

BSBI News

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Edited by Trevor James & Gwynn Ellis



Laurie and Helen Oakes with *Centaurium scilloides*, Gwennap Head (v.c.1)



Centaurium scilloides in maritime heath, Roskestal West Cliff (v.c.1)

Both photos I.J. Bennallick © 2010 (see p. 30)



Calystegia soldanella at Ainsdale with inset flower from Hightown (both v.c.59)
Photos P.H. Smith © 2008 & 2010 respectively (see p. 25)



Ranunculus xhiltonii plants on Copthorne Common (v.c.14), form typical of wetter summers
Photo A. Knapp © 2010 (see p. 34)



Veronica serpyllifolia ssp. *humifusa* whole plant (l) and close up of flowers (r) at Well of Lecht
(v.c.94). Photos A. Amphlett © 2010 (see p. 39)

CONTENTS

Editorial & Diary	2	Small Project Grant Reports	
Notes		Exploring local adaptation in Scottish populations of <i>Arabidopsis petraea</i>	E. Bourne 47-48
New names and taxa in the third edition of <i>Stace</i>	R.W. Ellis & D.A. Pearman 3-14	Aliens	
A wake-up call for the future of Britain's montane flora? – <i>Sedum villosum</i> in decline in Berwickshire (v.c.81).....	M.E. Braithwaite 15-17	The status of <i>Poa imbecilla</i> in Britain.....	T.B. Ryves 49-50
<i>Gonocarpus</i> – an Australian viewpoint.....	Prof. P. Adam 17	<i>Arabis procurrens</i> in Surrey G. Hounsome	50
Changing status of <i>Eleocharis uniglumis</i> on the Sefton Coast, Merseyside (v.c.59).....	P.H. Smith 18-24	Names in <i>Malva</i>	S.R. Hinsley 51
New taxonomy.....	T. Paine 23	<i>Phalaris paradoxa</i> has no awns.	Q. Groom 51
Monitoring Sea Bindweed (<i>Calystegia soldanella</i>) on the Sefton Coast, Merseyside in 2010.....	P.H. Smith & P.A. Lockwood 25-29	Naturalisations of exotics in the Scillies.....	J. Oliver 52-54
Juniper populations in lowland England return Threatened Plant Project forms.....	K. Walker & T. Wilkins 29	Notices	
<i>Centaurium scilloides</i> , <i>Juncus subnodulosus</i> and <i>Phegopteris connectilis</i> rediscovered in Cornwall after many years.....	I. Bennallick 30-34	The future of biology.....	54
<i>Ranunculus xhiltonii</i> still present in East Sussex.....	A. Knapp 34-35	Advance notice: BSBI excursion to Guernsey 2011....	C. David & R. Rabey 55
Early success on two Tower Mustard (<i>Turritis (Arabis) glabra</i>) projects.....	B. Laney 36-37	Botanical field meeting in the Canary Islands.....	T. Farino 55
<i>Sonchus</i> variation.....	M. Wilcox 37	New plant conservation campaign 'Plants for the Planet' needs your help!.....	55
Red <i>Arum</i>	E. Pratt 37	Requests & offers	
Should use of the term 'extirpation' in a biodiversity context follow in the footsteps of the Norwegian Blue? R. Bateman	38-39	Critically Endangered archaeophytes in England – sorting the wheat from the chaff?.....	K. Walker & S. Leach 56-57
Are the flowers of <i>Veronica serpyllifolia</i> ssp. <i>humifusa</i> ever blue? A. Amphlett	39-40	A reminder [<i>Juncus</i> wanted].....	M. Wilcox 57
Botanical books on the internet... F. Anstey	40	Help!.....	S.L.M. Karley & A.M. Karley 58
More on botanical books on the internet.....	G. Crompton 41	Online version of the <i>New atlas of the British & Irish flora</i> – volunteer and photos needed.....	K. Walker & D. Roy 58-59
Peloric variety of <i>Kickxia spuria</i>	T.J. James & L. Gravestock 41	<i>Flowering plants of the Galapagos</i> . P.A. Budd	59
Using Google Earth to accurately and precisely locate plant populations in county rare plant registers... A. Hale	42-43	Old BSBI publications on offer M. Atkinson	59
Grab a Grid Reference..... A. Amphlett	43	<i>Botanical Cornwall 14</i>	59
Ciba-Geigy: beyond <i>Weed Tables</i>	J. Harvey 44-45	Field meeting reports: 2010	
Roadside halophytes, including <i>Parapholis incurva</i> & <i>P. strigosa</i> , on trunk roads in v.c.20 and v.c.29.....	T.J. James 45-46	East Lizard, W. Cornwall.....	D. Pearman & A. Byfield 60-61
Correction to <i>BSBI News 99</i>	J. Wynne-Jones 46	Hill of Garvock, Kincardineshire.....	D. Welch 61-62
		Obituary notes	M. Briggs 62
		Profile of new Honorary Members	
		Margaret Bradshaw.....	L. Farrell 63
		Trevor Evans.....	R. Pryce 64
		Drawings of wildflower seedlings	
		<i>Sonchus asper</i>	S. Evans 65
		Recorders and Recording	
		Panel of Referees and Specialists.....	M.C. Sheahan 66
		Panel of Vice-county Recorders.	D. Pearman 66
		Notes from the Officers	
		Hon. General Secretary.....	L. Farrell 66-67
		Advert	
		Woodside Books.....	67
		Deadline for contribution to <i>News 116</i>	67

Cover picture – *Centaurium scilloides*, Gwennap Head (v.c.1). Photo I.J. Bennallick © 2010 (see p. 30)

EDITORIAL

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As you will have no doubt seen on the back cover, we say goodbye to *Watsonia* and look forward with interest to the publication of its replacement, the *New Journal of Botany*. *Watsonia* has been the Society's main scientific journal for over 60 years, and while its 'obituary' has yet to be written we would like to take this opportunity of thanking all our fellow editors, and in particular the retiring Receiving Editor, Martin Sanford, for all they have done for the Society over the years.

We are still unsure of the impact the change will have on *BSBI News* but there is no doubt that some items formally published in *Watsonia* will find their way into *News* and to prepare for this the editors have reluctantly decided to cease publication of the 'Botany in Literature' feature. We thank all those who have contributed to this in the past, especially Margot Souchier, and apologise to her and all members who enjoyed it for its sudden demise.

As we go to press we hear of the sad death of our Hon. Assistant Secretary, **Peter Fry**. Peter was one of our 'unsung heroes' whose work behind the scenes contributed enormously to the smooth running of the society. Peter, in his quiet and unassuming way, dealt with all the mail that was sent to our registered address at the Natural History Museum, answering what he could and forwarding the rest to the other officers. I [RGE] was honoured to be given the opportu-

nity of nominating him for Honorary Membership of the Society in 2005 and a profile can be found in *BSBI News* **103**: 52.

Congratulations to John Poland and Eric Clement who have been awarded the Presidents' Prize for 2010 by the Presidents of the BSBI and Wild Flower Society for the best new publication, their ground breaking work, *The vegetative key to the British flora*.

Reminder – Please note that all contributions, including photos, **must** be submitted to the Receiving Editor in the first instance and it is much easier to deal with unformatted text that has **not** been set up as it will finally appear! It would also be useful if contributors could consider using short (one line) titles if at all possible.

Now that we have a comprehensive list of changes between scientific names in Stace 2 and Stace 3 (see pages 3-14) we will be using Stace 3 names exclusively from January 2011 and have made a start in that direction with this issue.

Index to BSBI News **101-110**, if things have gone according to plan you should have a copy of the index enclosed with this mailing. Our previous indexer, George Hutchinson, retired after carrying out the first 'mark-up' of all 10 issues and I would like to thank him for the work involved with this and for the five indexes covering over 50 issues that were published under his name.

Diary

N.B. These dates are often supplementary to those in the 2010 Calendar in *BSBI Year Book 2010* and include provisional dates of the BSBI's Permanent Working Committees.

6 Oct Records Committee, London
 13 Oct Training & Education
 15 Oct Committee for Wales, Aberystwyth
 20 Oct Publications Committee, London
 27 Oct Executive Committee, London
 6 Nov Scottish Exhibition & AGM*

10 Nov Council, London
 26 Nov One day Conference, Birmingham*
 27 Nov Annual Exhibition Meeting,
 Birmingham*

* See enclosed lfilet

NOTES

New names and taxa in the third edition of Stace

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This article presents tables of changes in nomenclature between the second and third editions of Clive Stace's *New flora of the British Isles* (table 1) and new taxa covered in the third edition (table 2). A brief list of taxa that are no longer in the main entries is also given (table 3). A spreadsheet version of these tables will be available for download from the

BSBI web site (www.bsbi.org.uk) with an additional column to allow sorting in systematic order.

Only taxa included in the main entries and keys are considered here. Hybrids (including intergeneric hybrids) will be covered in a subsequent edition of *BSBI News*.

Table 1: Changes in nomenclature (in alphabetical order of the name in edition 2)

Edition 2	Edition 3
<i>Aceras anthropophorum</i>	<i>Orchis anthropophora</i>
<i>Aethusa cynapium</i> ssp. <i>cynapioides</i>	<i>Aethusa cynapium</i> ssp. <i>elata</i>
<i>Alopecurus borealis</i>	<i>Alopecurus magellanicus</i>
<i>Althaea hirsuta</i>	<i>Malva setigera</i>
<i>Alyssum saxatile</i>	<i>Aurinia saxatilis</i>
<i>Anagallis minima</i>	<i>Centunculus minimus</i>
<i>Arabis arenosa</i>	<i>Arabidopsis arenosa</i>
<i>Arabis glabra</i>	<i>Turritis glabra</i>
<i>Arabis petraea</i>	<i>Arabidopsis petraea</i>
<i>Arabis turrita</i>	<i>Pseudoturritis turrita</i>
<i>Arenaria serpyllifolia</i> ssp. <i>leptoclados</i>	<i>Arenaria leptoclados</i>
<i>Asparagus officinalis</i> ssp. <i>prostratus</i>	<i>Asparagus prostratus</i>
<i>Astilbe rivularis</i>	<i>Astilbe chinensis</i>
<i>Bromus hordeaceus</i> ssp. <i>divaricatus</i>	<i>Bromus hordeaceus</i> ssp. <i>molliformis</i>
<i>Callitriche hamulata</i>	<i>Callitriche brutia</i> ssp. <i>hamulata</i>
<i>Carex curta</i>	<i>Carex canescens</i>
<i>Carex muricata</i> ssp. <i>lamprocarpa</i>	<i>Carex muricata</i> ssp. <i>pairae</i>
<i>Carex ovalis</i>	<i>Carex leporina</i>
<i>Carex viridula</i> ssp. <i>brachyrrhyncha</i>	<i>Carex lepidocarpa</i>
<i>Carex viridula</i> ssp. <i>oedocarpa</i>	<i>Carex demissa</i>
<i>Carex viridula</i> ssp. <i>viridula</i>	<i>Carex oederi</i>
<i>Cerastium arcticum</i>	<i>Cerastium nigrescens</i>
<i>Ceterach officinarum</i>	<i>Asplenium ceterach</i>

