facilitating removal of a seed on the highest spring tides, and its possible arrival on similar tides in its ‘preferred’ habitat, the drier parts of salt marshes.

#### Limited dispersal and non-dispersal

Rand (2000) demonstrated empirically that patterns of post dispersal success were strongly reinforced by limited dispersal in respect of six salt marsh species, one of which was *S. europaea*. It is suggested here that local distribution patterns of various

sorts of *Salicornia* may be similarly influenced and result from non-dispersal.

Davy *et al.* (2001) suggest that some 50% of seeds fall within 10 cm. of the parent plant. This implied 50% local deposition does not result, however, in year on year increase in plant numbers per unit area. Although seeds will sink immediately, at around 1cm per second, if they are placed in still sea water wave action will suspend and re-suspend them cyclically in shallow water, presumably with the same initiation of motion criteria as sand and other uniform sediments, as described for organic detritus by Fischer *et al.* (1979). Once out of firm contact with the substratum, entrainment of a seed by tides and currents becomes possible, and a cohort of seeds may drift with the tides along a sloping shore. The sorting of mineral particles of similar specific gravity by ‘size’ on a strand is well understood with smaller-grained material at higher levels. Deposition of an inorganic particle (or seed) relates to sinking velocity, a measure derived not from its size *per se*, but from its shape, specific gravity, and surface characteristics.

#### **Taxonomic sorting of *Salicornia* seeds**

Size differences between the seeds of some diploid and tetraploid plants were illustrated statistically by Dalby (1962). His analysis was for one component only, length, and only that of the single seed produced by the central flower of each three-flowered cyme. Tetraploids (*i.e.* *S. procumbens* agg.) were shown to have larger seeds than diploids (*S. europaea* agg.). Whilst all the seeds produced by a plant of the *S. procumbens* agg. are the ‘same’ size, two thirds of the seeds of *S. europaea* agg. (those from the two lateral flowers of each three-flowered cyme) are slightly smaller and lighter (Ungar, 1979), providing even greater overall differences between the aggregates than are suggested by comparisons of the ‘central seeds’ only. Any measurement of

size or weight in a population would be expected to be distributed as a normal curve, with one mode for any ‘sort’ referable to the *procumbens* aggregate, and as a bimodal curve for any *europaea* ‘sort’.

#### **Hydrodynamic sorting**

Houwing (2000) commented that seeds of salt marsh plants in general will “suffer from hydrodynamic conditions, and are very vulnerable to washing away by waves”, small seeds being later deposited, after tidal transport, higher up-slope than large ones. It follows that the relatively small seeds of the *europaea* agg. subjected to tidal motion would be expected to be, on average, deposited further up slope (or ‘inland’) than those of the ‘*procumbens*’ agg., each ‘finding’ its optimal level for germination and survival. The speed at which a seed sinks, which is related to, but not dependent on, size, is thus likely to be a determining factor. An incidental and related observation is the constant level of *Sarcocornia perennis* patches in the Chetney zonation. This will be of relevance in a subsequent note.

Evans (1965) recognized the importance of the decrease in competency and capacity of tidal waters as they move inland over the intertidal zone depositing sediments that decrease in ‘grain size’ when traced from low to high water mark, giving sheet-like units referred to as sub-environments. The annually recurrent stands of red plants on higher and drier parts of a marsh in Brittany described by Moss (1914) as “Crimson Plains”, must represent such a unit, as does the sheet of small red plants found at Chetney in 1951. Moss suggested that the Brittany stands comprised ‘dwarfed’ (= stunted?) forms of *S. ramosissima* (*i.e.* *S. europaea* agg.), and that they would long ago have been given a name by botanists with ultra-analytical tendencies. The small red plants at Chetney in 1951 did not exhibit the colouration of Purple Glasswort (*S. ramosissima* Woods), as now recognised

by Stace (2010), and the cause of the sharp colour demarcation remains in doubt.

### An evolutionary trade-off

The hydrodynamic properties of the seeds of a *Salicornia* species or sort could represent an evolutionary trade-off between losses through settling in relatively unsuitable micro-sites and gains in the most suitable sites. ‘Size’ is related only partly to behaviour of small objects in a liquid, especially in a turbulent one, whilst sinking velocity in still sea water could be a key measurable factor for discrimination of sorts. An hypothetical partial separation of two sorts of seeds, one a diploid, the other a tetraploid, on a sloping shore, related to the rate at which they might be found to sink in still sea water is illustrated (Fig. 5, page 40). Sinking velocities around the mode rather than the average value for a sample would be important. Some experimental results bearing on this hypothesis will be presented in ‘*Salicornia* sorts (3): sinking seeds’.

### Acknowledgements:

I thank the Kent County Council Environmental Management staff for locating historical records of Chetney Canal.

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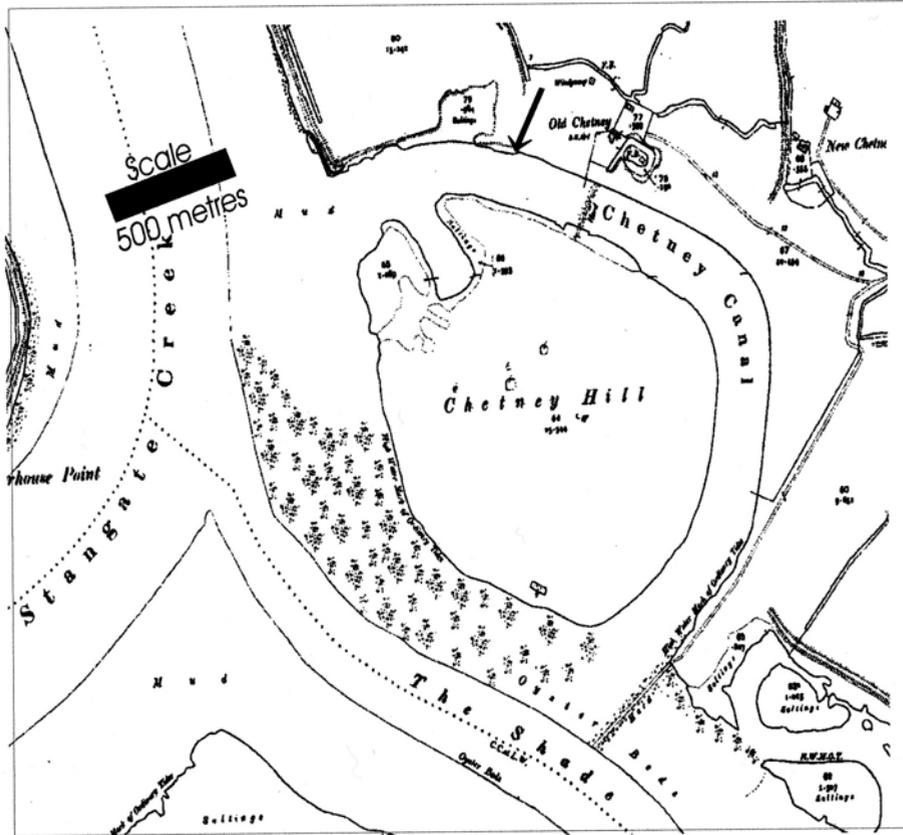


Fig. 1. Location (foot of transect arrowed) of the 1951 *Salicornia* zonation shown on fragment of a 1899 OS map.

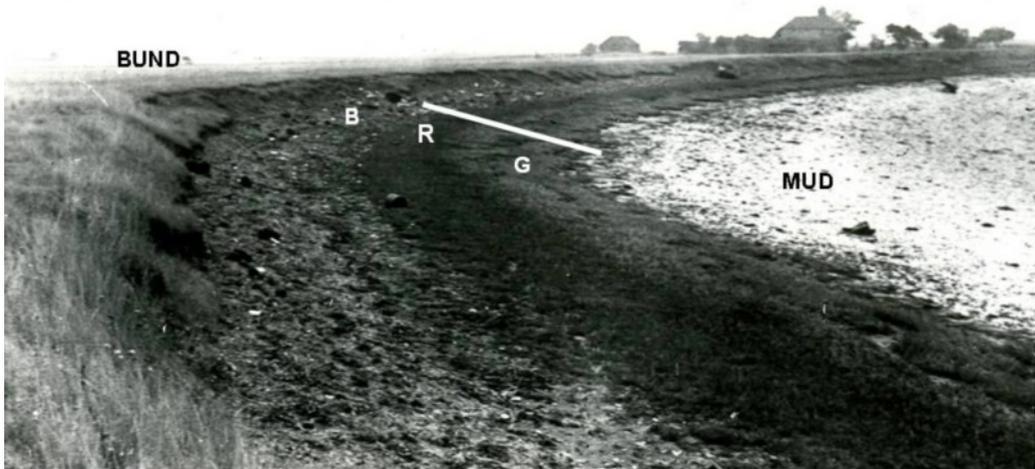


Fig. 2. Black and white photograph of the Cheney Canal shore taken on 30<sup>th</sup> September 1951. ‘B’ is the barren surface of debris from the eroding bank; ‘R’ is the zone of red *Salicornia*; this and the upper part of the green zone ‘G’ were dominated by diploid *S. europaea* agg. The lower part of ‘G’ was dominated by tetraploid *S. procumbens* agg. (c.f. *S. fragilis*). A white line marks the transect of Fig. 4. The building is ‘Old Cheney’ on the map. It is now gone

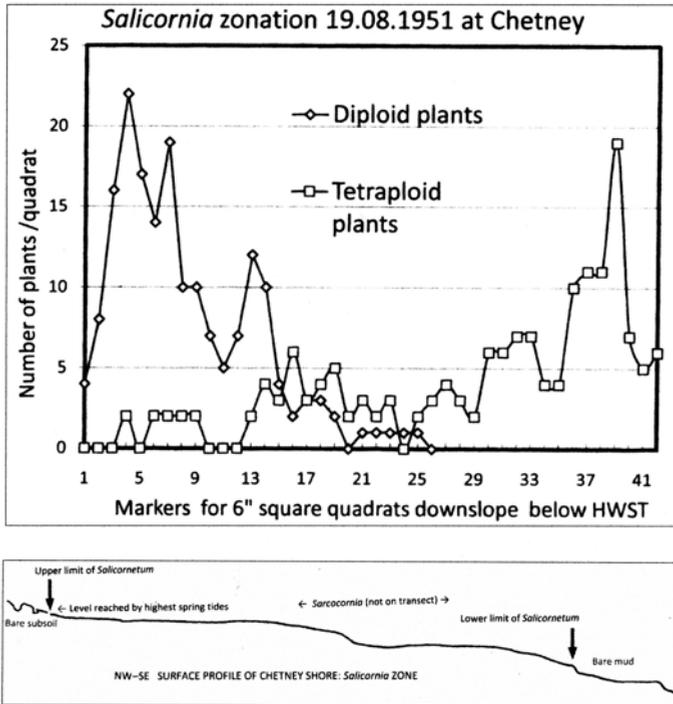


Fig. 4. Profile of the 6.5m. transect down the sloping shore shown in Figs. 2 and 3., and graph showing numbers of diploid (*S. europaea* agg.) and tetraploid (*c.f. S. fragilis*) *Salicornia* individuals per six-inch square quadrat downslope. No other angiosperm genera were present apart from insignificantly few, stunted, specimens of *Puccinellia maritima*, *Suaeda maritima* and *Cochlearia officinalis* within the topmost few quadrats