Edition 2	Edition 3
<i>Chamaecyparis nootkatensis</i>	<i>Xanthocyparis nootkatensis</i>
<i>Chenopodium ambrosioides</i>	<i>Dysphania ambrosioides</i>
<i>Chenopodium carinatum</i>	<i>Dysphania carinata</i>
<i>Chenopodium cristatum</i>	<i>Dysphania cristata</i>
<i>Chenopodium desiccatum</i>	<i>Chenopodium pratericola</i>
<i>Chenopodium multifidum</i>	<i>Dysphania multifida</i>
<i>Chenopodium pumilio</i>	<i>Dysphania pumilio</i>
<i>Chionodoxa forbesii</i>	<i>Scilla forbesii</i>
<i>Chionodoxa luciliae</i>	<i>Scilla luciliae</i>
<i>Chionodoxa sardensis</i>	<i>Scilla sardensis</i>
<i>Chrysanthemum coronarium</i>	<i>Glebionis coronaria</i>
<i>Chrysanthemum segetum</i>	<i>Glebionis segetum</i>
<i>Corispermum leptopterum</i>	<i>Corispermum intermedium</i>
<i>Coronopus didymus</i>	<i>Lepidium didymum</i>
<i>Coronopus squamatus</i>	<i>Lepidium squamatum</i>
<i>Cotoneaster linearifolius</i>	<i>Cotoneaster thymifolius</i>
<i>Cotoneaster nitidus</i>	<i>Cotoneaster rotundifolius</i>
<i>Cotoneaster rotundifolius</i>	<i>Cotoneaster uva-ursi</i>
<i>Crataegus pedicellata</i>	<i>Crataegus coccinea</i>
<i>Cucubalus baccifer</i>	<i>Silene baccifera</i>
<i>Dactylorhiza majalis</i>	<i>Dactylorhiza kerryensis</i>
<i>Dactylorhiza traunsteineri</i>	<i>Dactylorhiza traunsteinerioides</i>
<i>Dryopteris affinis</i> ssp. <i>borreri</i>	<i>Dryopteris borreri</i>
<i>Dryopteris affinis</i> ssp. <i>cambrensis</i>	<i>Dryopteris cambrensis</i>
<i>Duchesnea indica</i>	<i>Potentilla indica</i>
<i>Eleocharis austriaca</i>	<i>Eleocharis mamillata</i> ssp. <i>austriaca</i>
<i>Elytrigia repens</i> ssp. <i>arenosa</i>	<i>Elytrigia campestris</i>
<i>Epipactis leptochila</i> var. <i>dunensis</i>	<i>Epipactis dunensis</i>
<i>Erica mackaiana</i>	<i>Erica mackayana</i>
<i>Erigeron acer</i>	<i>Erigeron acris</i>
<i>Erodium malachoides</i>	<i>Erodium malacoides</i>
<i>Euphorbia characias</i> ssp. <i>wulfenii</i>	<i>Euphorbia characias</i> ssp. <i>veneta</i>
<i>Euphorbia serrulata</i>	<i>Euphorbia stricta</i>
<i>Euphrasia anglica</i>	<i>Euphrasia officinalis</i> ssp. <i>anglica</i>
<i>Euphrasia rostkoviana</i>	<i>Euphrasia officinalis</i>
<i>Euphrasia rostkoviana</i> ssp. <i>montana</i>	<i>Euphrasia officinalis</i> ssp. <i>monticola</i>

Edition 2	Edition 3
<i>Euphrasia rostkoviana</i> ssp. <i>rostkoviana</i>	<i>Euphrasia officinalis</i> ssp. <i>pratensis</i>
<i>Festuca arundinacea</i>	<i>Schedonorus arundinaceus</i>
<i>Festuca gigantea</i>	<i>Schedonorus giganteus</i>
<i>Festuca pratensis</i>	<i>Schedonorus pratensis</i>
<i>Filipendula kamtschatica</i>	<i>Filipendula camtschatica</i>
<i>Fragaria</i> × <i>ananassa</i>	<i>Fragaria ananassa</i>
<i>Galanthus ikariae</i>	<i>Galanthus woronowii</i>
<i>Galium mollugo</i>	<i>Galium album</i>
<i>Gentiana clusii</i>	<i>Gentiana acaulis</i>
<i>Gentianella ciliata</i>	<i>Gentianopsis ciliata</i>
<i>Geranium rubescens</i>	<i>Geranium yeoi</i>
<i>Geranium submolle</i>	<i>Geranium herrerae</i>
<i>Gymnadenia conopsea</i> ssp. <i>borealis</i>	<i>Gymnadenia borealis</i>
<i>Gymnadenia conopsea</i> ssp. <i>densiflora</i>	<i>Gymnadenia densiflora</i>
<i>Hebe barkeri</i>	<i>Veronica barkeri</i>
<i>Hebe brachysiphon</i>	<i>Veronica brachysiphon</i>
<i>Hebe dieffenbachii</i>	<i>Veronica dieffenbachii</i>
<i>Hebe salicifolia</i>	<i>Veronica salicifolia</i>
<i>Hedera helix</i> ssp. <i>hibernica</i>	<i>Hedera hibernica</i>
<i>Helictotrichon neesii</i>	<i>Amphibromus neesii</i>
<i>Helictotrichon pratense</i>	<i>Avenula pratensis</i>
<i>Helictotrichon pubescens</i>	<i>Avenula pubescens</i>
<i>Heracleum sphondylium</i> ssp. <i>sibiricum</i>	<i>Heracleum sphondylium</i> ssp. <i>flavescens</i>
<i>Jonopsidium acaule</i>	<i>Cochlearia acaulis</i>
<i>Juncus ambiguus</i>	<i>Juncus ranarius</i>
<i>Lavatera arborea</i>	<i>Malva arborea</i>
<i>Lavatera cretica</i>	<i>Malva pseudolavatera</i>
<i>Lavatera plebeia</i>	<i>Malva preissiana</i>
<i>Lavatera trimestris</i>	<i>Malva trimestris</i>
<i>Ledum palustre</i> ssp. <i>groenlandicum</i>	<i>Rhododendron groenlandicum</i>
<i>Leontodon autumnalis</i>	<i>Scorzoneroides autumnalis</i>
<i>Lepidium hyssopifolium</i>	See table 2
<i>Limonium latifolium</i>	<i>Limonium platyphyllum</i>
<i>Listera cordata</i>	<i>Neottia cordata</i>
<i>Listera ovata</i>	<i>Neottia ovata</i>

Edition 2	Edition 3
<i>Lloydia serotina</i>	<i>Gagea serotina</i>
<i>Loiseleuria procumbens</i>	<i>Kalmia procumbens</i>
<i>Lotus glaber</i>	<i>Lotus tenuis</i>
<i>Luzula pallidula</i>	<i>Luzula pallescens</i>
<i>Lychnis alpina</i>	<i>Silene suecica</i>
<i>Lychnis chalcedonica</i>	<i>Silene chalcedonica</i>
<i>Lychnis coronaria</i>	<i>Silene coronaria</i>
<i>Lychnis flos-cuculi</i>	<i>Silene flos-cuculi</i>
<i>Lychnis viscaria</i>	<i>Silene viscaria</i>
<i>Lycopersicon esculentum</i>	<i>Solanum lycopersicum</i>
<i>Lythrum hyssopifolium</i>	<i>Lythrum hyssopifolia</i>
<i>Malus domestica</i>	<i>Malus pumila</i>
<i>Matricaria recutita</i>	<i>Matricaria chamomilla</i>
<i>Medicago sativa</i> ssp. <i>varia</i>	<i>Medicago sativa</i> nothosp. <i>varia</i>
<i>Monotropa hypopitys</i>	<i>Hypopitys monotropa</i>
<i>Monotropa hypopitys</i> ssp. <i>hypophegea</i>	<i>Hypopitys monotropa</i> ssp. <i>hypophegea</i>
<i>Monotropa hypopitys</i> ssp. <i>hypopitys</i>	<i>Hypopitys monotropa</i> ssp. <i>monotropa</i>
<i>Narcissus poeticus</i> ssp. <i>radiiflorus</i>	<i>Narcissus radiiflorus</i>
<i>Narcissus pseudonarcissus</i> ssp. <i>major</i>	<i>Narcissus hispanicus</i>
<i>Narcissus pseudonarcissus</i> ssp. <i>obvallaris</i>	<i>Narcissus obvallaris</i>
<i>Nothofagus nervosa</i>	<i>Nothofagus alpina</i>
<i>Orchis laxiflora</i>	<i>Anacamptis laxiflora</i>
<i>Orchis morio</i>	<i>Anacamptis morio</i>
<i>Orchis ustulata</i>	<i>Neotinea ustulata</i>
<i>Ornithogalum angustifolium</i>	<i>Ornithogalum umbellatum</i> ssp. <i>campestre</i>
<i>Orobanche artemisiae-campestris</i>	<i>Orobanche picridis</i>
<i>Orobanche minor</i> var. <i>maritima</i>	<i>Orobanche minor</i> ssp. <i>maritima</i>
<i>Orobanche minor</i> var. <i>minor</i>	<i>Orobanche minor</i> ssp. <i>minor</i>
<i>Otanthus maritimus</i>	<i>Achillea maritima</i>
<i>Papaver dubium</i> ssp. <i>dubium</i>	<i>Papaver dubium</i>
<i>Papaver dubium</i> ssp. <i>lecoqii</i>	<i>Papaver lecoqii</i>
<i>Parthenocissus inserta</i>	<i>Parthenocissus vitacea</i>
<i>Peucedanum ostruthium</i>	<i>Imperatoria ostruthium</i>
<i>Peucedanum palustre</i>	<i>Thyselium palustre</i>
<i>Photinia davidiana</i>	<i>Stranvaesia davidiana</i>
<i>Phyllitis scolopendrium</i>	<i>Asplenium scolopendrium</i>

Edition 2	Edition 3
<i>Picris echioides</i>	<i>Helminthotheca echioides</i>
<i>Potentilla neummanniana</i>	<i>Potentilla tabernaemontani</i>
<i>Potentilla palustris</i>	<i>Comarum palustre</i>
<i>Psoralea americana</i>	<i>Cullen americanum</i>
<i>Ranunculus ficaria</i>	<i>Ficaria verna</i>
<i>Ranunculus ficaria</i> ssp. <i>bulbilifer</i>	<i>Ficaria verna</i> ssp. <i>verna</i>
<i>Ranunculus ficaria</i> ssp. <i>chrysocephalus</i>	<i>Ficaria verna</i> ssp. <i>chrysocephala</i>
<i>Ranunculus ficaria</i> ssp. <i>ficaria</i>	<i>Ficaria verna</i> ssp. <i>fertilis</i>
<i>Ranunculus ficaria</i> ssp. <i>ficariiformis</i>	<i>Ficaria verna</i> ssp. <i>ficariiformis</i>
<i>Rorippa microphylla</i>	<i>Nasturtium microphyllum</i>
<i>Rorippa nasturtium-aquaticum</i>	<i>Nasturtium officinale</i>
<i>Rosa caesia</i> ssp. <i>glauca</i>	<i>Rosa caesia</i> ssp. <i>vosagiaca</i>
<i>Rosa pimpinellifolia</i>	<i>Rosa spinosissima</i>
<i>Rumex pseudoalpinus</i>	<i>Rumex alpinus</i>
<i>Sagina apetala</i> ssp. <i>erecta</i>	<i>Sagina filicaulis</i>
<i>Salicornia nitens</i>	<i>Salicornia emerici</i>
<i>Salsola kali</i> ssp. <i>ruthenica</i>	<i>Salsola kali</i> ssp. <i>tragus</i>
<i>Sanguisorba minor</i>	<i>Poterium sanguisorba</i>
<i>Sanguisorba minor</i> ssp. <i>minor</i>	<i>Poterium sanguisorba</i> ssp. <i>sanguisorba</i>
<i>Sanguisorba minor</i> ssp. <i>muricata</i>	<i>Poterium sanguisorba</i> ssp. <i>balearicum</i>
<i>Senecio fluviatilis</i>	<i>Senecio sarracenicus</i>
<i>Seriphidium maritimum</i>	<i>Artemisia maritima</i>
<i>Silene quadrifida</i>	<i>Silene alpestris</i>
<i>Simethis planifolia</i>	<i>Simethis mattiazzii</i>
<i>Stachys officinalis</i>	<i>Betonica officinalis</i>
<i>Stellaria uliginosa</i>	<i>Stellaria alsine</i>
<i>Stipa neesiana</i>	<i>Nassella neesiana</i>
<i>Thlaspi caerulescens</i>	<i>Noccaea caerulescens</i>
<i>Thlaspi macrophyllum</i>	<i>Pachyphragma macrophyllum</i>
<i>Thlaspi perfoliatum</i>	<i>Microthlaspi perfoliatum</i>
<i>Tragopogon hybridus</i>	<i>Geropogon glaber</i>
<i>Trichophorum cespitosum</i> ssp. <i>cespitosum</i>	<i>Trichophorum cespitosum</i>
<i>Trichophorum cespitosum</i> ssp. <i>germanicum</i>	<i>Trichophorum germanicum</i>
<i>Triglochin maritimum</i>	<i>Triglochin maritima</i>
<i>Triglochin palustre</i>	<i>Triglochin palustris</i>
<i>Yucca recurvifolia</i>	<i>Yucca gloriosa</i> (var. <i>recurvifolia</i>)

Table 2: New taxa in Edition 3 (in alphabetical order).