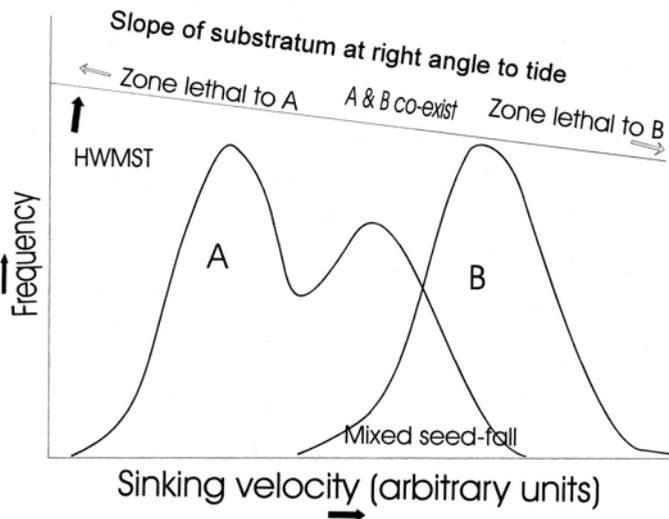
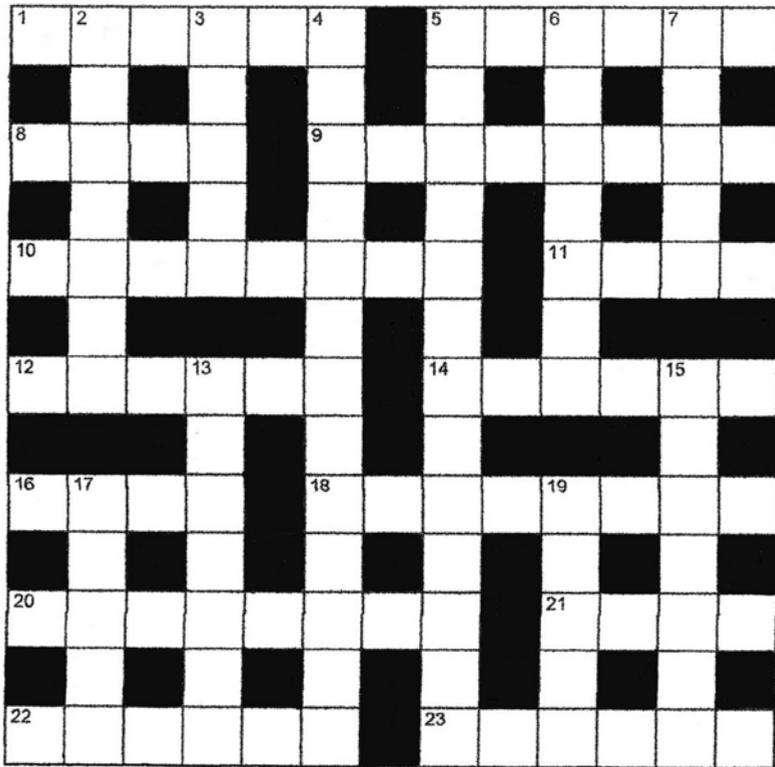


Fig. 5. Hypothetical sorting of seeds deposited on a sloping tide-washed shore. A = a diploid taxon (*S. europaea* agg.) producing ‘small’ seeds of two ‘sizes’; B = a tetraploid taxon (*S. procumbens* agg.) producing only ‘large’ seeds

# BOTANICAL CROSSWORD 16

by CRUCIADA



**Across**

- 1. Scots by the sea adore to be given silver (6)
- 5. Pearly plant works against being cut down (6)
- 8. Botanist's look when ID proved correct, showing receding gums? (4)
- 9. Ruins, i.e. spoils, club rush (8)
- 10. Gain attention (8)
- 11. Give the signal to go east at junction (4)
- 12. A doctor's adopted surprising word for woody grass with . . . (6)
- 14. ... a curse on the Spanish grass (6)
- 16. Contact one Italian girl to remove foot from trivial plant (4)
- 18. Open the windows in hospital where pollen may be blown? (8)
- 20. Serious study about type of engine (8)
- 21. Identify man coming back at last minute (4)
- 22. Plant so insignificant that if one closes eyes briefly, one misses it? (6)
- 23. Work out late function as reported (6)

**Down**

- 2. Ordnance survey original map found beneath, they say, majestic fern (7)
- 3. Seaweed dispersed in a gale (5)
- 4. Fleabane bitter after recent sex change (8, 5)
- 5. Caught sight of flower, fingering root on heath or common (7-6)
- 6. What grass is elsewhere - but people possibly not (7)
- 7. Diana's upset, being submerged in lake, for example (5)
- 13. John may be an alternative name for this trefoil (7)
- 15. Finish off mice possibly confined to one place (7)
- 17. Delia's cooked up something perfect (5)
- 19. Bristled when you first left, having shown boredom (5)

## Response to Dr Bob Leaney's suggestion of over recording of certain species in the *Flora of Norfolk*, and while helping to record for the *Flora of Suffolk*

ALEX BULL, *Hillcrest, Main Road, East Tuddenham, Dereham, Norfolk, NR20 3JJ*

At the end of his paper on the above subject, Dr. Leaney calls for a response to his suggestions that there was over recording of certain species. As he unhesitatingly points the finger at myself as being the guilty party, I feel duty bound to make some sort of defence, as v.c. recorder for v.c.27 over the period of record collection for the *Flora of Norfolk*, and also for organising Norfolk recorders to help with the *Flora of Suffolk* in the northern half of that county.

I would first of all refer him to the situation in another county where the v.c. recorder happens to be a personal friend. He published a Flora of his county with the help of a team of local botanists as we did in Norfolk, but had the same sort of doubts as Dr Leaney has, as to the expertise of some of his team of recorders. Not wishing to give offence, after a year or two, he started doing the whole project again, but this time every tetrad visit was carried out either by himself or with one or two close friends. Thus, when his second flora was published he had personally seen every record. This may be the ideal solution, but not many people have the time or dedication to visit every tetrad in their vice county at least twice and usually three times over a period of just under 20 years. In v.c.27 that would amount to 2142 tetrad visits at the rate of 172 visits per annum for 20 years.

With the possibility of confusion in mind, I frequently asked for confirmation that *Symphytum officinale* (Common Comfrey) was indeed white flowered and was usually assured that it was, although, I suppose, rogue colonies of *Symphytum orientale* (White Comfrey) growing atypically on river banks might cause some confusion. Having said that, a glance at the map for east Norfolk does show a series of linear tetrad dots along the valleys of main rivers and tributaries, so I had little reason to doubt their veracity. Why can

it not be found now? Have all suitable spots along the rivers and their tributaries in v.c.27 been thoroughly searched? Has the plant declined due to the fact that, at least in this part of Norfolk, the Environment Agency delights in 'weed cutting' during the summer months, leaving the banks fairly bleak?

*Prunus domestica* (Plum), as a hedgerow plant, both here and in Suffolk, is almost always to be found near the sites of former habitation, or at least, groups of farm buildings, even without a former or extant dwelling place. However, as I know only too well in my own garden, Plums soon become 'wild' through prolific suckering and can spread over distances of up to 20m from the parent in a matter of a dozen years. This being the case, they have every right to be classed as naturalised. Anyone familiar with the plum family will be aware that *Prunus cerasifera* (Cherry Plum) flowers up to a fortnight before *P. spinosa* (Blackthorn) and is the first 'showpiece' of spring in the many parts of the county where it is frequent, followed two or more weeks later by Blackthorn. The same order follows on through the season, with Plums and Bullaces *P. domestica* ssp. *insititia* agg. (yellow or black) last to flower, and with Cherry Plums ripe in July, in whichever colour they happen to be. I know of one old hedge with ripe fruit red, yellow and even purple, but all fruiting at the same time. On the other hand, Bullaces are seldom ripe before late September or into October. Before the fruit are ripe, the two can easily be separated, as *cerasifera* have long-stalked, cherry-like fruits, whilst *domestica* ssp. *insititia* fruits have short stalks and are closely clustered. After leaf fall and through the winter, the green young twigs of *cerasifera* are so obvious that I would suggest that it would take a pretty poor botanist who could not separate *ceras-*

*ifera* from any other member of the plum tribe, at any time of year.

Another possible source of confusion over *Sedum forsterianum* (Rock Stonecrop) may lie in the fact that older works included it under the name '*S. rupestre*', which is the name now used for what was then *S. reflexum* (Reflexed Stonecrop). This being as it may, there is no doubt whatsoever that there did used to be a large area of north-east Norfolk with *S. forsterianum* growing on dry hedgebanks as well as in churchyards elsewhere in East Norfolk. I am also rather bemused that the two could be confused, having seen both in many 'wild' situations (churchyards), as well as on hedgebanks. I would suggest that its decline and probably its ultimate demise in the latter habitat is not so much due to eutrophication, the damage being done to this and many other wayside plants being by the practice of

scalping the roadside banks several times each summer with tractor mounted flail cutters. Only deeply rooted perennials can withstand that sort of treatment year after year.

*Salix cinerea* (Grey Willow) ssp. *oleifera* may have been the victim of some over recording by reliance on the rusty hairs on the underside, but with a gradation into hybrids, as is suggested, and a not very helpful account in Stace's *New flora of the British Isles*, in which he gives just one leaf illustration for *S. cinerea* without differentiation of the two subspecies. I cannot comment on south Suffolk, except to say that his team did not deal very well with some critical genera (M. Sanford, pers. comm.).

As for east Cambridgeshire, I would suggest that Dr. Leaney gets in touch with Dr Alan Leslie, who is carrying out surveys for a new Flora of that county, for a full update.

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## ALIENS

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### **Massed occurrence of *Hirschfeldia incana* (Hoary Mustard) in south Hertfordshire (v.c.20)**

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The spread of southern species is no new phenomenon in this part of Britain, and *Hirschfeldia incana* (Hoary Mustard) has been spreading steadily across Hertfordshire for some 40 years, having formerly been a rare casual. Most of these occurrences, however, have been ephemeral, usually as a result of roadside works, gravel digging, or on waste tips.

In the last year, however, with massive engineering works by the M25 in south-west Herts (and down into Buckinghamshire and beyond), the opportunity for this plant to take advantage of the situation has been fully taken up. Anyone who has driven this section of motorway must have been impressed by the miles of cheerful yellow flowers that resulted! A rough estimate of 17.5km (nearly 11 miles)

was made on 30<sup>th</sup> April 2011, as the near-continuous extent of the occurrence of this plant, mostly on the western/northern road verge of the M25, just along the v.c.20 section of the motorway. Tens of millions of plants must have been involved. It also occurred in patches up the A1(M) from Hatfield to Stevenage, at least. It is now a conspicuous feature of many roadsides on disturbed ground in this area, much as it always has been on similar sites in the Mediterranean. It will remain to be seen how long this massive expansion continues, and to what level its population will fall back as more stable vegetation takes over, but there is no doubt it is now a major part of roadside and waste ground habitats in our area, along with other southern species.

## Purple Toothwort on *Gunnera* again

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In *BSBI News* **109**: 51 Alan Ogden reported a case of *Lathraea clandestina* (Purple Toothwort) parasitising *Gunnera manicata* (Brazilian Giant-rhubarb). The *Lathraea*, originally growing on willow and poplar in his garden, “began to grow most profusely” around *Gunnera* plants there and subsequently in the garden of some friends to whom he had given a rooted bud from his plants, thus proving to his satisfaction “that the Purple Toothwort can grow on *Gunnera*, a most incredible association”.

*Lathraea clandestina* is a familiar feature of Cambridge University Botanic Garden, where I see it every spring parasitising various willows and poplars. One of its more conspicuous sites is a bed by the lake (see Colour Section, Plate 2, a & b) with a large bush of Musk Willow (*Salix aegyptiaca* L.) from north Africa and western Asia, where there are also long-established clumps of *Gunnera manicata*. Like Alan Ogden, I noticed a few years ago that the *Lathraea* was growing “most profusely around the *Gunnera*” and idly wondered whether it could be parasitising it (see Colour Section, Plate 2, c). In September 2008 his article made me realise that this was a real possibility, so I determined to test the hypothesis. I failed to do this during the spring of 2009, but on 3 May 2010 I persuaded John Kapor and Simon Wallis of the Botanic Garden staff to dig up some of the *Lathraea* growing next to the *Gunnera*. Until “a much simpler test was discovered accidentally” Alan Ogden had thought of “gently washing away the soil with a hose”, but we did this by dipping pieces of what we had dug up into the lake. We were thereby able to establish beyond doubt that the thin yellow roots of the *Lathraea* were attached to the larger pale brown roots of the *Gunnera* (see Colour Section, Plate 2, d, e & f).

It transpires that *Gunnera* as a host of *Lathraea clandestina* is not something new. E.A. Bowles first reported it in *My garden in spring*, originally published in 1914 and reprinted in facsimile by Timber Press in 1997. James Armitage, in *BSBI News*, **116**: 57–58, mentions 37 genera that have been proved or claimed as hosts of this species.

Alan Ogden also mentioned “another observation”, that during dry spells “the soil around the clumps of *Lathraea* remains very soggy” and wondered whether “the plant has to rid itself of excess water and possibly sugars”. John Kapor says that he has noticed the same thing. Again this proves not to be a new observation. In 1897 P. Groom reported, in *Annals of Botany*, **11**: 385–398, that the dome-shaped glands found in the lacunae of the native Toothwort (*Lathraea squamaria*) and some other members of Orobanchaceae (as Scrophulariaceae) enable them to get rid of excess water in the absence of stomata on normal leaves, and in the next year in the same journal (**12**: 118) he added that Charles Darwin had mentioned this phenomenon in 1880 in *The power of movement in plants*. These facts were recorded in February 2010 in an account of *Lathraea clandestina* by Michael F. Fay in *Curtis’s Botanical Magazine*, **26**: 389–397, with excellent illustrations and a full description of the species.

Cambridge University Botanic Garden provides a further example of an unusual toothwort host in that *Lathraea squamaria* grows there too, evidently spontaneously, parasitising Cambridge Cherry (*Prunus pseudocerasus* L.), also close to the lake.

I am grateful to James Armitage, Michael Fay, John Kapor, Alan Leslie, Hassan Rankou and Simon Wallis for their help and advice.

## Notes from Wisley (v.c.17)

JAMES ARMITAGE, *Royal Horticultural Society Garden, Wisley, Woking, Surrey, GU23 6QB*

The following notes are based on observations made by Barry Phillips and myself during lunchtime strolls around the Royal Horticultural Society's Garden at Wisley, Surrey.

### *Calocedrus decurrens*

The propensity of *Chamaecyparis lawsoniana* (A. Murray) Parl. (Lawson's Cypress) and *Thuja plicata* Donn ex D. Don (Western Red Cedar) to self sow where they have been planted as windbreaks, screens or for forestry is well known. However, I know of no record of their look-alike, *Calocedrus decurrens* (Torrey) Florin (Incense Cedar), regenerating outside gardens in Britain.

*Calocedrus decurrens* is native to south-western USA, where it grows into a large tree, and was introduced to Britain in 1853 (Bean, 1980). Despite its pleasing, very columnar habit it has not found horticultural favour to the same extent as the Lawson's Cypress or Western Red Cedar but is fairly commonly planted in parks, larger gardens, graveyards and the like. At Wisley several impressive specimens grow in the Pinetum, where it is perhaps the most commonly found coniferous seedling. In view of this it seems strange that it should nowhere have sprung over the garden fence, and the thought occurs that it is possibly being mistaken for one of the two species mentioned above.

In reproductive material there is little difficulty distinguishing *C. decurrens* from the other species as it has only two scales to the female cone, but from vegetative growth alone, or as a seedling, it becomes more challenging. The leaves of the Incense Cedar are broader than those of Lawson's Cypress, more sharply pointed than those of the *Thuja* and are notably dark, forming characteristically deltoid, fishtail-like sprays (see Colour Section, Plate 3). However, perhaps the best diagnostic character is the fragrance of the crushed foliage. In *Thuja plicata* the bruised leaves release the strong, zesty smell of Opal Fruits (Starburst to younger readers), while

*Chamaecyparis lawsoniana* has the aroma of musty pineapple. The scent of *C. decurrens* is not, as might be expected, that of incense but something more like shoe polish. It will be interesting to see if anyone can turn up a record of this lesser-known tree.

### Redwoods

The somewhat miscellaneous selection of conifers that formerly made up the *Taxodiaceae* (now generally sunk into the *Cupressaceae*) contain some of the finest landscape trees that can be grown in Britain including the species collectively known as the redwoods. These comprise three monotypic genera: *Metasequoia*, *Sequoia* and *Sequoiadendron*, which are commonly planted for amenity. Despite their wide use, they show little inclination towards spontaneous reproduction inside or outside gardens in the UK.

The Dawn Redwood *Metasequoia glyptostroboides* Hu & W.C. Cheng was discovered in south-west China in 1941, and was introduced to cultivation in Europe and America seven years later (Bean, 1980). Barry Phillips recalls finding a self-sown plant at Windsor Great Park in the late 1990s but Stace (2010) mentions it only in passing and there is no entry for it in Preston *et al.* (2002). It is surprising, then, that two seedlings should have appeared spontaneously at Wisley in the Wild Garden. The parent tree was received as seed in 1948 from the Arnold Arboretum via Lord Aberconway and, as such, is one of the oldest in cultivation. Perhaps this species will begin to self-sow more regularly as other specimens reach sexual maturity.

Preston *et al.* (2002) state that the Coast Redwood *Sequoia sempervirens* (D. Don) Endl., "has not been observed to set seed in Britain", though a large plant in the Pinetum at Wisley has reliably produced cones for many years. Seed from these collected by me readily gave rise to young plants, but it was nevertheless with some surprise that we

spotted a single seedling growing beneath a young hawthorn hedge in the Pinetum with other self sown coniferous species.

Near to where I live in Hampshire grows a great avenue of Giant Redwoods, *Sequoiadendron giganteum* (Lindl.) Buchholz, which must have been planted not long after the introduction of the species to Britain in 1853 (Bean, 1980). I have hunted several times for seedlings cropping up around these trees but never with any success, though between them they must annually produce millions of seeds. Similarly vain searches have been made around the large tree that grows near the entrance to the Pinetum at Wisley. These experiences reflect Stace (2010), who gives the species merely as surviving where it has been planted, and Preston *et al.* (2002), where it is reported that *Sequoiadendron* “has not been observed to regenerate from seed in Britain”. Barry Phillips recollects that Ken Page did find a young plant growing from a crack in a Surrey pavement, but it is difficult to explain the sudden appearance this year of twenty or more seedlings around the Wisley tree mentioned above (see Colour Section, Plate 1). Might the cold winter and warm spring have encouraged germination? Perhaps it is worth other members checking around trees close to them.

### Ludwigia

*Ludwigia grandiflora* ssp. *hexapetala* (Hook. & Arn.) G.L. Nesom & Kartesz (Water Primrose) was introduced to Wisley as an ornamental in 1994 and is thoroughly established in ponds in the Wild Garden, where it fights it out with *Crassula helmsii* (Kirk) Cockayne (New Zealand Pigmyweed). However, we have recently spotted it in two sites growing at the base of young trees, where it has presumably been introduced as small fragments included in mulch. Though with much-reduced leaves, the plants seem little daunted by the dry conditions in which they find themselves (see Colour Section, Plate 4).

### References:

- BEAN, W.J. (1980). *Trees and shrubs hardy in the British Isles*. (8<sup>th</sup> ed., revised). M. Bean and John Murray (Publishers) Ltd., London.
- PRESTON, C.D., PEARMAN, D.A., & DINES, T.D. (eds.) (2002). *New atlas of the British and Irish flora: an atlas of the vascular plants of Britain, Ireland, the Isle of Man and the Channel Islands*. Oxford University Press, Oxford.
- STACE, C.A. (2010). *New flora of the British Isles* (3<sup>rd</sup> ed.). Cambridge University Press, Cambridge.

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## REQUESTS

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### UK-wide study on the fertility of *Tilia cordata* (Small-leaved Lime) – volunteers wanted!

CLARE BUGG, *Department of Natural & Geographical Sciences, Edge Hill University, St. Helens Road, Ormskirk, L39 4QP*

*Tilia cordata* Miller is one of Britain’s longest-lived native trees and has traditionally been utilised in many ways, from rope-making and wood carving to culinary use in teas and salads. Despite it now being relatively rare, it is found in scattered populations throughout the UK, reaching a natural northern limit in the Lake District.