A number of these taxa are mentioned in the second edition either under ‘Other spp.’ or ‘Other genera’; that is they were not fully described there, and for that reason were not included in the *New atlas* or CDRom. These are indicated with ‘1’ in the Ed2 column. Others were mentioned in the general text, again with no full description, and these are

indicated with a ‘2’ in the Ed2 column. Often where a new subspecies has been included, it has been necessary to include an entry for the type subspecies, and these are indicated with a ‘3’ in the Ed2 column.

All are alien species, other than where indicated as native (N).

Name (Edition 3)		Ed2	Note
<i>Abies cephalonica</i>		1	
<i>Abies fraseri</i>			
<i>Acaena caesiiglauca</i>		1	
<i>Achillea filipendulina</i>		1	
<i>Allium paniculatum</i>			Ssp. <i>fuscum</i> only Br. ssp. (ssp. <i>paniculatum</i> not in wild)
<i>Anemanthele lessoniana</i>			= <i>Stipa arundinacea</i>
<i>Anthemis austriaca</i>		1	
<i>Arctium minus</i> ssp. <i>minus</i>	N	3	
<i>Arctium minus</i> ssp. <i>pubens</i>	N		Was in Ed1
<i>Aristolochia hirta</i>			
<i>Artemisia campestris</i> ssp. <i>campestris</i>	N	3	
<i>Artemisia campestris</i> ssp. <i>maritima</i>	N?		Since 2004
<i>Aster concinnus</i>		1	Since 1990
<i>Aster pilosus</i>			Since 1997
<i>Aster squamatus</i>			Since 2003
<i>Astrantia major</i> ssp. <i>major</i>		3	
<i>Astrantia major</i> ssp. <i>carinthiaca</i>		1	
<i>Atriplex sagittata</i>		1	
<i>Baldellia ranunculoides</i> ssp. <i>ranunculoides</i>	N	3	
<i>Baldellia ranunculoides</i> ssp. <i>repens</i>	N		
<i>Ballota acetabulosa</i>			1 site in Man
<i>Bergenia cordifolia</i>		1	
<i>Betula papyrifera</i>		1	
<i>Betula populifolia</i>			
<i>Betula utilis</i>		1	(as <i>B. jacquemontii</i>)
<i>Bidens ferulifolia</i>			
<i>Blechnum penna-marina</i>		1	
<i>Brachypodium rupestre</i>	N	1	
<i>Bromus hordeaceus</i> ssp. <i>longipedicellatus</i>	N		

Name (Edition 3)		Ed2	Note
<i>Callitriche hermaphroditica</i> ssp. <i>hermaphroditica</i>	N	3	
<i>Callitriche hermaphroditica</i> ssp. <i>macrocarpa</i>	N		
<i>Callitriche palustris</i>	N	1	
<i>Campanula cochlearifolia</i>			1 site in W Sutherland
<i>Campanula rotundifolia</i> ssp. <i>rotundifolia</i>	N	3	
<i>Campanula rotundifolia</i> ssp. <i>montana</i>	N		
<i>Cardamine quinquefolia</i>			Since 2005
<i>Carduus acanthoides</i>		1	
<i>Carex salina</i>	N		Since 2004
<i>Catapodium rigidum</i> ssp. <i>majus</i>	N	2	(as <i>C. rigidum</i> var. <i>majus</i>)
<i>Centaurea cineraria</i>			
<i>Centaurea debeauxii</i>	N	2	(as <i>C. nemoralis</i>)
<i>Centaurea jacea</i>		1	
<i>Chenopodium quinoa</i>		1	
<i>Clematis cirrhosa</i>		1	
<i>Conyza floribunda</i>		2	(as <i>C. bilbaoana</i>). Since 1992
<i>Cornus sanguinea</i> ssp. <i>australis</i>			
<i>Cornus sanguinea</i> ssp. <i>sanguinea</i>	N	3	
<i>Cotinus coggygria</i>		1	
<i>Cotoneaster atrovirens</i>			
<i>Cotoneaster bradyi</i>			
<i>Cotoneaster calocarpus</i>			
<i>Cotoneaster froebelii</i>			
<i>Cotoneaster fruticosus</i>			
<i>Cotoneaster glabratus</i>			
<i>Cotoneaster glaucophyllus</i>			
<i>Cotoneaster hedegaardii</i>			
<i>Cotoneaster hodjingensis</i>			
<i>Cotoneaster hurusawamus</i>			
<i>Cotoneaster ignescens</i>			
<i>Cotoneaster induratus</i>			
<i>Cotoneaster lidjiangensis</i>			
<i>Cotoneaster nohelii</i>			
<i>Cotoneaster perpusillus</i>			
<i>Cotoneaster radicans</i>			
<i>Cotoneaster serotinus</i>			
<i>Cotoneaster shannanensis</i>			

Name (Edition 3)		Ed2	Note
<i>Crambe hispanica</i>			Ssp. <i>abyssinica</i> is the cultivated plant
<i>Crataegus rhipidophylla</i>			
<i>Crocus biflorus</i> ssp. <i>adamii</i>		2	(under <i>C. biflorus</i>)
<i>Crocus biflorus</i> ssp. <i>biflorus</i>		3	
<i>Cyrtomium fortunei</i>			
<i>Cystopteris alpina</i>	N		Last seen 1911
<i>Cystopteris diaphana</i>	N?		Discovered 2000
<i>Dactylorhiza ebudensis</i>	N		
<i>Dicentra eximia</i>		2	(under <i>D. formosa</i>)
<i>Dryopteris affinis</i> ssp. <i>affinis</i>	N	3	
<i>Dryopteris affinis</i> ssp. <i>kerryensis</i>	N		
<i>Dryopteris affinis</i> ssp. <i>paleaceolobata</i>	N		
<i>Dryopteris cambrensis</i> ssp. <i>cambrensis</i>	N	3	
<i>Dryopteris cambrensis</i> ssp. <i>pseudocomplexa</i>	N		
<i>Elaeagnus pungens</i>		1	
<i>Elaeagnus commutata</i>			
<i>Epilobium tetragonum</i> ssp. <i>lamyi</i>	N	2	
<i>Epilobium tetragonum</i> ssp. <i>tetragonum</i>	N	3	
<i>Epilobium tetragonum</i> ssp. <i>tournefortii</i>			Since 2007
<i>Epipactis sancta</i>	N		Endemic
<i>Eragrostis virescens</i>		1	
<i>Eucalyptus niphophila</i>			
<i>Festuca arenaria</i> ssp. <i>arenaria</i>	N	3	
<i>Festuca arenaria</i> ssp. <i>oraria</i>	N		
<i>Fraxinus angustifolia</i> ssp. <i>angustifolia</i>		1	(as <i>F. angustifolia</i>)
<i>Fraxinus angustifolia</i> ssp. <i>oxycarpa</i>			
<i>Fraxinus ornus</i>		1	
<i>Geranium reuteri</i>		1	(as <i>G. canariense</i>)
<i>Geum quellyon</i>		1	
<i>Glyceria canadensis</i>			Since before 1980
<i>Helichrysum petiolare</i>		1	
<i>Houttuynia cordata</i>			
<i>Inula hookeri</i>			Since 1993
<i>Iris laevigata</i>			
<i>Juglans nigra</i>			
<i>Juncus anthelatus</i>			1955 & 2006
<i>Juncus alpinoarticulatus</i> ssp. <i>alpinoarticulatus</i>	N	3	

Name (Edition 3)		Ed2	Note
<i>Juncus alpinoarticulatus</i> ssp. <i>rariflorus</i>	N	2	(as <i>J. nodulosus</i>)
<i>Juncus bulbosus</i> ssp. <i>bulbosus</i>	N	3	
<i>Juncus bulbosus</i> ssp. <i>kochii</i>	N	2	(as <i>J. kochii</i>)
<i>Juncus dudleyi</i>		2	(as <i>J. tenuis</i> var. <i>dudleyi</i>)
<i>Lampranthus aureus</i>			
<i>Lemna turionifera</i>			First recorded 2007
<i>Lepidium africanum</i>		2	= <i>L. hyssopifolium</i> (pro parte)
<i>Lepidium divaricatum</i>			= <i>L. hyssopifolium</i> (pro parte)
<i>Leucothoe fontanesiana</i>			
<i>Ludwigia grandiflora</i>			
<i>Lupinus luteus</i>		1	
<i>Lycopodium lagopus</i>			First reported 2007
<i>Malus hupehensis</i>			
<i>Matricaria discoidea</i> ssp. <i>discoidea</i>		3	
<i>Matricaria discoidea</i> ssp. <i>occidentalis</i>			
<i>Mauranthemum paludosum</i>			
<i>Medicago littoralis</i>			Since 2001
<i>Mirabilis jalapa</i>		1	
<i>Miscanthus sinensis</i>		1	
<i>Narcissus bicolor</i>		1	
<i>Narcissus jonquilla</i>		1	
<i>Narcissus macrolobus</i>			= <i>N. pseudonarcissus</i> ssp. <i>pallidiflorus</i>
<i>Narcissus moschatus</i>			= <i>N. pseudonarcissus</i> ssp. <i>moschatus</i>
<i>Narcissus nobilis</i>			= <i>N. pseudonarcissus</i> ssp. <i>nobilis</i>
<i>Nassella tenuissima</i>			= <i>Stipa tenuissima</i>
<i>Nepeta racemosa</i>		2	(under <i>N. ×faassenii</i>)
<i>Odontites jaubertianus</i> ssp. <i>jaubertianus</i>		3	Since 2006
<i>Odontites jaubertianus</i> ssp. <i>chrysanthus</i>			Since 1965 & 2005
<i>Ornithogalum arabicum</i>			Since 1990
<i>Ornithogalum umbellatum</i> ssp. <i>umbellatum</i>		3	
<i>Osteospermum jucundum</i>		1	
<i>Pastinaca sativa</i> ssp. <i>sativa</i>		3	
<i>Pastinaca sativa</i> ssp. <i>sylvestris</i>	N	2	(as <i>P. sativa</i> var. <i>sativa</i>)
<i>Pastinaca sativa</i> ssp. <i>urens</i>	N?		
<i>Peltaria alliacea</i>			Since 2006
<i>Persicaria capitata</i>		1	