In spite of human influences, the distribution of the tree is largely determined by climate. Extensive work by Pigott and Huntley

(1981) attributes its northern limit to the tree’s inability to produce fertile seed during summers of low temperature, as frequently occur in this part of the UK. In more southerly populations, where temperatures are higher, the conditions are more favourable for effective fertilisation and development of seeds.

I am currently conducting a PhD study into the relationship between climate and the distribution of *T. cordata*, in particular looking at what affects its fertility and development, with

a view to understanding the likely implications of climate change for this species.

As part of the study I would like to build up a picture of the levels of seed fertility in this species from populations found all across the UK. At Edge Hill University we have been collecting seeds from a couple of sites for the past ten years but would now like to widen our study to include as many *T. cordata* woodlands as possible. However, being only a small research team we can't do this without help. Hence, I am currently looking for interested volunteers to get involved in collecting *T. cordata* fruits from their local sites.

You don't need any special skills or experience to take part and it should only take a couple of hours of your time. Fruits of *T. cordata* ripen in September/October and can be easily collected by hand from the woodland floor, and stored in a cool place.

Fruits can be analysed using a simple technique involving cutting them in half and viewing the contents. They can then be classified as unfertilised, undeveloped or fertile (containing a seed) (see figures 1-3, Colour Section, Plate 1), which gives us a picture of the relative fertility levels in that area.

If you are interested in participating in this research you can download a volunteer pack with the full details and instructions from [www.edgehill.ac.uk/ngas/research](http://www.edgehill.ac.uk/ngas/research), or by contacting me at the above address.

**Reference:**

PIGOTT, C.D. & HUNTLEY, J.P. (1981). 'Factors controlling the distribution of *Tilia cordata* at the northern limits of its geographical range, III: nature and causes of seed sterility'. *New Phytologist* **87**: 817-839.

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## Management of *Genista anglica*

TONY DAVIS, *Butterfly Conservation, Queen Elizabeth Country Park, Gravel Hill, Horndean, Hampshire, PO8 0QE* (02392 597612; [tdavis@butterfly-conservation.org](mailto:tdavis@butterfly-conservation.org))

I would be very grateful for any information on the management of *Genista anglica* and in particular its regeneration from either old plants or seed source.

If any member can help, please contact me at the above address.

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## OFFERS

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### European local floras and botanical itineraries

RODNEY BURTON, *Sparepenny Cottage, Sparepenny Lane, Eynsford, Kent, DA4 0JJ*; ([postmaster@rodneyburton.plus.com](mailto:postmaster@rodneyburton.plus.com))

Over a period of about forty years I have built up an extensive and somewhat idiosyncratic botanical library, the disposal of which is going to be a headache to my son/executor when I die. I am going to have to replace my existing will for other reasons soon, and am inviting interested parties to put themselves forward as beneficiaries to receive all or part of the material described below. This is not an auction! I ask only that individual recipients (as opposed to institutions) make some

memorial contribution to a charity of their choice.

I was born in May 1936 and have no immediate intention of dying in the near future, but one never knows. There is also the possibility that in my lifetime I shall have to move into smaller accommodation and release some books early.

The books in question **exclude** British national and local floras, books about the flora of parts of continents other than Europe, national floras of continental countries, books

consisting almost entirely of drawings or photographs of plants, and works of a monographic character, e.g. 'Les *Festuca* de la flore de France'. **What that leaves is:** atlases of plant distribution for Belgium and Luxembourg, France (selected species only), Germany and Switzerland; local floras; 'botanical walks' and other itineraries; and regional lists of protected sites or plant taxa. There are over 100 works in all, the largest number (about 35) concerned with France, followed by Spain, Greece, Germany, Italy,

and others. In France and Spain, there is a particular concentration of works concerning the Pyrenees in which I once had a special interest, some of them quite obscure, others more or less antiquarian though not I believe especially valuable. It should be understood that foreign floras are usually in the language of the country concerned, although some of the items relating to the Alps in Italy and to Greece are in German. A list is available on request.

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## The Botanical Research Fund

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

Grants are available to amateurs, professionals and students of British and Irish nationality. Where appropriate, grants may be awarded to applicants in successive years to a maximum of three. Most awards fall within the range of £200-£1000.

Examples of projects recently supported by the Botanical Research Fund include:

- Development of a vegetative key to the British Flora

- Taxonomic revisions of algae and flowering plant groups
- Field surveys in the UK and overseas
- Laboratory work to investigate the status of British populations *Gladiolus illyricus* in the UK

The next deadline for applications is January 31st, 2012.

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

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## NOTICES

The following two items have recently appeared in *BSBI eNews* on the BSBI website and are reproduced here for the benefit of members who do not have access to the internet.

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## Recorders' Conference 2012

The Recorders' Conference is one of the main events of the year for serious botanists in Britain & Ireland. There are talks on taxonomy, recording and other matters of interest, and workshops, posters and displays about the latest developments and projects. It is aimed primarily at County Recorders and Referees but also at many other people – not just BSBI members. Beginners would be out of their depth, though, so do ask us for advice if you are not sure it would be for you. The conference takes place over 3 days and is largely

residential at Preston Montford Field Centre, near Shrewsbury, with the main event taking place at the University of Birmingham's base in Shrewsbury. One theme for 2012 will be DNA barcoding. The cost is around £200 – we shall advertise the booking form presently. If you are interested, put the date (Friday 13th – Sunday 15th April 2012) in your diary and you can email us to reserve a place. (NB this is right after Easter, so check that you will be free.). Email Alex for more in formation.

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## Rhododendron Survey

Arthur Chater sends the following snippet: The paper by James Cullen based largely on the material of naturalised Rhododendron sent in by BSBI members has now been published in *Hanburyana* 5: 11-29 (2011). It is available as a free download from the Hanburyana website. ([www.rhs.org.uk/Plants/RHS-Publications/Journals/Hanburyana](http://www.rhs.org.uk/Plants/RHS-Publications/Journals/Hanburyana)).

As expected, the conclusion is that naturalised populations commonly identified as *R. ponticum* in fact represent parts of a complex variable hybrid swarm involving that species and *R. catawbiense* and *R. maximum*, and perhaps *R. macrophyllum*. Many individ-

uals show morphological characters from these other species, but even those that do not are distinguishable from wild *R. ponticum* in its native areas mainly in variation in corolla and corolla spot colour and in physiological vigour and invasiveness. The name *R. ×superponticum* Cullen is proposed for our naturalised plants. A key and descriptions of the relevant species are given, and these enable one to record in more detail the extent to which characters of the other species are present in any particular plant or population of what we have up to now been calling *R. ponticum*.

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## Unigro builds world leading plant quarantine house at Kew Gardens

A state-of-the-art plant quarantine facility has been formally opened at the Royal Botanic Gardens, Kew (14 September 2011), designed and built by Unigro, a leading provider of controlled environments to universities and other research institutes.

The new Plant Reception and Quarantine Unit will replace Kew Gardens' existing facility, built in 1979. This new facility means

that Kew can keep its precious collection of rare and interesting plants safe from pests and diseases and work with the Department for Environment, Food and Rural Affairs (Defra) to protect the UK natural environment.

For more information contact Sarah Whelband; [sarahw@westgatecomms.com](mailto:sarahw@westgatecomms.com)

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## BOOK NOTES

JOHN EDMONDSON, Book Reviews Editor, 243 Pensby Road, Heswall, Wirral, CH61 5UA; ([a.books@mac.com](mailto:a.books@mac.com))

The following titles are to be reviewed in forthcoming issues of *New Journal of Botany*:

COOMBES, ALLAN J. *The book of leaves*. New Holland, 2011. ISBN 978 1 78009 059 7. £24.99 h/b.

CULLEN, JAMES, KNEES, SABINA & CUBEY, JANET (eds.). *European garden flora* (5 vols., 2nd edition). Cambridge University Press, 2011. ISBN (set) 978 0 521 76167 3. £600 h/b.

MCCOSH, DAVID & RICH, TIM. *Atlas of British and Irish hawkweeds*. BSBI, 2011. ISBN 978 0 901158 44 4. £16.00 p/b.

PARNELL, JOHN & CURTIS, TOM (eds.). *Webb's: An Irish flora* (8th edition). Cork University Press, 2011. ISBN 978 1 85918 478 3. €35.00 h/b.

REDFERN, MARGARET. *Plant galls*. Collins New Naturalist series, 2011. ISBN 978 0 00 22014 3. £50 h/b; 978 0 00 220144 5. £30.00 p/b.

SCOTT WALTER. *Some aspects of the botany of the Shetland Islands*. The author, 2011. ISBN 978-0956783608. £26.00 h/b.

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## OBITUARY NOTES

MARY BRIGGS, *9 Arun Prospect, Pulborough, West Sussex, RH20 1AL*

\* An obituary will be published in *BSBI Yearbook 2012*.

Since *BSBI News 117*, we regret to report that the news of the deaths of the following members has reached us. The list includes five vice-county Recorders and one BSBI Referee.

With regret we report the death of **Mr P.J.M. Nethercott\*** of Bristol a member since 1957, and Referee for *Sorbus* for 40 years (1966 – 2006).

We are sad to report the death of **Miss Elaine R. Bullard\*** of Kirkwall Orkney, a member since 1959 and Recorder for Orkney (v.c.111) for over 45 years.

Also **Mrs Joan Banks\*** of St Saviour Jersey who was a member since 1988 and Recorder for Jersey (v.c.113(J)) from 1988 – 2009.

Also **Mr Laurie M. Spalton\*** of Budleigh Salterton Devon, a member since 1986 and Recorder for Devon (v.c.3) 1994-2001.

Also **Dr David Humphreys\*** of Presteigne Powys, Recorder for Radnor (v.c.43) 1988-2009.

Ray Woods has sent the following note:

Following a short illness **Dr D.R. Humphreys\*** from Knill, Presteigne, Powys, a member since 1964. Even well into his eighties David was an active and irrepressible member of the Society, attending Wales Committee meetings and conscientiously filling the post of VC Recorder for Radnorshire. Late in life he embraced computer technology and digitised records for higher and lower plant floras and atlases of Hertfordshire, Radnorshire and Breconshire.

And **Dr Agnes Walker** of Glasgow, a member for over 20 years and Recorder for Mid Ebudes (v.c.103) 1989-1996.

David Pearman has sent the following note.

I am very sorry to report the death of **Agnes Walker** who was our Recorder for Mid Ebudes (v.c.103) from 1989, taking over from her great friend Joan Clark. It is fair to say that she was really only interested in Coll and Tiree, where she organised two great recording weeks in 1989 and 1990, to which many good botanists came, and which were my first real introduction to the islands. To me and to her many friends she was a great figure of fun and irreverence in Scottish botany, and we have many very happy memories of her, her field meetings and work with other botanists. I do not think you could call her the most organised of VCRs, and we were never sure that all the records of those meetings ever surfaced, but somehow that was part of the charm! She had a complicated life (in the sense that she was always doing something new) and it would need help from others to do her justice.

She had a stroke four years ago and though Anita and I visited her a few times, her condition was a travesty of her very active life. We remember her with great fondness.

We also report with regret the deaths of the following members:

**Mr J.N. Baker** of Barnes, London, a member since 1992

**Mrs M. Butroid** of Worksop, Notts., a member since 1986.

**Mr D.H. Dell** of Farnborough, Hants., a member since 1996.

**Ms A.M. Moesker** of Laurieston, Falkirk, a member since 2007.

**Mr L.S. Springate** of Edinburgh, a member since 1977.

We send regrets and sympathies to all the families.

## Florence Houseman – correction of obituary details

GEOFFREY WILMORE, *1 Clough Lane, Oakworth, Keighley, W. Yorkshire, BD22 7HP*

Mrs Florence Houseman was a well-known Yorkshire botanist who lived in Otley for most of her life. Her obituary is recorded in both *The Wildflower Magazine* and in the Yorkshire Naturalists' Union publication *The Naturalist* (992: 29), but no dates of birth or death are given.

Mrs Houseman's death is also recorded in *BSBI Abstracts* 21: 10, (August, 1991), and her lifespan is given there as 1914 – 1989. These dates are incorrect and should read: 1909 – 1989.

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## PROFILES OF NEW HONORARY MEMBERS

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### Gigi Crompton

LYNNE FARRELL, *41 High Street, Hemingford Grey, Cambs., PE28 9BJ*

Gigi Crompton has been a BSBI member since 1956, joining a few years after she was introduced to botany by John Gilmour. However, her earlier career was in a different field. She was born in Felafing, near Munich, in 1922, and moved to Florence when she was just two years old. In 1929 her family moved to England, where she was educated in Kent and later in London, attending the Westminster Art School. In 1939 she moved to the USA, studying art restoration at the Brooklyn Museum, New York, and later at Harvard, Massachusetts. She returned to London in 1945 and continued her career as a conservator of paintings. In 1949 she married David Crompton, a town planner and a keen croquet player. They had a small garden at their Heydon home, and this is when Gigi first developed an interest in plants.

It was in 1953 that she attended botanical lectures in Cambridge, continuing this subject in Liverpool, and in 1957 she joined the Cambridgeshire and Isle of Ely Naturalists' Trust as Assistant Secretary. She helped with the Atlas 1962 edition and was a referee for *Blysmus*, working as a research assistant with Max Walters. In 1966/67 she was secretary to the Teesdale Defence Committee and helped with *Nature in Cambridgeshire*. After that Breckland caught her attention and she became particularly interested in the history of Lakenheath Warren, the Breckland fens and

Wicken Fen, writing several important and informative papers on these areas.

Between 1972 and 1986 she was employed by the Nature Conservancy Council on the Eastern England Rare Plant Survey, where she developed the standard methodology on which all subsequent rare plant surveys have been based. It proved to be ground-breaking work and because of its thoroughness, based on historical research and current field survey, it ensured that essentially the same methods are used today. It was during this time she met Derek Wells, with whom she worked closely on the surveys and on recording the Cambridgeshire flora. Gigi herself was vice-county recorder for Cambs. from 1974 to 2002. After she 'retired' in 1986, she began research into historical records of Cambs., having also produced the *Checklist of the Cambridgeshire flora*. In 2001 she was a pioneer of modern technology, setting up the website for the 'Catalogue of the Cambridgeshire Flora Records since 1538' – a task she continues to the present day.

One of the special areas that Gigi studied was the Devil's Dyke, becoming especially interested in *Himantoglossum hircinum* (Lizard Orchid). Her enthusiasm for this site and species rubbed off on several younger botanists, including Alan Leslie, now joint VCR for Cambs., and myself, who spent many

happy and informative hours recording individual plants in the field.

Her botanical friends have always found her approachable and encouraging, and they admire her rigorous assessment of evidence for species records, and her ability to under-

stand the ecological factors behind those records. She is a lady of considerable intellect, with a keen interest in many aspects of both the arts and the sciences, which she still shares with acquaintances and friends.

## Len Margetts

KEITH SPURGIN, *4 Carclew Terrace, Truro, Cornwall, TR1 2EF*

Leonard John Margetts was born in 1923 in Earlsfield, a suburb within the London borough of Wandsworth. He was the only member of his immediate family not to have belonged to the Communist Party. When war was declared in 1939 his grandfather, a member of the Social Democratic Federation, asked what would happen if Len was called up, as conscientious objectors (COs) would be imprisoned. Len was cross-examined by a tribunal and his application to be a CO accepted on condition that he worked on the land. He was posted to Kent, where conditions were 'frightful' and the work exhausting. There were two days leave a year and the wages were 38/- (£1.90) a week. Len organised a branch of the National Union of Agricultural Workers.

COs were released a year after general demobilisation and Len began to look for work. Seeing a plaque on a gate reading 'LCC [London County Council] Education' he went in and was given a form to complete. Although he had no teaching qualifications, he soon found himself being ushered (Len used the word 'pushed') into a classroom. He was enrolled for the emergency Teachers' Training Scheme and attended at the former Watford asylum. While studying he met and eventually married his wife Rona. He became a member of the Leavesden Art Group and qualified as an art teacher.

Working in Bedfordshire, Len would explore the countryside while waiting for the bus. When he found a fern he was unable to identify, he took it to the botanical curator at Luton Museum, and so met John Dony. *Polys-*

*tichum aculeatum* (Hard Shield-fern) was declared 'a good record', and so began a long journey that grew from a general interest in the natural world into a passion for plants. From the 1950s he studied mainly vascular species, although he has also taken an interest in other groups, including fungi and hepatics. Len suffered a breakdown and left teaching. Again he began to look for work and found himself talking to the directors of a landscaping business. The bosses, he remembers, were sitting with their feet up around a tortoise stove. They found him unsuitable for the post offered but, just as he was leaving, called him back – to offer him a job in the firm's Falmouth shop! Soon he was promoted, and found himself running a nursery. He describes this as 'an experience', and it is not surprising that he learned fast and enjoyed it immensely.

With his paid work centred around horticulture and much of his spare time spent studying wild plants, Len began to name and record taxa in the field with increasing confidence. This enabled him to play a part in the compilation of the first *Atlas of the British flora*. He joined the BSBI, of which he is now a Senior Member, in 1968. In the same year he was appointed vice-county recorder for West Cornwall (v.c.1), a post that he held until 1983, when he and Rona moved to Devon.

As the BSBI Recorder for v.c.1, Len was influential in bringing together groups and individuals to record and share information, to locate and help conserve rare and threatened species, and to begin systematic mapping, helping with enquiries from organisations and individuals, including councils, universities,

local natural history associations, members of the BSBI and WFS, and authors of monographs, several county floras and two national floras. This work was always carried out methodically and with great attention to detail. During this time he added many new species to the flora of Cornwall, specialising in difficult and critical groups, including *Carex*, *Euphrasia*, *Fumaria*, *Hieracium*, *Rubus* and *Taraxacum*; hybrids, including inter-generic taxa of the Poaceae; and many adventive species, including cultivars accurately named to variety. In the meantime he supported the researches of other botanists and helped amateurs and professionals alike to extend and develop their knowledge of our flora. An all-round vascular botanist, among his many contributions to our branch of plant science has been the kind encouragement he has shown to friends and colleagues. In particular Len worked closely with the University of Bristol survey team in their detailed study of the Lizard flora, to which he made many useful contributions.

Very soon after his move to Honiton he began to study the local flora, soon widening the scope of his research to the whole county, particularly v.c.3. His critical approach was, as before, very useful in compiling records for the *New atlas of the British flora*, on which he worked from scratch with Laurie Spalton. The two botanists also worked in West Dorset for the flora of that county. Len was Botanical Recorder for the Devon Association.

### Additional information

Len Margetts made many records for taxa new to several counties, but I remember him telling me that he had as much pleasure in re-finding a plant thought to have been lost, than in discovering new species.

One feature of his interest is a determination to find the correct name for difficult and critical species. This led to fruitful correspondence (and often fieldwork) with some of the leading specialists of the day, among

whom the familiar names of David E. Allen, Andy Byfield, David Coombe, Dick David, Eric Edees, Adrian Grenfell, Chris Howarth, Charles Hubbard, Alan Newton, Peter Sell, Phillip Smith and Clive Stace spring to mind. There have been many others who will remember his kindly and knowledgeable help.

Len's meticulous approach to vascular botany has been an inspiration to many of us, even more so his kindness and friendship. As a mentor he has been outstanding, and, as a friend, the best you could wish to find.

**Publications** (compiled with the help of Rose Murphy and David Pearman, who are gratefully acknowledged):

Margetts, L.J. (ed.) (1977). *Flora of Cornwall 1909* (Reprint).

Margetts, L.J. (1988). *The difficult and critical plants of the Lizard District of Cornwall*. Grenfell Publications, Bristol.

Margetts, L.J. & David, R.W. (1981). *A review of the Cornish flora 1980*. Institute of Cornish Studies, Redruth.

Margetts, L.J. & Spurgin, K.L. (1991). *The Cornish flora supplement 1981 – 1990*. The Trendrine Press, St.Ives.

Margetts, L. J. (1991). The genus *Taraxacum* in Cornwall (checklist). *Botanical Cornwall*, 5: 47- 49.

Margetts, L. J. (2007). A new species of *Taraxacum* Wigg (Asteraceae) from south-west England and Ireland. *Watsonia* 26: 327 – 338.

Devon Association reports. *Checklist of the Rubi of Devon and Cornwall*. n.d.

**Published** *Rubus metallorum* and *Taraxacum ronaе*, and (with David E. Allen) published *Rubus sempervitens*, new to science. *Taraxacum cornubiensis* was described following his research into this new species, and *T. margettsii* was named after him. It is certainly unusual for an amateur botanist to describe taxa in two such hyper-critical vascular plant genera.

## Martin Sanford

CHRIS BOON, 68 Mill Lane, Greenfield, Bedfordshire, MK45 5DF

Martin Sanford joined the society in 1985 and became the BSBI recorder for Suffolk in 1995, jointly with F.W. Simpson until the latter's death in 2003. The fruits of his love of the countryside and, in particular, its vegetation is clearly evident in one of the latest and best produced county Floras, published in 2010 – *A flora of Suffolk*. This is a wonderful account of the plants of his native county and, as he states in his personal introduction, he can trace his ancestry in the county back to the 16<sup>th</sup> century. I wonder how many vice-county recorders can match this!