Name (Edition 3)		Ed2	Note
<i>Petrorhagia dubia</i>			= <i>P. velutina</i>
<i>Physalis philadelphica</i>			
<i>Picea pungens</i>			
<i>Picris hieracioides</i> ssp. <i>grandiflora</i>			
<i>Picris hieracioides</i> ssp. <i>hieracioides</i>	N	3	
<i>Picris hieracioides</i> ssp. <i>spinulosa</i>	N?	2	(under <i>P. hieracioides</i>)
<i>Picris hieracioides</i> ssp. <i>villarsii</i>			
<i>Plecostachys serpyllifolia</i>			
<i>Polygonum cognatum</i>		1	
<i>Potentilla montana</i>			1 site since 2006
<i>Primula juliae</i>			Since c.1990
<i>Primula pulverulenta</i>			
<i>Primula prolifera</i>			1 locality in Dorset
<i>Prunella grandiflora</i>		1	
<i>Ranunculus acris</i> ssp. <i>acris</i>	N	3	
<i>Ranunculus acris</i> ssp. <i>borealis</i>	N		
<i>Rhus copallina</i>			Since 2006
<i>Rhus coriaria</i>			Since 2006
<i>Ribes divaricatum</i>			1 site since 2003
<i>Rubia tinctorum</i>		1	
<i>Salvia officinalis</i>		1	
<i>Salvia verbenaca</i> ssp. <i>verbenaca</i>	N		Guernsey
<i>Salvia verbenaca</i> ssp. <i>horminoides</i>	N	3	
<i>Schizostylis coccinea</i>			
<i>Scrophularia scopolii</i>			Since 2006
<i>Sedum stellatum</i>		1	
<i>Senecio aquaticus</i> ssp. <i>aquaticus</i>	N	3	
<i>Senecio aquaticus</i> ssp. <i>ornatus</i>	N		
<i>Senecio vulgaris</i> ssp. <i>denticulatus</i>	N	2	(as <i>S. vulgaris</i> var. <i>denticulatus</i>)
<i>Senecio vulgaris</i> ssp. <i>vulgaris</i>	N	3	
<i>Senecio minimus</i>			
<i>Serapias parviflora</i>		1	
<i>Silene catholica</i>			
<i>Silene multifida</i>		1	(as <i>S. fimbriata</i>)
<i>Sisymbrium polyceratium</i>		1	
<i>Solidago canadensis</i> ssp. <i>canadensis</i>		3	

Name (Edition 3)		Ed2	Note
<i>Solidago canadensis</i> ssp. <i>altissima</i>		2	
<i>Soliva pterosperma</i>			Since 1997
<i>Sorbus admonitor</i>	N		Endemic
<i>Sorbus cambrensis</i>	N		Endemic
<i>Sorbus cheddarensis</i>	N		Endemic
<i>Sorbus cuneifolia</i>	N		Endemic (formerly variant of <i>S. anglica</i>)
<i>Sorbus eminentiformis</i>	N		Endemic
<i>Sorbus eminentoides</i>	N		Endemic
<i>Sorbus glabriuscula</i>		1	(as <i>S. hupehensis</i>)
<i>Sorbus leighensis</i>	N		Endemic
<i>Sorbus margaretae</i>	N		Endemic
<i>Sorbus mougeotii</i>			
<i>Sorbus parviloba</i>	N		Endemic
<i>Sorbus pseudomeinichii</i>	N		Endemic
<i>Sorbus rupicoloides</i>	N		Endemic
<i>Sorbus saxicola</i>	N		Endemic
<i>Sorbus scannelliana</i>	N		Endemic
<i>Sorbus stenophylla</i>	N		Endemic
<i>Sorbus stirtoniana</i>	N		Endemic
<i>Sorbus whiteana</i>	N		Endemic
<i>Spartina patens</i>			Since 2005
<i>Sutera cordata</i>			
<i>Symphytum officinale</i> ssp. <i>officinale</i>	N	3	
<i>Symphytum officinale</i> ssp. <i>bohemicum</i>	N		
<i>Tragopogon porrifolius</i> ssp. <i>porrifolius</i>		3	
<i>Tragopogon porrifolius</i> ssp. <i>australis</i>			
<i>Tripleurospermum maritimum</i> ssp. <i>maritimum</i>	N	3	
<i>Tripleurospermum maritimum</i> ssp. <i>nigriceps</i>	N	2	(as <i>T. maritimum</i> ssp. <i>phaeocephalum</i>)
<i>Tripleurospermum maritimum</i> ssp. <i>vinicaule</i>	N	2	(as <i>T. maritimum</i> var. <i>salinum</i>)
<i>Trisetum flavescens</i> ssp. <i>flavescens</i>	N	3	
<i>Trisetum flavescens</i> ssp. <i>purpurascens</i>			
<i>Triteleia laxa</i>			Since 2004
<i>Triticum durum</i>		1	
<i>Ugni molinae</i>			
<i>Urtica dioica</i> ssp. <i>dioica</i>	N	3	

Name (Edition 3)		Ed2	Note
<i>Urtica dioica</i> ssp. <i>galeopsifolia</i>	N	2	(as <i>U. galeopsifolia</i>)
<i>Utricularia bremii</i>	N		Discovered 1990s
<i>Valeriana phu</i>			1 area in Cards.
<i>Verbascum chaixii</i> ssp. <i>austriacum</i>			
<i>Verbascum chaixii</i> ssp. <i>chaixii</i>		3	
<i>Zannichellia palustris</i> ssp. <i>palustris</i>	N	3	
<i>Zannichellia palustris</i> ssp. <i>pedicellata</i>	N		
<i>Zannichellia palustris</i> ssp. <i>pedicellata</i>	N		
<i>Zizania latifolia</i>			

Table 3: Taxa in Edition 2 but excluded from Edition 3

Edition 2	Mentioned in Edition 3 as:
<i>Asperula cynanchica</i> ssp. <i>occidentalis</i>	<i>A. cynanchica</i> var. <i>densiflora</i>
<i>Athyrium flexile</i>	<i>A. distentifolium</i> var. <i>flexile</i>
<i>Correa backhousiana</i>	In ‘Other spp.’ as <i>C. backhouseana</i>
<i>Dactylorhiza lapponica</i>	<i>Dactylorhiza traunsteinerioides</i>
<i>Dactylorhiza majalis</i> ssp. <i>cambrensis</i>	<i>D. purpurella</i> var. <i>cambrensis</i>
<i>Dactylorhiza majalis</i> ssp. <i>occidentalis</i>	<i>D. kerryensis</i> var. <i>occidentalis</i>
<i>Epipactis cleistogama</i>	<i>E. leptochila</i> var. <i>cleistogama</i>
<i>Epipactis youngiana</i>	<i>E. helleborine</i> var. <i>youngiana</i>
<i>Gallium mollugo</i> ssp. <i>erectum</i>	See <i>G. album</i>
<i>Gentianella anglica</i> ssp. <i>cornubensis</i>	Now considered to be hybrids with <i>G. amarella</i>
<i>Leptospermum scoparium</i>	See Myrtaceae, other genera
<i>Leptospermum lanigerum</i>	See Myrtaceae, other genera
<i>Oenothera cambrica</i>	See <i>O. biennis</i>
<i>Orobanche minor</i> var. <i>compositarum</i>	<i>O. minor</i> ssp. <i>minor</i> var. <i>compositarum</i>
<i>Orobanche minor</i> var. <i>flava</i>	<i>O. minor</i> ssp. <i>minor</i> var. <i>flava</i>
<i>Sagina boydii</i>	<i>Sagina procumbens</i> ‘Boydii’
<i>Zostera angustifolia</i>	Either <i>Z. marina</i> var. <i>stenophylla</i> or a growth form of <i>Z. marina</i>

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This compilation would not have been possible without spreadsheets kindly supplied by Gwynn Ellis and Clive Stace.

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A wake-up call for the future of Britain's montane flora? – *Sedum villosum* in decline in Berwickshire (v.c.81)

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Introduction

The Scottish Borders is the headquarters of *Sedum villosum* (Hairy Stonecrop) in Britain and it is, or has been, frequent across the Lammermuirs and the Southern Uplands from Berwickshire in the east to Peeblesshire to the west. J.M. Croft describes the species in the *New atlas* as growing “in at least slightly base-enriched, wet, stony ground and on streambanks in hilly areas, and in montane, often bryophyte-rich, flushes”.

I have been recording *Sedum villosum* in Berwickshire (v.c.81) since 1979 and have visited all the historical sites listed in the Berwickshire Rare Plant Register (Braithwaite, 2004). Those with extant populations when visited between 1979 and 1999 have all been revisited between 2008 and 2010. A series of sites where the species was not re-found when revisited in 2009 have been visited again in 2010 but no further populations were re-found. I have noticed what appears to be an alarming decline and now present an analysis of the trends.

The habitat

The habitat in Berwickshire is much as described by J.M. Croft. *Sedum villosum* occurs firstly in sub-montane flushes on steep slopes where the ground is stony. The communities are kept open by erosion and the more stable ones are rich in bryophytes such as *Climacium dendroides*, *Marchantia polymorpha* ssp. *montivagans* and *Philonotis fontana*. Secondly, *Sedum villosum* occurs in flushes on gentle slopes where the communities are kept open by a steady flow of cold water and a relatively acid reaction. Similar bryophytes are present but there are more vascular plant associates: a small form of *Caltha palustris* (Marsh Marigold), *Chrysosplenium oppositifolium* (Opposite-leaved Golden-saxifrage), *Galium uliginosum* (Fen Bedstraw), *Montia fontana* ssp. *fontana* (Blinks), *Myosotis secunda* (Creeping Forget-me-not) and *Stellaria alsine* (Bog Stitchwort). *Carex* spp. (sedges) are

few, with *C. echinata* (Star Sedge) occasional. In the most favoured communities *Juncus* spp. (rushes) are notable for their near-absence, though a little depauperate *Juncus articulatus* (Jointed Rush) is often present. These communities on gentle slopes appear to be very subject to change. They may be degraded by the invasion of rushes, especially *J. effusus* (Soft Rush), and sometimes by *Filipendula ulmaria* (Meadow-sweet). These taller species suppress the low-growing ones to varying degrees. In other cases the change is more subtle: the species present hardly change but the vegetation cover becomes more complete and the open water habitat is lost. Thirdly *Sedum villosum* occurs on low ledges by the burns; typically stabilised by a rock ledge and kept wet by adjacent flushing. These have a similar plant community to the open flushes on gentle slopes except that *Epilobium brunnescens* (New Zealand Willowherb) is often present.

The historical record

Historically *Sedum villosum* was well-recorded in the east of Berwickshire in the nineteenth century with locality names that can be assigned to 1km squares with a fair degree of certainty. In the west of the v.c., where most of the extant populations are found, there are no early localised records. A few sites were localised in the 1960s by A.G. and D.G. Long but it was only after sample coverage had become relatively comprehensive by 1999 that a representative inventory was achieved. More complete coverage in 2000-2010 has added a few further populations but not many. Perhaps only a very few populations still await discovery. Although 100m-scale recording has been standard from 1979 and 10m-scale recording from 2000, monads (1km squares) are the units chosen for analysis so that the historical records can be included on an equal footing.

Although all known sites have been revisited, I cannot be sure that *Sedum villosum* is absent just because it has not been re-found.

It could have been present as unobtrusive vegetative shoots or in the seed bank. I therefore score the probability of survival as 0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ or 1 on a subjective assessment.

Between 1831 and 1899 *Sedum villosum* was recorded from 11 monads. It survives in one only. The average date of the first records is 1848. Calculation gives an average rate of loss of 14% a decade. Between 1900 and 1978 *Sedum villosum* was recorded from ten monads. It survives in four only. The average date of the first records is 1957. Calculation gives an average rate of loss of 17% a decade. Between 1979 and 1999 *Sedum villosum* was recorded from ten monads. It survives in five only. The average date of the first records is 1986. Calculation gives an average rate of loss of 28% a decade. Despite the limitations of small sample sizes this is suggestive of a sharply increased rate of loss in the last two decades.

Similar analysis of the recent re-survey of all locally rare or scarce species in six hectads in Berwickshire has shown an average 16% loss per decade in the last two decades (Braithwaite, 2010). For many of these species habitat fragmentation and destruction contribute to the losses.

Losses in relation to altitude

The altitude of the extinct populations of *Sedum villosum* ranges from 150m to 380m with an average of 256m. The altitude of the extant populations ranges from 250m to 440m with an average of 351m. The altitude of the highest population at 440m is limited by the fact that the Lammermuirs are relatively low hills. Meikle Says Law is the highest summit in Berwickshire at 535m and the rounded nature of the hills means that the highest flushes are well below this.

Causes of losses

It can be inferred from the prevalence of 'sheep drains' cut across hill flushes in the past that many populations of *Sedum villosum* were lost when this practice was in vogue. This may have been the major cause of the historical losses, sometimes followed by the loss of moorland to the plough. However, there is little evidence of 'sheep drains' being

cut today and some damaged flushes have healed. Nevertheless there is still disturbance to the burnsidess especially from track construction and maintenance and the associated small-scale quarrying of road-stone and some incidental damage to the spring systems is possible.

Sheep densities have varied, with a peak on some moors in the 1990's driven by the grant structure. But sheep densities remained modest on most moors to optimise the habitat for grouse, and it is mainly in a few enclosed fields that I perceive grazing pressure to be a likely cause of losses of *Sedum villosum*. R.W.M. Corner holds a different view, based on his experience in Roxburghshire and Selkirkshire. He has observed high sheep densities and has seen uprooted plants of *Sedum villosum* clearly discarded by sheep on Cheviot, Roxburghshire. While I have observed uprooted plants on Meikle Says Law, Berwickshire, despite sheep densities being very low, sheep have grazed these hills for generations, so their role in the observed losses is unclear.

Meanwhile muirburn on the moors above the flushes is steadily destroying the shallow layer of blanket peat, which now supports very little active *Sphagnum*. This is likely to be reducing the ability of the peat to act as part of the reservoir system feeding the flushes. On a national scale there is evidence of eutrophication in the uplands from atmospheric nitrogen and also of climate change. It is clear from my records that many flushes where *Sedum villosum* occurred in the period 1979-1999 have degraded since. Indeed, with the benefit of hindsight, it is also clear that many of these flushes were already showing adverse symptoms at that period, with *Sedum villosum* being found in small numbers amongst *Juncus effusus*. The burnside-ledge habitat appears little changed, except that *Epilobium brunnescens* is more prominent, but almost all the *Sedum villosum* populations have been lost from this habitat. Recent losses thus seem to be due to a combination of driving forces, but habitat fragmentation and destruction is at most a very minor factor.

Other vice-counties

R.W.M. Corner (pers. comm.) has also noted a recent decline in *Sedum villosum* in Roxburghshire and Selkirkshire. A.G. Amphlett notes for Banffshire, on the BSBI website, that he has revisited between 2000 and 2009 a sample of ten of the 20 localised sites of *Sedum villosum* known in the v.c. These had been recorded between 1960 and 1990. No populations were re-found. *Sedum villosum* is currently known to be extant in Banffshire in just two sites in which it was recorded during the 1990's. So it is clear that *Sedum villosum* is in decline across much of its range in Scotland, not just in Berwickshire.

Conclusion

The accelerating decline of *Sedum villosum* in Berwickshire (v.c. 81) is alarming as there is almost no evidence of recent habitat destruction. The recent losses seem rather to relate to

eutrophication of the spring water from atmospheric nitrogen, to grazing pressure from sheep, to the reduced water-holding capacity of degraded blanket peat and to climate change.

While this is an account of change in but one species at relatively low altitude, the habitats affected are essentially montane, so it could be a pointer to changes likely to be affecting Britain's montane flora at higher altitudes.

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***Gonocarpus* – an Australian viewpoint**

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I have always found *BSBI News* an interesting read, and Eric Clement's article on *Gonocarpus* particularly so (*BSBI News* **113**: 26-7).

The native status of a number of species in Australia remains controversial, and this is the case both for those with bipolar distributions and some Gondwanan species such as *Cotula coronopifolia*. I have not seen *Juncus planifolius* or *Gonocarpus micrantha* in Ireland but am familiar with both in Australia. It is difficult to perceive of either being deliberately introduced to Ireland, and even accidental introduction by humans seems most unlikely. There are a number of wetland (or at least wet place) species which are fairly widespread and common in Australia and which are rare or local in the northern hemisphere – *Limosella australis* and *Isolepis cernua* would be good examples. There are also common species in the northern hemisphere which are local in Australia – for example *Samolus valerandi* and *Lysimachia vulgaris* (although the form of the latter in Australia is the north Asian var.

davurica. *L. vulgaris* has been controversial, and its status in NSW has exercised the minds of some of the finest barristers). Other species seem, in the appropriate habitat, to be equally at home in both hemispheres – for example *Lythrum salicaria* (although *L. salicaria* is a recent and aggressive alien in the United States). It is possible that in some cases we may have both native and introduced genotypes in Australia (as in the case of *Phragmites* in the USA).

It is possible that molecular genetic techniques may resolve the status of such species, and possibly provide a chronology of introduction and separation. Given the nature of threatened species legislation, particularly in Australia, uncertainty about the status of this minority of species absorbs lots of effort, and distracts us from addressing the issues which arise if indeed, as I suspect is more often than not the case, the highly disjunct distributions are natural.

Changing status of *Eleocharis uniglumis* on the Sefton Coast, Merseyside (v.c.59)

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Introduction

Eleocharis uniglumis (Link) Schult. (Slender Spike-rush) is a rhizomatous perennial generally found in coastal locations, such as damp dune-slacks, the upper levels of salt-marshes, brackish grasslands and pools influenced by salt-spray. Less often, it may occur inland in base-rich fens and calcareous marshes and also, locally, by springs with a high sodium content (Jermy *et al.*, 2007; Porter & Foley, 2002; Walters, 1949). The plant grows in a wide variety of soils from alkaline peats to saline sands and gravels but seems to do poorly in standing water, unless this is particularly shallow (Walters, 1949). Ellenberg's indicator values in Hill *et al.* (2004) show that this species is a light-loving plant (L = 8), associated with water-saturated soils (F = 9) that are weakly acid to weakly basic (R = 7) and relatively infertile (N = 4) and that the plant is adapted to moderately saline conditions (S = 3).

E. uniglumis has a mainly lowland distribution in the British Isles but is relatively widespread, with post-1986 occurrences in 362 hectads in Great Britain and 73 in Ireland (Porter & Foley, 2002). Braithwaite *et al.* (2006) report a loss of over 50% in a sample of tetrads supporting this species between 1987 and 2004 but describe this as “unexpected”, attributing it to recording bias created by a small sample. The *New atlas* gives only one (pre-1970) hectad record for the Sefton Coast, Merseyside (v.c.59, South Lancashire) (Porter & Foley, 2002). This seems surprising for an area with a particularly rich coastal flora (Smith, 2006, 2009), even bearing in mind that the species can easily be overlooked or be confused with the much commoner *E. palustris* (Common Spike-rush) (Walters, 1949). Therefore, after 2000, I began to look out for *E. uniglumis* while conducting surveys on the Sefton Coast. Several records followed, in particular during 2010, when a more detailed study was undertaken.

Previous occurrences in South Lancashire and the Sefton Coast

Early nineteenth century floras for the Liverpool area (Dickinson, 1851; Hall, 1838) do not include *E. uniglumis*, but Fisher (1855) writes: “This rare species I had the pleasure of finding at Seven Pits on the Aintree Road. It is very difficult to distinguish from *E. palustris*; the small size of the plants growing in the above locality not being the usual form of the species This is the first time this plant has been discovered in this division of the country, as Great Britain is divided into sections by Mr Watson in his *Cybele Britannica*.” Later, Wheldon (1903) mentions *E. uniglumis* with other plants dependent on “spongy, marshy hollows” on “the flowery sandhills”. Travis (1916) also describes it as part of the Lancashire dune-slack flora, while Wheldon & Travis (1923) list this species as a member of their “Dune-marsh Pool Sub-association” within coastal dune-slacks. Savidge *et al.* (1963) give the status of *E. uniglumis* in South Lancashire as “rare”, their most recent record being Birkdale sand-dunes in 1958.

The *New flora of south Lancashire* (2010, archive version) lists six recent records, five on the Sefton Coast from Ainsdale to Birkdale (tetrads SD31/B and 31/C); also an inland sighting at Martin Mere in 1992. Its former distribution (1859-1929) is stated to be along what is now the Sefton Coast from Hightown to Marshside. Also mentioned are two other sites on the north shore of the Mersey Estuary at Oglet and Hale, together with Seven Pits, Aintree and Guide Bridge. The habitat of *E. uniglumis* is described as: “Salt-marshes and dune-slacks, damp coastal turf, rare in damp meadows inland” (D.P. Earl, *in litt.*, 2010). This taxon is listed as a *Species of Conservation Importance in North West England* (Regional Biodiversity Steering Group 1999).

The 2010 survey

On 28th April 2010, I was surprised to find two large patches of flowering *E. uniglumis* at Crosby Marine Park (O.S. grid reference SJ313980), representing a new hectad record for the species (SJ39). This discovery caused me to search other potential sites for the plant on the Sefton Coast during May and June 2010, including those at which I had previously recorded it. Separation of this species from *E. palustris*, which often grew close by, proved relatively straightforward, *E. uniglumis* having thinner stems, brighter red basal sheaths and the lowest glume almost completely encircling the base of the spikelet (Jermy *et al.*, 2007; Poland & Clement, 2009; Stace, 2010). However, *E. palustris* in particular showed great variability, some populations having stems as narrow as the target species. The possibility of hybrids was considered but the only descriptions found were little more than “intermediate and fertile” (Jermy *et al.*, 2007; Stace, 2010) and no progress was made with their determination. Rich & Jermy (1998) state that a useful character to pick out *E. uniglumis* from all other members of the genus is that the flower-heads often point strongly sideways. Although this feature was occasionally noted, it affected only a tiny minority of the thousands of plants observed during this study

and could also be seen in *E. palustris*. It was evident that *E. uniglumis* began flowering seven to ten days earlier than *E. palustris*. This assisted location of patches of the former taxon in mixed stands but is not mentioned in any of the cited texts.

At each locality, I determined the grid reference (to 10 figures) using a hand-held GPS device, estimated patch sizes by pacing, listed the associated vascular taxa (with relative frequency on the DAFOR scale) and made notes on habitat characteristics. A database of all records was lodged with Merseyside BioBank and the land-owner, Sefton Metropolitan Borough Council.

Results

Habitats

I found 45 patches of habitat supporting *E. uniglumis* in four tetrads (SJ3/E, SD21/W, SD31/B, SD31/C), representing two hectads. The plant occupied a total area of 1190m² (mean patch size: 26.4m²; range: 0.5 to 207m²). A summary of locations and habitat types is shown in Table 1, while the aerial photos on page 24 show the distribution of patches. In all cases, the sites are flooded with fresh water during an average winter but rarely to depths of more than 30cm and often to less than 15cm. They usually lack surface water by mid-summer (personal observations).