Back in 1991 he published *The orchids of Suffolk* which was the result of an orchid survey of the county. This book not only gives the distributions of the species as found during the survey but also the historical data show Martin's dedication to researching the herbaria and literature. He has also published several papers in the Transactions of the Suffolk Naturalists' Society. His day job is to manage the Suffolk Biological Records Centre and as such is able to keep tabs on, and influence, the changes in the environment that all of us are only too aware of.

In 1997 Martin joined the editorial team of *Watsonia* and became the receiving editor in 1998 a post he only relinquished last year – 2010 – consequent on the launch of the *New Journal of Botany*. Thirteen years is by far the longest period that anyone has held this post since a full editorial panel was set up in 1970. During these years the design of the journal was vastly improved and the number of pages increased significantly. Publications Committee were always impressed that publication of *Watsonia* was conducted in a very efficient way and were always kept in full knowledge of progress. The BSBI are very grateful for the time and dedication that he brought to our journal over these years and seeing it through the publishing process. It must be added, and I am sure that Martin will concur, that the production was a joint procedure with his wife Katherine and we extend our thanks to her as well.

I have no hesitation in recommending Martin for honorary membership.

## REPORTS OF INDOOR MEETINGS 2010–2011

### Botanical hotspots in Britain and Ireland: who revealed them and when?, Birmingham 2010

JOHN BAILEY, *Biology Department, University of Leicester, LE1 7RH*

A group of about 85 people attended the Birmingham and Midlands Institute on Friday 26<sup>th</sup> November 2010 to hear about the history of the discovery of some of the major centres of plant diversity in the British Isles, which had been organised by David Allen. The audience were taken on a tour from the Lizard via the Avon Gorge, Snowdonia and Teesdale to Ben Lawers, before crossing the Irish Sea to Connemara and the Burren, with an appropriate guide from each region. Styles and approaches varied, and we were a bit let down

by the centre's 35mm slide projector at times, but put together in this way it made a fascinating story.

Since David had made it known that after this meeting he intended to resign from the Meetings committee, after some 60 years of continuous service on BSBI committees, the opportunity was taken to mark his great contribution to the society. When the programme reached the anodyne 'President's concluding remarks' it was David's turn to be on the 'hotspot', as this was revealed to be nothing

more than a cover for the renowned naturalist Peter Marren to give a heartfelt appreciation of David's career and achievements! Nor were his blushes spared when next he was presented with a framed picture of himself with the speakers taken earlier in the day – yes the

technology has certainly moved on a little from colour slides (see Back Cover).

Whilst it wasn't possible to have the proceedings published, David has produced a summary, which has just been published in the first issue of the *New Journal of Botany*.

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## Notes from the Annual Exhibition Meeting, Birmingham, 2010

JOHN BAILEY, *Biology Department, University of Leicester, LE1 7RH*

### Which exotic *Ludwigia* taxa are invasive in northern Europe?

JOHN BAILEY

Chromosome counts and pictures were provided of *Ludwigia* taxa growing in the wild in the UK and also purchased from Garden Centres, and there was a discussion of nomenclature and the correct name for the plants found in the British Isles.

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### Ann Conolly's Llyn Flora – where do we go from here?

JOHN BAILEY

Ann kept meticulous records on a 1km square basis for the Western part of the Llyn Peninsula for some 50 years. Unfortunately these were never finally written up. The records are destined for NMW Cardiff but are currently with the Caernarvon county recorder, Wendy McCarthy. It is hoped that the maps will at some point be scanned and digitised.

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### A Berwickshire BSBI Botanical Site Register

MICHAEL BRAITHWAITE

A conventional printed county rare plant register presents the data species by species. This may be unfriendly to conservationists and to the planning of repeat-recording. My current project is a 'second generation' CRPR that presents data site-by-site within hectads. I soon found that data tables for rare and scarce species alone were not satisfying. So I have added data at decreasing levels of detail for 'selected axiophytes' and 'other axiophytes'. Details of former rare and scarce species are also listed. Each site has a brief habitat note and a grading. A separate descriptive section gives an overview of each hectad with a map localising the sites. A digital

version will allow data to be obtained species-by-species. A rolling programme of repeat-recording is updating the data hectad by hectad. 60% of the vice-county has been repeat-recorded since 2004 when a CRPR was published.

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### By whom was the Berwickshire (v.c.81) flora discovered and when?

MICHAEL BRAITHWAITE

Charts were presented to show the date of the first localised record for the Berwickshire flora grouped into native species, archaeophytes, neophytes, casuals, hybrids and the rest (microspecies and infraspecific taxa). The date of the 'first localised record' for many widespread species is very much later than the 'first record' in the early floras. 'Full' native species are still being discovered: 26 since 1970. For example *Convallaria majalis* was first found in 2009. The publication of 'CTW' in 1952 and 'Stace' in 1991, alongside the two BSBI Atlas projects were seen as major stimuli to the discovery of neophytes and hybrids. A few specialists had made important contributions to the recording of *Hieracium*, *Rubus* and *Taraxacum*. Intraspecific taxa remain much under-worked. Over the 239 years from 1740 to 1978 an average of 5 taxa had been added per year. Over the 32 years from 1979 to 2010 an average of 15 taxa have been added per year.

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### Who's the father this time? - new hybrids of Japanese Knotweed (*Fallopia japonica*)

STUART DESJARDINS & JOHN BAILEY

In November 2008 seeds were collected from a Japanese Knotweed growing in Milan. Due to the notable absence of male-fertile individ-

uals in Europe all pollen received by this *F. japonica* will have originated from a male of a closely related species. The offspring are therefore hybrids and the species of the ‘father’ remains unknown. The aim of this project is therefore to determine which species ‘fathered’ each hybrid using techniques such as chromosome counting, morphological comparisons and, finally, an *in situ* hybridisation using total genomic probes. The current candidate donors of the paternal chromosomes include three closely related species, which are all currently residing in Italy, namely *F. dumetorum* (2n=20), *F. baldschuanica* (2n=20) and *F. multiflora* (2n=22).

**Discovery of a large population of Mouse-tail (*Myosurus minimus*) in Leicestershire, v.c.55**

UTA HAMZAOU

In May 2010, a large population of *Myosurus minimus* was found in the lower floodplain of the river Soar. Several hundred individuals grew all over a grazed 6ha field of nutrient rich, species-poor grassland on bare ground, such as tracks, as well as on eroded flood banks and places with long winter flooding, which are primary habitats of this plant. The population is almost totally confined to this field and probably spread via cattle’s hooves. This is only the second recent record for Mousetail in v.c.55.

**British Plant Gall Society Silver Jubilee 1985–2010**

TOM HIGGINBOTTOM

Twenty-five years ago the Society was formed by the late Fred Stubbs, an active member of the Yorkshire Naturalists’ Union and an enthusiastic plant gall hunter. The main feature was the life cycle of the robin’s pin cushion gall found on *Rosa canina*, illustrated in a series of photographs which included: the gall wasp *Diplolepis rosae* the causer, the multi-chambered gall structure formed in the bud, and finally the appearance of the long branched red wiry hairs which led to the gall’s common name. There was also a laptop display showing some amazing gall structures on a variety of plant hosts.

**Help**

SEÁN & ANN KARLEY

This exhibit was designed to give informal and anonymous assistance with identification of plants. This year about 40 specimens were displayed. Suggestions made for identification included *Polygonum rurivagum*, *Sorbaria sorbifolia*, *Panicum capillare*, *Carex divulsa* ssp. *leersii*, *Calamagrostis epigejos*, *Eriophorum angustifolium* and *Setaria viridis*.

We have mounted this exhibit for 30 consecutive years now. *Anno Domini* is catching up with us, and from next year it will be under new management. We are happy to announce that Georgina Robertson, a new member of the BSBI, has agreed to take it over from us, with only very gentle arm-twisting.

**Letter concerning the discovery of *Ophrys fuciflora* in the Cotswolds**

CLARE & MARK KITCHEN

A seven page manuscript letter was displayed detailing the background to the 1930s recording of *Ophrys fuciflora* (Late Spider-orchid) in the Cotswolds. The letter was written by Charles Thomas and gives details of Frank Bedford, the Birmingham schoolmaster, who submitted the record, and an account of a trip taken with him on 23<sup>rd</sup> May 1943, when they followed Bedford’s usual route around the Painswick area where the orchid had been found.

**Panicled Willowherb (*Epilobium brachycarpum* C. Presl): an addition to the British flora**

GEOFFREY KITCHENER & JERRY HEATH

A north American willowherb, *Epilobium brachycarpum* (syn. *E. paniculatum* Nutt. ex Torr. & A. Gray) was discovered by Jerry Heath in his Colchester garden in 2004 and subsequently found in various locations around the city. The species appears not to have been recorded in the UK before, although spreading in mainland Europe, including around Lille.

The exhibit showed specimens, distribution data and photographs of this species at former sand and gravel pits at Stanway, Colchester (v.c.19), where the population numbers millions of plants.

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### ***Hieracium***

T. RICH AND S. THOMAS

Brief accounts of the extinction of Penwyllt Hawkweed *Hieracium pusillifolium* and the re-discovery of Hepste Hawkweed *Hieracium. apheles*.

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### ***Hieracium***

D. MCCOSH & T. RICH

Draft accounts showing the format for a book of *Hieracium* distribution maps were presented.

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### **Deergrasses – habitats and identification**

JEREMY ROBERTS

Northern Deergrass *Trichophorum cespitosum* was found in abundance at Butterburn Flow in north-east Cumbria in 2010, on deep blanket mire. The wide spectrum of habitats, and of associates, that we now know for this species was illustrated.

The available characters for separating *T. cespitosum* from the much commoner and more widespread *T. germanicum* and their hybrid *T. ×foersteri* were demonstrated, including fertility, sheath-opening, nut size and colour, and, especially significant, the strikingly contrasting stem cross-sections.

Attention was drawn to an online resource where this information is available: [www.edencroft2.demon.co.uk](http://www.edencroft2.demon.co.uk)

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### **Life on the verge**

MARK SCHOFIELD

Over 135 survey volunteers have helped Lincolnshire Wildlife Trust map approximately 980km of wild flower rich limestone grassland along road verges in the east Midlands after just two survey seasons. ‘Life on the Verge’ is a ‘Living Landscape’ project funded by Natural England and the SITA Trust. 22 botanical field classes have been run for 280 surveyors. An estimated 180km (75ha) of road verge will be designated as Local Wildlife Sites, more than doubling the length of notable road verge in Lincolnshire. Hay-baling has been carried out along 32km (22ha) of roadside to maintain and restore vital wildlife corridors. For more information and to find out how you can help visit:

[lifeontheverge.org.uk](http://lifeontheverge.org.uk), or contact Mark Schofield, Project Officer on [mschofield@lincstrust.co.uk](mailto:mschofield@lincstrust.co.uk) (tel.: 01507 526667).