Table 1: Summary of 2010 survey results for *Eleocharis uniglumis*

Site	Tetrad	No. of patches	Area (m ²)	Habitat	NVC	Origin of site
Crosby Marine Park	SJ39E	2	393	Inundation grassland	MG13	Reclamation late 1960s
Ainsdale dunes slack 170	SD21W	1	117	Wet-slack	SD15	Sand-winning 1960s
Ainsdale dunes Slack 53	SD21W	1	0.5	Wet-slack	SD15	Wind erosion 1970s
Ainsdale dunes Slack 50	SD31B	2	8.5	Wet-slack	SD15	Wind erosion 1970s
Birkdale Green Beach	SD31B SD31C	34	480	Salt-marsh swamp	SM20 S21c S4	Accretion from 1986
Tagg's Island	SD31C	1	33	Swamp	S21c	Scrape 1986
Birkdale dunes Slack 28	SD31C	1	12	Wet-slack	SD15	Wind erosion 1970s
Birkdale dunes Slack 19	SD31C	3	145	Wet-slack	SD17	Wind erosion 19 th Cent
Total		45	1189.9			

Most *E. uniglumis* patches were found on Birkdale Green Beach, consisting of a 4km-long strip of salt-marsh, sand-dune, dune-slack and swamp communities up to 200m wide that has developed since 1986 on the foreshore between Birkdale (SD321163) and Ainsdale (SD302136) (Smith, 2007). A total of 34 patches was located here, often in seasonally flooded hollows or on the edges of old drainage channels. A large patch was found in Tagg's Island marsh, this site having formed as a Green Beach in the mid-1970s (Smith, 2007). Here, *E. uniglumis* was associated with the edge of a shallow scrape dug in 1986. Other patches were found in dune-slacks in the Birkdale & Ainsdale Sandhills Local Nature Reserve. Most of these slacks are of relatively recent origin (1960s to 1970s) but one (slack 19 at Birkdale) is much older, dating back to the mid/late 19th century (Smith, 2006).

Crosby Marine Park is on land reclaimed from the Mersey Estuary in the late 1960s. At this site, *E. uniglumis* grows abundantly in often-waterlogged grassland on the northern fringe of a small boating lake. Seepage and wave-splash from the boating lake is thought to be somewhat brackish, as the adjacent marine lake is frequently topped up using seawater.

Associates and vegetation

A total of 81 vascular associates of *E. uniglumis* was recorded (Table 2), the most constant being *Agrostis stolonifera* (Creeping Bent) (43 occurrences), *Bolboschoenus maritimus* (Sea Club-rush) (34), *Carex otrubae* (False Fox-sedge) (21), *Eleocharis palustris* (15), *Glaux maritima* (Sea Milkwort) (15), *Hydrocotyle vulgaris* (Marsh Pennywort) (18), *Mentha aquatica* (Water Mint) (17), *Oenanthe lachenalii* (Parsley Water-dropwort) (19), *Phragmites australis* (Common Reed) (22), *Salix repens*

(Creeping Willow) (16) and *Samolus valerandi* (Brookweed) (16). An analysis of the Ellenberg salinity values (S) of the associates (Hill *et al.*, 2004) gives a mean score of 1.01 (range 0-6) and shows that only 23 taxa (28%) are moderately halophytic (S = 2-6). However, the 11 most constant associates have a considerably higher mean Ellenberg salinity value of 1.82 (range 0 – 4).

The vegetation supporting *E. uniglumis* has a rather low species-richness, with a mean of only 11 vascular taxa per patch (range 4 – 26).

Quadrat samples to determine National Vegetation Classification (NVC) communities were not taken but reference to keys in Rodwell (1992, 1995, 2000) show that 19 patches dominated by *E. uniglumis* on the Green Beach are probably referable to SM20: *Eleocharis uniglumis* salt-marsh community, while 11 with lower frequencies of *E. uniglumis* and much *Bolboschoenus maritimus* and *Agrostis stolonifera* are nearer to S21c: *Scirpus* (= *Bolboschoenus*) *maritimus* swamp, *Agrostis stolonifera* sub-community. Four sites have a high frequency of *P. australis* and are similar to S4: *Phragmites australis* swamp and reed-beds. Nine sites occur in the wetter types of slack vegetation, six resembling SD15: *Salix repens*-*Calliergon cuspidatum* dune-slack and three (in Birkdale slack no. 19) SD17: *Potentilla anserina*-*Carex nigra* dune-slack. Rodwell (2000) does not list *E. uniglumis* as occurring in these slack types but does include it in S21c (Rodwell 1995). The inundation grassland at Crosby Marine Park (two sites) is evidently close to MG13: *Agrostis stolonifera*-*Alopecurus geniculatus* grassland. This community may occur on areas of seepage on upper salt-marshes but *E. uniglumis* does not feature in the floristic table for MG13 given in Rodwell (1992).

Table 2: Vascular associates of *Eleocharis uniglumis*
 Occ. = occurrence in 45 patches; S = Ellenberg salinity value.

Taxon	English name	Occ.	S	Taxon	English name	Occ.	S
<i>Agrostis stolonifera</i>	Creeping Bent	43	1	<i>Lythrum salicaria</i>	Purple Loosestrife	1	0
<i>Alopecurus geniculatus</i>	Marsh Foxtail	2	1	<i>Mentha aquatica</i>	Water Mint	17	0
<i>Apium nodiflorum</i>	Fool's Water-cress	1	0	<i>Myosotis laxa</i>	Tufted Forget-me-not	4	0
<i>Aster tripolium</i>	Sea Aster	6	5	<i>Oenanthe crocata</i>	Hemlock Water-dropwort	8	1
<i>Atriplex prostrata</i>	Spear-leaved Orache	1	2	<i>Oenanthe lachenalii</i>	Parsley Water-dropwort	19	3
<i>Bellis perennis</i>	Daisy	2	0	<i>Persicaria amphibia</i>	Amphibious Bistort	1	0
<i>Berula erecta</i>	Lesser Water-parsnip	9	0	<i>Phalaris arundinacea</i>	Reed Canary-grass	1	1
<i>Boiboschoenus maritimus</i>	Sea Club-rush	34	4	<i>Phragmites australis</i>	Common Reed	22	2
<i>Caltha palustris</i>	Marsh-marigold	1	0	<i>Plantago coronopus</i>	Buck's-horn Plantain	1	0
<i>Cardamine pratensis</i>	Cuckoflower	3	0	<i>Plantago lanceolata</i>	Ribwort Plantain	1	0
<i>Carex arenaria</i>	Sand Sedge	2	1	<i>Plantago major</i>	Great Plantain	1	0
<i>Carex extensa</i>	Long-bracted Sedge	2	4	<i>Plantago maritima</i>	Sea Plantain	3	3
<i>Carex flacca</i>	Glauous Sedge	1	0	<i>Poa annua</i>	Annual Meadow-grass	1	1
<i>Carex nigra</i>	Common Sedge	6	0	<i>Poa pratensis</i>	Smooth Meadow-grass	1	1
<i>Carex otrubae</i>	False Fox-sedge	21	2	<i>Poa trivialis</i>	Rough Meadow-grass	2	0
<i>Carex pendula</i>	Pendulous Sedge	1	0	<i>Potentilla anserina</i>	Silverweed	3	2
<i>Cerastium glomeratum</i>	Sticky Mouse-ear	1	0	<i>Pulicaria dysenterica</i>	Common Fleabane	2	0
<i>Cochlearia anglica</i>	English Scurvy-grass	1	6	<i>Ranunculus flammula</i>	Lesser Spearwort	5	0
<i>Dactylorhiza incarnata</i>	Early Marsh-orchid	2	0	<i>Ranunculus lingua</i>	Greater Spearwort	2	0
<i>Eleocharis palustris</i>	Common Spike-rush	15	1	<i>Ranunculus repens</i>	Creeping Buttercup	1	0
<i>Elytrigia repens</i>	Common Couch	2	2	<i>Ranunculus sceleratus</i>	Celery-leaved Buttercup	1	2
<i>Epilobium hirsutum</i>	Great Willowherb	2	0	<i>Rhinanthus minor</i>	Yellow-rattle	1	0
<i>Epilobium parviflorum</i>	Hoary Willowherb	4	0	<i>Rubus caesius</i>	Dewberry	2	0
<i>Equisetum arvense</i>	Field Horsetail	3	0	<i>Rumex crispus</i>	Curled Dock	10	2
<i>Equisetum ×litorale</i>	Shore Horsetail	1	0	<i>Salix cinerea</i>	Grey Willow	5	0
<i>Equisetum palustre</i>	Marsh Horsetail	3	0	<i>Salix repens</i>	Creeping Willow	16	0
<i>Eriophorum angustifolium</i>	Common Cottongrass	1	0	<i>Samolus valerandi</i>	Brookweed	16	3
<i>Festuca rubra</i>	Red Fescue	1	2	<i>Schoenoplectus tabernaemontani</i>	Grey Club-rush	12	1
<i>Filipendula ulmaria</i>	Meadowsweet	4	0	<i>Scorzoneroides autumnalis</i>	Autumn Hawkbit	5	1
<i>Galium palustre</i>	Marsh Bedstraw	2	0	<i>Senecio jacobaea</i>	Common Ragwort	1	1
<i>Glaux maritima</i>	Sea Milkwort	5	4	<i>Taraxacum officinale</i>	Dandelion	2	1
<i>Holcus lanatus</i>	Yorkshire-fog	15	0	<i>Trifolium dubium</i>	Lesser Trefoil	1	0
<i>Hydrocotyle vulgaris</i>	Marsh Pennywort	2	1	<i>Trifolium fragiferum</i>	Strawberry Clover	7	2
<i>Hypochaeris radicata</i>	Cat's-ear	18	0	<i>Trifolium pratense</i>	Red Clover	2	0
<i>Iris pseudacorus</i>	Yellow Iris	1	1	<i>Trifolium repens</i>	White Clover	7	0
<i>Juncus articulatus</i>	Jointed Rush	4	1	<i>Triglochin maritima</i>	Sea Arrowgrass	11	4
<i>Juncus gerardii</i>	Saltmarsh Rush	6	3	<i>Triglochin palustris</i>	Marsh Arrowgrass	1	2
<i>Juncus maritimus</i>	Sea Rush	3	5	<i>Tussilago farfara</i>	Colt's-foot	1	0
<i>Lolium perenne</i>	Perennial Rye-grass	1	0	<i>Typha latifolia</i>	Bulrush	6	0
<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil	1	0	<i>Valeriana officinalis</i>	Common Valerian	1	0
<i>Lycopus europaeus</i>	Gypsywort	5	0				

Discussion

The observations described here suggest either that *E. uniglumis* has been under-recorded or overlooked on the Sefton Coast, or that the species' frequency has considerably increased in recent years. This sand-dune system has been studied by botanists for over 150 years (Smith, 2009) and it seems unlikely that they, including the late Vera Gordon (1918-2006), would have missed the plant. A reasonable conclusion, therefore, is that *E. uniglumis* is now more frequent here than in the recent past. As this species has a mainly northern distribution in Britain (Porter & Foley, 2002), the increase seems unlikely to be a consequence of climate change. A more likely explanation is the recent development of new wetland habitats near the sea, such as Crosby Marine Park (origin late 1960s), Birkdale Green Beach (post-1986) and the Ainsdale/Birkdale frontal dune slacks (early-mid 1970s) (Smith 2006, 2007, 2009). Most of these sites are still sufficiently open to permit colonisation and establishment of a species that is susceptible to competition from older and coarser wetland vegetation, such as dense reed-swamp (Walters, 1949). *E. uniglumis* was found in only one older slack (Birkdale no. 19), which is thought to have originated during a period of wind erosion in the mid-late 19th century. However, this slack is only about 0.5km from the beach and was heavily disturbed in 1977 by the excavation of a large scrape, two of the three patches of *E. uniglumis* being associated with the eastern fringe of the scrape.

Although most of the vascular associates of *E. uniglumis* recorded in this study are not halophytes, the mean Ellenberg salinity value of the most constant taxa ($S = 1.8$) is consistent with the finding of several authors that this species often grows in brackish-water habitats and is more tolerant of salinity than *E. palustris* (Gray & Bunce, 1972; Jermy *et al.*, 2007; Rodwell, 2000; Walters, 1949). Walters (1949) states that *E. uniglumis* is rarely found in reed-beds and seems to grow poorly in standing water, unless this is very shallow. In the present study, the target species was often found in swamp vegetation, dominated either

by *Bolboschoenus maritimus* or *Phragmites australis*. However, it occurred rarely in the denser stands, being usually found in more open areas, sometimes caused by recreational trampling. Although *E. uniglumis* was invariably associated with sites that are seasonally flooded, it was clear that these usually held shallow water (≤ 30 cm), while *E. palustris* often occupied the nearby deeper zones.

Evidently, *E. uniglumis* occurs in a wide range of NVC communities on the Sefton Coast, several of which, including S4, SD15, SD17 and MG13, are not listed as supporting this species. However, 67% of patches accord with SM20 or S21c, both these communities being associated with *E. uniglumis* (Rodwell, 1992, 1995, 2000). Rodwell (2000) describes *E. uniglumis* as “a widespread minor constituent of damp transitional communities along the upper marsh fringes”, so its presence in a variety of vegetation types is not unexpected.

The main habitat of *E. uniglumis* on the Sefton Coast is Birkdale Green Beach. Although this is a large site, its vegetation is changing rapidly over time, with the growth of dense reed-swamp and wet woodland dominated by *Alnus glutinosa* (Alder) (Smith, 2007). It will be interesting to see whether these trends alter the occurrence of *E. uniglumis* here in the future.

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New taxonomy

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I have just read Clive Stace's article in *Watsonia* **28(2)** on molecular systematics. Granted the APG system's scientific predictive power, it is also predictive of massive confusion and frustration, not only to field botanists, but also within the world of botanical publishing. What kind of key will a

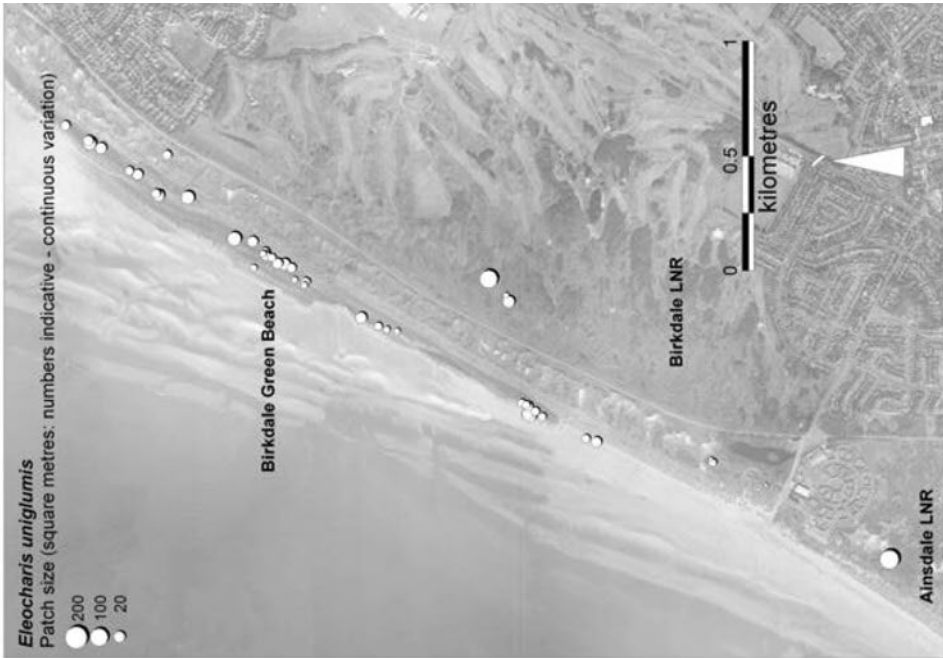
simple amateur such as myself use to identify a flower, the 'new' classification of which is dependent on its DNA sequencing rather than its morphology?

I can see the need to name flowers accurately becoming less appealing than their simple enjoyment, which, on reflection, I welcome.



Distribution of *E. uniglumis* at Crosby

Aerial photography reproduced by courtesy of Merseyside Environmental Advisory Service



Distribution of *E. uniglumis* between Ainsdale & Birkdale

Monitoring Sea Bindweed (*Calystegia soldanella*) on the Sefton Coast, Merseyside, in 2010

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Introduction

Sea Bindweed (*Calystegia soldanella*) is a trailing perennial herb with large, pink-and-white striped flowers and succulent, kidney-shaped leaves found on sand-dunes and on sand and shingle beaches (see photos on inside front cover). It is widely distributed around the coasts of Britain and Ireland, the *New atlas of the British & Irish flora* showing its occurrence in 192 post-1986 hectads (10km squares of the O.S. grid) in Britain and 48 in Ireland. However, its distribution has contracted since the 1930s, with a change index of -0.58. This seems to be due mostly to loss of habitat and disturbance, especially in southern and eastern England, though the plant seems relatively resistant to trampling (Kay, 2002).

Garrard & Streeter (1983) describe *C. soldanella* as a plant of sandy shores or fine shingle and of sand-dunes, where it is found from the early Marram-dominated stages through to the typical vegetation of fixed dunes. According to Salisbury (1952), in open habitats stems can grow up to 2m annually, a patch doubling its area in a single season. Hepburn (1952) states that this species can be lost due to sand movements and points out that its flowers are often hard to find because they are eaten by rabbits. He also describes how the young shoots were formerly gathered along the south coast and pickled, as a substitute for samphire.

C. soldanella has experienced mixed fortunes in north-west England and has been listed as a Species of Conservation Importance in the region (Regional Biodiversity Steering Group, 1999). Halliday (1997) describes it as common along the Cumbrian coast, though almost absent from Morecambe Bay, occurring on sand-dunes and just above the strand-line on sand and shingle beaches. He maps its presence in 47 tetrads in vice-counties 69 and 70. Further south, in West Lancashire (v.c.60), the plant is much rarer; indeed, Liver-

more & Livermore (1987) do not mention it occurring in the northern part of the vice-county. On the Fylde coast, Skelcher (2009) states that it was last recorded at St Annes in 1973 and was not seen during survey work in 2008. However, studies in the same year between Rossall and Fleetwood by J. Bradshaw located at least eight colonies supporting hundreds of plants. Two populations in north Blackpool, last seen about 12 years ago, were re-discovered in August 2010, but others seem to be lost (E.F. Greenwood *in litt.*, 2010).

Greenwood (1999) lists *C. soldanella* as long extinct in Cheshire (v.c.58); its occurrence in South Lancashire (v.c.59) is described below.

History of occurrence in South Lancashire and the Sefton Coast

The first record of *C. soldanella* in v.c.59 seems to be that of J. Shepherd in 1801 on “North Shore, Liverpool” (Savidge *et al.*, 1963). Subsequently, the plant seems to have been familiar to several 19th century authors, Whittle (1831) listing it for the Southport area with other flowers “near the sea”, while McNicholl (1883) describes it in his *Handbook for Southport* as “a very elegant trailing convolvulus with pale rosy flowers”. The two early 19th century floras for the Liverpool area also include this species. Hall (1838) describes its presence at Bankhall near Liverpool, at Garston, and sparingly at Bootle, while Dickinson (1851) gives it as not uncommon in sandy fields between Crosby and Southport and “lately very abundant near Bootle Landmarks but now becoming rapidly eradicated.”

By the time of Savidge *et al.* (1963), *C. soldanella* had become “very rare” in the vice-county, the only site mentioned being a “large colony between Ainsdale and Freshfield” in 1958, all other records cited being in the 19th century. Since then, its status seems

to have improved somewhat. The *New flora of south Lancashire* (2010, archive version) describes this species as very local along the coast at Hightown, Ainsdale and Birkdale within three tetrads (SD20/W, 21/V and 31/D). Its habitat is described as: “among sand-dunes on open sand and once a feature of sandy fields along the coast.” The Ainsdale colony mentioned above is said to have been first seen in 1949; thus, Holder (1953) states: “Six years ago, when at Ainsdale with J.N. Frankland and A. Pilkington we found *Calystegia soldanella* (L.) R. Br. The colony was a large one with many hundreds of flowers, indicating that it had been long established.” The *New flora* database also includes records for Hightown (north) in 1976, Hightown (south) in 1999, Birkdale pipeline in 1983, near the southern Green Beach in 2007 and at Marshside in 2008 (D.P. Earl *in litt.*, 2010).

Results

The data collected are summarised in Table 1.

Table 1. Summary of survey data for *Calystegia soldanella* on the Sefton Coast in 2010.

Site	Date (2010)	Grid reference & tetrad (SD)	Dimensions (m)	Area (m ²)	Habitat	NVC plant community
Hightown (S.)	26/06	29520266 20W	20 x 14	280	Semi-fixed dune	SD7
Hightown (N.)	26/06	29620301 20W	40 x 15	600	Semi-fixed dune	SD7
Ainsdale LNR	06/07	28941133 21V	55 x 5	275	Fixed dune	SD8
Birkdale Green Beach (south)	02/07	30241379 31B	12 x 11	132	Semi-fixed dune	SD7
Birkdale pipeline	03/07	31721604 31D	11 x 6	66	Fixed dune	SD8
Marshside	15/07	34661962 31P	2 x 2	4	Seawall	SD8

A total of six colonies of *C. soldanella* was recorded in five tetrads, representing three hectads. Patch sizes range from 4 to 600m², the total area occupied by the plant being 1357m². At most sites, very few flowers were observed, the notable exception being at Marshside where the 4m² patch supported 11 open flowers and many more buds on 15th July. Habitat was recorded either as semi-fixed or fixed dune, the NVC communities being in accordance with SD7: *Ammophila arenaria-Festuca rubra* semi-fixed dune or SD8: *Festuca rubra-Galium verum* fixed dune (Rodwell, 2000). In most

The 2010 survey

An early 2010 meeting of the Lancashire Wildlife Trust’s Endangered Plants Group stressed the need to discover the present status of *C. soldanella*. Therefore, we decided to monitor the known colonies on the Sefton Coast during the flowering season in late June and July. Each locality was pinpointed using a hand-held GPS device, the approximate area occupied by the target species was measured by pacing, all vascular associates were listed, habitat characteristics were described and an attempt was made to define the vegetation types using keys in Rodwell (2000). We were already familiar with the positions of all the colonies, except the Ainsdale one originally discovered in 1949. Fortunately, during ecological survey work on Ainsdale Sandhills Local Nature Reserve in early July 2010, Dr Maike Isermann encountered the species and provided a grid reference.

cases, little bare sand was evident, except on informal footpaths which traverse some of the sites. Many plants of *C. soldanella* seemed to be associated with the edges of these tracks.

Thirty-three associated vascular taxa were identified (Table 2), totals per site ranging from seven (Marshside seawall) to 17 (Hightown south). All are typical of the duneland habitat, the most constant species being *Festuca rubra*, *Hypochaeris radicata*, *Rubus caesius*, *Ammophila arenaria*, *Anthyllis vulneraria* and *Ononis repens*.