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### **Diaries from the Great War**

JONATHAN SHANKLIN

Jonathan Shanklin described diaries kept by his great grandfather, Harry Thomas of Llandudno, during the First World War. The diaries were mostly concerned with the war, weather and astronomical events, natural disasters, family concerns and natural history. Accompanying the diary entries were sketches, photographs, postcards and newspaper cuttings. Jonathan had extracted all the botanical entries and put them into MapMate format and these were now in the BSBI database. He highlighted one entry, describing an occasion when Mr Charles Waterfall of Chester (who had discovered the hybrid Willowherb *E. × waterfallii* near Helsby station) had visited, and had discovered Sea Knotgrass *Polygonum maritimum* growing on the shore. This marks the most northerly location of this plant in the British Isles, at a considerable distance from any other locality.

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### **A first flora of Birmingham and the Black Country**

IAN TRUEMAN

Now almost completed, covering the 715 largely urban 1km squares of the “endless village” of Birmingham, Wolverhampton, Walsall, Sandwell and Dudley. Photographs, artwork and illustrations of sample species were shown in the following categories:

Allotments as refugia for species such as *Stachys arvensis* and *Misopates orontium*.

Real and potential invasive species such as *Buddleja davidii*, *Senecio inaequidens* and *Hydrocotyle ranunculoides*.

Wall flora, including *Asplenium ceterach* and the rapid spread of *Asplenium scolopendrium* (e.g. beneath roadside drain grids).

The penetration of the conurbation by *Parnassia palustris* and *Eleogeton fluitans*, and the appearance of *Linum flavum* and *Iva xanthiifolia*.

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### **Saxifraga is polyphyletic**

ZHUOXIN ZHANG & RICHARD GORNALL

DNA evidence from four chloroplast and two nuclear sequences show that species from *Saxifraga* section *Micranthes* are more closely allied to other genera, including *Chrysosplenium*, than to *Saxifraga* (Soltis, Kuzoff, Gornall & Ferguson, *Amer. J. Bot.* **83**: 371, 1996; Soltis *et al.*, *Ann. Mo. Bot. Gard.* **88**: 669, 2001.). *Saxifraga* section *Micranthes* should

be recognised as an independent genus: *Micranthes* Haw. It can be distinguished from *Saxifraga* by the following morphological characters: *Saxifraga* usually has leafy flowering stems while *Micranthes* is leafless; the former has a complete pollen exine tectum, two integuments, and smooth, tuberculate or papillate seeds but the latter has a reticulate tectum, one integument, and ribbed seeds.

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## **AGM and Spring Conference, Galway 18<sup>th</sup> – 21<sup>st</sup> June 2011**

JOHN BAILEY, *Biology Department, University of Leicester, LE1 7RH*

When it was first suggested at the Meetings Committee that it was about time that we visited Ireland again, I was given the name Micheline Sheehy-Skeffington as a contact. I received a somewhat guarded response to my first approach in 2009, and was advised that it was first necessary to contact the committee for Ireland. Following my attendance at the Irish AGM in Castlebar the following year, things began to move forward, and after a long series of ‘email flurries’ between Micheline and myself, Saturday 18<sup>th</sup> June finally dawned. The date was a compromise between the optimum time for the local flora and the departure date of the Galway undergraduates, the latter allowing us to stay in the Corrib student village for the duration.

The meeting was held in the state of the art IT building, and as an indication of the significance that NUI Galway attached to it, was opened with addresses from both Dr James J. Browne (President, NUI Galway) and Prof Charles Spillane (Head of Botany & Plant Science). Karen Molloy then spoke about ‘Vegetation change and land use history in the West of Ireland’. The actual AGM business was disposed of briskly, and an excellent buffet lunch then followed. In the afternoon we had more excellent talks from Sharon Parr, John Conaghan and Mathew Jebb, rounded off by Con Breen’s ‘Introduction to the flora of the Aran Islands’.

For those that had booked for the dinner, this took place at the nearby Westwood Hotel, where we were serenaded with some excellent traditional Irish music, and certain members of

the Meetings Committee attempted (unsuccessfully) to get people dancing – apologies to those with kicked shins!

On Sunday there began what, to many delegates, were to be the highlight of the weekend – the excursions. Such had been the interest that we needed three separate coaches and guides for each of the two days. In an attempt to avoid complete anarchy, lists had been prepared so that everyone knew which coach they were on. This all went smoothly, as did the arrival of the van carrying the packed lunches! The weather forecast was not too positive, but we got through the day with little more than a bit of drizzle. The Sunday excursions were to the Burren and the Monday excursions to Connemara (full write-ups will be in the BSBI Year Book). Each excursion ended with a pre-booked evening meal in a local restaurant. Tuesday’s visit to the Arans had been intended as a an optional extra for anyone staying on an extra day. In the event the majority of the 100+ delegates decided to come along. Since Con Breen thought that anything above 30 in an excursion would swamp an Aran Island, we split into two groups for the visit. Again the weather miraculously held and we endured brilliant sunshine, whilst the rain lashed down on Galway town! Good weather, good talks, good plants, good company, and good organisation – Reading you have a hard act to follow! The only fly in the ointment that I encountered, was the scandalous €10 ‘departure tax’ that had to be paid at Galway Airport before one was allowed to board the aeroplane.

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## RECORDERS AND RECORDING

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### Panel of Referees and Specialists

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

Sadly Mervyn Southam has had to retire as Referee for Apiaceae on account of ill health, and we thank him warmly for all the identifications he has made for members.

We have heard that our Referee for *Cochlearia*, Dr Peter Wyse Jackson, is still

happy to receive specimens for identification. His address is now: Dr Peter Wyse Jackson, President, Missouri Botanical Garden, PO Box 299, St Louis, Missouri 63166, USA (peter.wysejackson@mobot.org).

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### Panel of Vice-county Recorders

DAVID PEARMAN, *Algiers, Feock, Truro, Cornwall, TR3 6RA;* (01872 863388)

#### New appointments

V.c.13 (W. Sussex). Dr. Mike Shaw, The Walnuts, 118 Manor Way, Aldwick Bay, Bognor Regis, W. Sussex PO21 4HN. I typed v.c.14 last time – W. Sussex is v.c.13. Apologies.

V.c.47 (Montgomery). Mr M. Duffell to be joint recorder. Correspondence to Dr K. Thorne, as before

#### Changes of address or other details

V.c.59 (S. Lancs). Mr D. Earl to 25 Outram House, St. Mary's Avenue, Walton-le-Dale, Preston, Lancashire PR5 4UR

#### Other notes

I am very sorry to report the deaths of Dr Agnes Walker (ex v.c.103 Mid Ebudes) and of Mrs Joan Banks (ex v.c.113, Jersey.).

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## NOTES FROM THE OFFICERS

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

*41 High Street, Hemingford Grey, Cambs., PE28 9BJ*  
(01480 462 728; farrell104@btinternet.com)

This time we certainly have a national flavour to my notes.

#### BSBI Desk at the Natural History Museum, London

Please note that although we do still have an official desk at the Natural History Museum, where Roy Vickery sorts the mail that comes in, the phone line there has now been disconnected. Roy has kindly agreed that we can use 02086 756 740 for phone messages from now on.

#### Annual Exhibition Meeting: 26<sup>th</sup> November 2011

We look forward to welcoming you all at the Flett Theatre area in the Natural History Museum, London, on Saturday, 26<sup>th</sup> November for the AEM, where there will be a variety of

exhibits and talks, plus the opportunity to chat to many other BSBI members and friends.

#### AGM in Galway, June 2011 and honorary members, Irish AGM

As you will have read elsewhere in this edition of *News*, we had a very successful and enjoyable meeting in Ireland, and we even found a new treasurer during the event.

We were pleased to approve the appointment of three new honorary members: Mrs Gigi Crompton, Mr Len Margetts and Dr Martin Sanford. You will be able to read their eulogies in this edition of *BSBI News* (see pages 51–54).

By the time you read this the Irish AGM will have taken place at Derrygonnelly, Co. Fermanagh, where I surveyed the limestone areas during my

summer breaks whilst at Coleraine University. So to see the *Flora of Fermanagh* in print will be of particular interest.

#### **Elaine Bullard**

Sadly, I have to report that Elaine Bullard, a member since 1959 and vice-county recorder for Orkney for many years, died peacefully in a home in Kirkwall recently.

#### **Scottish Officer sets sail**

Jim McIntosh will be on his way to Tristan da Cunha by the time you read this, where he will be based for a year surveying the native and non-native plants. Unfortunately there seem to be more of the latter, as is the case on many of the remote islands these days.

In his absence, Angus Hannah will be the acting Scottish Officer (see note below).

#### **Welsh AGM and new Welsh Officer**

This was one AGM that I did not get to this year, owing to the fact I was on Mull recording in my own vice-county. Perhaps it would have been drier in Pembrokeshire! However, I can report that coastal habitats and arable weeds were the themes for the excursions, which around 50 members attended.

We welcome Polly Spencer-Vellacott as the first BSBI Welsh Officer. She is based at the CCW Mold office (see note below).

#### **The most recent arrival**

Congratulations to Kevin Walker and Clare Pinches on the arrival of Alistair William. You will understand if Kevin appears to have his hands full for a while!

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### **From the Acting Scottish Officer – *ANGUS HANNAH***

*Royal Botanic Garden, 20A Inverleith Row, Edinburgh, EH3 5LR*  
(01700 503879; butesedge@yahoo.co.uk)

An unforeseen opportunity to join a small team recording the plants of Tristan da Cunha (the world's remotest inhabited island) has resulted in Jim McIntosh taking a year's sabbatical leave from his Scottish Officer post. Jim has promised to keep us informed of his adventures on his blog: <http://furtherthanthe furthest.blogspot.com>

Meanwhile, I have taken on the Scottish Officer role during Jim's absence. I will be working

mainly from home, and will be contactable there by phone at the number given above or by e-mail. Mail addressed to the Scottish Officer at RBGE will also be forwarded to me, as will any e-mails sent to Jim's RBGE e-mail address. I intend to carry forward Jim's work programme with as little disruption as possible, and thank everyone for their kind offers of help and support.

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### **From the New Welsh Officer – *POLLY SPENCER-VELLACOTT***

*Countryside Council for Wales, Glan y Nant, Unit 19, Mold Business, Park, Wrexham Road, Mold, CH7 1XP*

(01352 706633; 07967 820305; welshofficer@bsbi.org.uk)

I am delighted to have just started as the BSBI's first Welsh Officer. Having spent childhood holidays in Wales visiting grandparents and relations, and having studied both at Aberystwyth and at Bangor, I feel I know some parts of Wales fairly well (and although I'm not fluent, I do speak some Welsh) and I'm looking forward to getting to know some of the other parts better. For the last three years I have been working in consultancy in North Wales, and taking every opportunity to carry out habitat and vegetation surveys. Some of the highlights of my recent work have been working along trunk roads carrying out verge surveys, occasionally finding interesting plants such as *Vicia orobus*.

My role as Welsh Officer will involve supporting the Vice County Recorders, especially with digitisation of records, but hopefully I will be able to provide help in a range of ways depending upon the individual requirements. The second part of my job will involve setting up monitoring schemes for rare plants in SSSIs. The role is part funded by the CCW as well as the BSBI and I will be based in the CCW office in Mold, near to where I live, in Penyffordd. I am looking forward to getting out and about to meet members and recorders across Wales. See photo, Colour Section, Plate 4.

Reprinted from *BSBI Welsh Bulletin* 88: 9 (July 2011)

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## Plant Unit news from the Head of Research and Development

KEVIN WALKER; 97 Dragon Parade, Harrogate, North Yorkshire HG1 5DG  
(kevinwalker@bsbi.org.uk)

### Plant Unit staff

Since I last wrote last there have been a few staff changes in the Plant Unit. First, welcome to Polly Spencer-Vellacott, our new Welsh Officer, who started working for us in June and to Angus Hannah who will be standing in for Jim McIntosh, our Scottish Officer, who is taking a year off to work as a botanist on Tristan de Cunha (lucky chap!). Polly is based at the Countryside Council for Wales office in Mold and has spent the summer meeting VCRs and carrying monitoring of rare species on SSSI's. Angus will be known to many of you as the recorder for Clyde Islands and is based on Bute. Finally, we have made Tom Humphrey's post full time (Database Officer) so he can take forward his excellent work on the Distribution Database (DDb) and Herbaria@home. If you have any questions for them or would just like to put a face to the name then they will all be 'on duty' at the round of autumn meetings in either London or Edinburgh.

### Recording guidelines

As promised in the Recording Strategy we have been updating the recording guidelines available to members. These include guidance on how to sample within vice-counties, improve the quality and flow of records, how to record 'difficult' taxa, etc. Some of these are already available to download on the 'Resources' page of the website so please make use of them.

### Fifty years since the first Atlas

You may (or may not!) be aware that 2012 marks the fiftieth anniversary of the publication of Perring & Walter's *Atlas of the British flora*. This was the first of its kind and has had a major influence on the way biologists have mapped the world's biota. To celebrate this landmark event the BSBI, in collaboration with the Royal Botanic Garden in Edinburgh, are planning a conference to

explore the influence of the atlas on the way we map species distributions and how these data have been used to analyse and interpret change. A draft programme has now been produced and a number of keynote speakers have already agreed to contribute including Mark Hill, Chris Thomas, Mick Crawley, Richard Ennos, Peter Hollingsworth, Chris Preston and Richard Crawford. A flier for the conference should be sent to all members shortly. In addition Michael Braithwaite and myself, with the help of BSBI colleagues and recorders, will be producing a booklet to demonstrate the work the Society does, with an emphasis on how mapping has changed over the last 50 years. Delegates at the conference will receive a free copy and members will be able to purchase it as a BSBI publication in the usual way.

### Threatened Plants Project (TPP)

Over the past four years BSBI recorders have completed surveys of an astounding 2300 populations of the 30 species covered so far (records for this year's 10 species continue to trickle in). Over the winter we aim to produce the first dozen or so reports on these species, focusing on a number of 'widespread decliners' for which we know very little about recent declines. The results from these surveys will hopefully fill this gap, thereby enabling other organisations to better conserve them in the future. We hope to digitise the data for the 10 species covered this year in early 2012 so if you have completed cards (including null returns) please send them to me before the end of the year. Species to be covered in the final year of the project are listed below. Many thanks to all those recorders who have already taken part in this project. For those who haven't and are keen to get involved please see details under 'Threatened Plant Project' on the website.

2011	2012
<i>Baldellia ranunculoides</i>	<i>Aceras anthropophorum</i>
<i>Cicendia filiformis</i>	<i>Alchemilla wichurae</i>
<i>Cuscuta epithymum</i>	<i>Bupleurum tenuissimum</i>
<i>Galium pumilum</i>	<i>Fumaria parviflora</i>
<i>Juncus compressus</i>	<i>Hypochaeris glabra</i>
<i>Orchis ustulata</i>	<i>Orchis morio</i>
<i>Pseudorchis albida</i>	<i>Persicaria minor</i>
<i>Sedum villosum</i>	<i>Ranunculus arvensis</i>
<i>Silene conica</i>	<i>Tephrosia integrifolia</i> ssp. <i>integrifolia</i>
<i>Torilis arvensis</i> ssp. <i>arvensis</i>	<i>Vicia parviflora</i>

### Invasive aliens

Over the last year PU staff have been putting together information on over 2000 alien species as part of a contract for the Non-native Species Secretariat (NNSS). This included species accounts for around 100 non-native species that are thought to be highly invasive in the UK as well as a few species which may colonise from Europe in the future and become a potential problem (e.g. *Arundo donax*, *Azolla caroliniana*, *Salvinia molesta*). In addition, myself, David Pearman, Chris Preston at CEH and Alison Jukes at York University, have been collating biogeographic, ecological and historic information on around 2000 aliens including invaded habitats in the UK, mode of origin, invasion pathway, place of origin, date of introduction, degree of establishment, etc. This was a massive task and all the information, including species accounts, are now available online via the NNSS's 'Information Portal' (see <http://secure.fera.defra.gov.uk/nonnativespecies/home/index.cfm>). We plan to add to the information held in the database over the coming winter with a view to publishing an alien version of PLANTATT (Hill, M. *et al.* (2004)) next year.

### Red List

Those of you who are familiar with the Red List will know that the status of all GB species was last assessed against internationally agreed 'threat' criteria in 2005. Plant Unit staff are now helping to coordinate a revision of this Red List which is planned for publica-

tion in 2018 (see article in this News). The group which carries out this work has already produced a series of amendments to this list (see 'taxon designations' available at <http://www.bsbi.org.uk/resources.html>) and is currently compiling information for many other species where new information is likely to change a species threat status. So if you have carried out, or are aware, of any surveys of Red List species please let us know.

### Distribution Database (DDb), formerly Big Database

The Distribution Database (DDb) is the Society's central collation of records including the MapMate Hub, records collated for the *New Atlas* and many other archived datasets which have not been available up to now. The DDb is now online and is available to registered users (mainly VCRs and referees but also staff of conservation organizations) at <http://bsbidb.org.uk/>. Others requiring access for legitimate purposes (research, surveys, etc.) should contact either Alex Lockton or myself. It is a fantastic resource and is already playing a central role in the work we do. We hope to develop many aspects of it over the coming year, including improved mapping, querying and online data submission.

### Reference:

HILL, M.O., PRESTON, C.D. & ROY, D.B. (2004). *PLANTATT. Attributes of British and Irish plants: status, size, life history, geography and habitats*. NERC: CEH, Biological Records Centre, Huntingdon.

**Solution to Crossword 16**

15. ENDEMIC; 17. IDEAL; 19. AWNED  
6. GREENER; 7. NAIAD; 13. BOGBEAN;  
ACRIS; 5. SPOTTED ORCHID;  
2. OSMUNDA; 3. ALGAE; 4. ERIGERON

**Down**

1. LOVAGE; 5. SAGINA; 8. SMUG;  
9. ISOLEPIS; 10. INTEREST; 11. NODE;  
12. BAMBOO; 14. DARNEL; 16. LING;  
18. AIRWARDS; 20. RESEARCH;  
21. NAME; 22. BLINKS; 23. DEDUCE

**Across**

**Crib**

AWNED (bristled)  
boredom = YAWNED Y (you first) left =  
17. anagram DELIA; 19. having shown  
BEAN; 15. END + anagram MICE;  
7. anagram DIANA; 13. John = BOG, be an =  
Common Spotted-orchid; 6. cynical comment;  
suggests *Dactylorhiza*, could be Heath or  
changed sex; 5. charade, 'tingering root'  
in Stage 3, *E. acris* – the word for 'bitter' has  
3. anagram A GALE; 4. *E. acer* has become,  
2. OS M(ap) + sounds like 'under';

**Down**

1. LOV<AG>E; 5. anagram AGAINS (the T  
being cut down); 8. reverse GUMS;  
9. anagram I E SPOILS; 10. double defini-  
tion (not botanical - sorry!); 11. NOD/E;  
12. BOO (a word that surprises) adopts A MB;  
14. DARN/EL; 16. Call una (contact one  
Italian girl) (foot)LING = trivial; 18. pun or  
'charade'; 20. RE/SEARCH (engine);  
21. rev MAN minute; 22. old joke;  
23. sounds like 'dead use'

**Across**

**CONTRIBUTIONS INTENDED FOR  
*BSBI NEWS* 119 should reach the Receiving Editor before  
December 1st**

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*BSBI News* (ISSN 0309-930X) is published by the Botanical Society of the British Isles

Enquiries concerning the Society's activities and membership should be addressed to: The Hon. General Secretary, c/o Dept. of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD Tel: 0207 942 5002.

Camera ready copy produced by Gwynn Ellis and printed by J. & P. Davison, 3 James Place, Treforest, Pontypridd, Mid Glamorgan CF37 1SQ (Tel. 01443-400585; email: [davison.litho@talktalkbusiness.net](mailto:davison.litho@talktalkbusiness.net))

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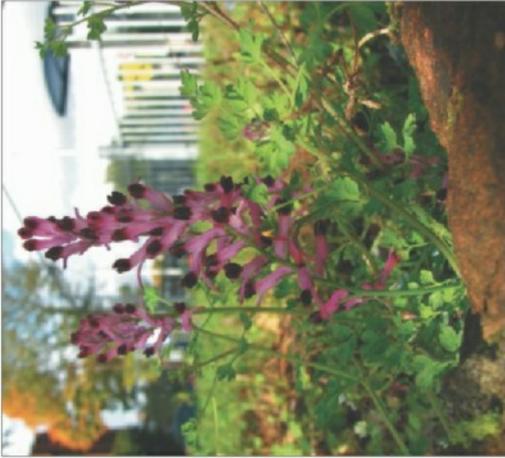
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*Fumaria reuteri* in a neglected raised bed at Virginia Water station (v. c. 17). Photos G. Hounsome © 2010 (see p. 20)



Summerfield Books' stand at Annual Exhibition Meeting 2010. Photo J.P. Bailey © 2010



Botanical hotspots in Britain and Ireland Conference, Birmingham; speakers, standing from left to right: Charles Nelson, Goronwy Wynne, David Allen, Dan Watson, Margaret Bradshaw, Tim Pankhurst, Clive Lovatt and Keith Spurgin. Photo J.P. Bailey © 2010 (see p. 54)