Table 2. Vascular associates of *Calystegia soldanella* on the Sefton Coast
 Site 1 = Hightown (S); 2 = Hightown (N); 3 = Ainsdale LNR; 4 = Green Beach (S);
 5 = Birkdale pipeline; 6 = Marshside seawall.

Taxon	English name	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
<i>Ammophila arenaria</i>	Marram	+		+	+	+	
<i>Anthyllis vulneraria</i>	Kidney-vetch	+	+		+		+
<i>Aster</i> sp.	Michaelmas-daisy	+					
<i>Carex arenaria</i>	Sand Sedge					+	
<i>Carlina vulgaris</i>	Carline Thistle			+			
<i>Cerastium fontanum</i>	Common Mouse-ear	+					
<i>Chamerion angustifolium</i>	Rosebay Willowherb			+			
<i>Crepis capillaris</i>	Smooth Hawk's-beard			+			
<i>Erigeron acris</i>	Blue Fleabane	+		+			
<i>Eryngium maritimum</i>	Sea-holly	+	+				
<i>Euphorbia paralias</i>	Sea Spurge				+		
<i>Festuca rubra</i>	Red Fescue	+	+	+	+	+	+
<i>Glaux maritima</i>	Sea Milkwort	+					
<i>Hieracium umbellatum</i>	Umbellate Hawkweed	+	+	+			
<i>Holcus lanatus</i>	Yorkshire-fog	+		+			
<i>Hypochaeris radicata</i>	Cat's-ear	+	+	+	+	+	+
<i>Leontodon saxatilis</i>	Lesser Hawkbit					+	
<i>Leymus arenarius</i>	Lyme-grass						+
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil		+				
<i>Oenothera</i> sp.	Evening-primrose				+	+	
<i>Ononis repens</i>	Common Restharrow		+	+	+	+	
<i>Pastinaca sativa</i>	Wild Parsnip	+		+			+
<i>Pimpinella saxifraga</i>	Burnet Saxifrage	+					
<i>Plantago lanceolata</i>	Ribwort Plantain			+			+
<i>Poa pratensis</i>	Smooth Meadow-grass			+			
<i>Polypodium vulgare</i>	Common Polypody			+			
<i>Potentilla anserina</i>	Silverweed	+					
<i>Rosa rugosa</i>	Japanese Rose		+				
<i>Rubus caesius</i>	Dewberry	+	+	+		+	+
<i>Rubus fruticosus</i>	Bramble			+			
<i>Senecio jacobaea</i>	Common Ragwort	+	+			+	
<i>Valeriana officinalis</i>	Common Valerian	+					
<i>Vulpia fasciculata</i>	Dune Fescue				+		
Total 33		17	9	16	8	10	7

Discussion

Although the colonies were mostly found on sand-dunes close to the shore, none of them is on embryo or mobile dunes which are said to be among the typical habitats of this species (Halliday, 1997; Hepburn, 1952). The Marshside site is particularly unusual in being on the seaward side of a sloping seawall, where a shallow layer of blown sand has accumulated over a rubble base; while the Ainsdale LNR colony is over 100m inland from the beach on a consolidated fixed-dune ridge. However, the latter accords with Garrard & Streeter's (1983) finding that *C. soldanella* occurs over a range of seral stages in dune succession.

Habitats have probably changed considerably since some of the Sefton Coast populations became established. Thus, the Ainsdale dunes were much more open and mobile before the mid-1950s when myxomatosis had a major impact on rabbit numbers (Smith, 2009). Furthermore, the Ainsdale LNR colony would have been much nearer the sea sixty years ago, considerable accretion having occurred since that time. Similarly, the Green Beach (south) and Birkdale pipeline colonies have been cut off from their sand-supply by the development of Birkdale Green Beach on the foreshore since 1986 (Smith, 2007). At Hightown, the northern colony, known here since at least the mid-1970s, has been affected by a low rate of marine erosion, which has cliffed the dune frontage. Both here and at Hightown (south), where *C. soldanella* was first found in 1999, the frontal dunes have become more consolidated (personal observations), though lightly-used sandy trackways maintain some open habitat for colonisation.

Despite habitat changes, it is evident that *C. soldanella* colonies can persist for long periods, that at Ainsdale being at least 60 years old and some of the others having survived several decades. Indeed, although quantitative data are not available, it appears that several of the colonies have increased in area over recent years (personal observations). None of the Sefton Coast populations known to have been present in modern times has been lost.

The fact that most of the plants are shy of flowering has been apparent for many years. No evidence of flower grazing by rabbits was seen; indeed, the rather coarse vegetation in which most *C. soldanella* populations are situated implies little rabbit activity.

Acknowledgements:

We are grateful to Maike Isermann for the location of the Ainsdale LNR colony. Dave Earl kindly provided information from the *New flora of south Lancashire* database. Thanks are also due to Anne Ancell and Eric Greenwood for details of Fylde coast colonies.

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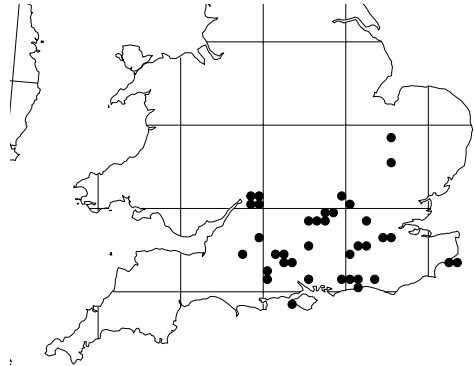
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Juniper populations in lowland England – please return Threatened Plant Project forms by the end of September

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In 2009 BSBI has been working with Plantlife on a project to assess the status and conservation needs of Common Juniper (*Juniperus communis* subsp. *communis*) populations in lowland England (see <http://www.plantlife.org.uk/>). A key element of this project has been to assess its status on a random sample of historic sites as part of the BSBI's five-year Threatened Plants Project (see <http://www.bsbi.org.uk/tpp.html>). In 2009 this included revisiting 40 sites in 20 vice-counties scattered across its lowland range (vice-counties 6-17, 20-24, 29, 33-34; see figure below). Vice-county recorders were asked to visit these sites and, if still present, record the size, age structure, sex ratio, habitats and management of the populations as well as recording associates and any evidence of damage or disease. These data will provide essential information on how the species is faring across a range of different soil and landscape types, in particular how this relates to regeneration success.



This work forms part of a larger contract, being led by Plantlife, which is due to be completed by the end of the year. We would therefore request that any recorders who surveyed populations this year please submit completed forms (including null returns) to Kevin Walker (kevin.walker@bsbi.org.uk) by the end of September at the latest so that data can be digitized and analysed for inclusion in the final report.

***Centaurium scilloides*, *Juncus subnodulosus* and *Phegopteris connectilis* rediscovered in Cornwall after many years**

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Reading Peter Garner's note about the rediscovery of the Ghost Orchid *Epipogium aphyllum* after an absence of 23 years (Garner, 2010) has prompted me to write this note. Searching for and finding the 'Holy Grail' of a national rarity is very satisfying, but on a vice-county level we can still have our triumphs which spur us on to seek out new sites and search old, known sites of local rarities (or those species presumed extinct) and serendipity often plays a part. In Cornwall three species, only recently presumed extinct in Cornwall (Murphy & Bennallick, 2005) have been rediscovered after many years, one a national rarity (*Centaurium scilloides* (Perennial Centaury)), and two which are widespread in the British Isles but have always been very rare in Cornwall (*Juncus subnodulosus* (Blunt-flowered Rush) and *Phegopteris connectilis* (Beech Fern)).

On 17th June 2010 local naturalists Laurie and Helen Oakes (see photo inside front cover) saw and photographed a distinctive pink flower at Gwennap Head, West Cornwall (v.c.1) which they knew wasn't the Common Centaury *Centaurium erythraea* but wondered if it was Perennial Centaury *Centaurium scilloides*. They emailed photos of the plant to me and I knew immediately that it was the much sought after *C. scilloides* (see front cover). This was last seen at this site in 1962 by R Henning, though may have been seen here as late as 1967 (Wigginton, 1999), with a herbarium specimen in the Royal Cornwall Museum collected by S. Bannister in 1957 from Porthgarra. It has been presumed extinct in Cornwall since 1962. Not only did Laurie and Helen find one population but also another separate population just to the north-west. Since the 1960s local botanists have searched these cliffs many times for this species without success, so with this major discovery I arranged to visit Porthgarra the same day.

Two main populations of *C. scilloides* were found in 2010: one at Gwennap Head (SW36782156) with one plant on an adjacent slope just west of Hella Point (SW36882155); and another at Roskestal West Cliff, north-western part (SW36542201) (see photo inside front cover). Both populations had many clumps scattered over an area of several square metres at the junction of maritime heath (*Calluna vulgaris* (Heather), *Erica cinerea* (Bell Heather), *Scilla verna* (Spring Squill)) and coastal grassland (*Festuca rubra* (Red Fescue), *Plantago lanceolata* (Ribwort Plantain), *P. maritima* (Sea Plantain)). It was difficult to count actual numbers of plants as shoots were growing amongst the vegetation, but the population is estimated at between 50 to 100 separate plants at each site, with hundreds of individual flowers, some still flowering in August 2010 (pers. comm. L. Oakes). At SW36542201 there were a few outlying individual single-flowered plants growing through the *Erica* plants.

Both populations were on south-south-eastern facing slopes at about 30 to 40m above sea level and appear to be in vegetation that is not blasted by the south-westerly gales. On the south or south-western facing slopes the vegetation and soil is subject to erosion from wind and sea with the underlying granite being exposed and open patches of granite derived soil are sparsely vegetated with species such as *Sedum anglicum* (English Stonecrop), *Plantago maritima* and *P. coronopus* (Buck's-horn Plantain), *Festuca ovina* (Sheep's-fescue), the dwarf form of *Jasione montana* (var. *nana*) (Sheep's-bit), *Trifolium occidentale* (Western Clover), *Aira caryophylla* (Silver Hair-grass), *A. praecox* (Early Hair-grass) as well as *Anthyllis vulneraria* (Kidney Vetch), *Spergularia rupicola* (Rock Sea-spurrey) and *Cerastium diffusum* (Sea Mouse-ear). This plant community is widespread along the cliffs we explored but we found **NO**

C. scilloides in this vegetation. However this was the type of vegetation where we saw masses of *Centaurium erythraea* var. *capitatum*, a plant that others had mistakenly taken to be *C. scilloides* in the past. Likewise we didn't see any *C. scilloides* in the very turfey *Festuca rubra*/*Holcus lanatus* (Yorkshire-fog)/*Plantago lanceolata* type vegetation which occurs further up the cliff slopes in places.

The long absence between sightings does raise some questions – do plants go through periods of few or no flowers? Perhaps the flowering period is so short that it has not been noticed by passing botanists when flowers are in bud or gone over? Have new plants arisen from long-buried seed? Whatever the reason for its recent flowering, the plants can be mistaken for other species. The leaves of *Centaurium scilloides* are very small compared to the large pink flower heads, and the habit and growth of the leafy shoots look variously like *Stellaria graminea* (Lesser Stitchwort), *Polygala* spp. (Milkworts) or *Veronica serpyllifolia* (Thyme-leaved Speedwell), all not unlikely to be seen in coastal places, and *Lythrum portula* (Water-purslane), though this usually grows in wetter places. If the *C. scilloides* plants were growing in these well-botanised slopes in previous years but haven't flowered it is probable that plants may have been overlooked. Now we know exactly where the plants are growing it will be interesting if they flower again next year and we should never 'lose' the site again.

Whilst surveying a field in a County Wildlife Site for the Cornwall Wildlife Trust in September 2009, experienced field botanist Sue Hocking found an extensive patch of a large rush that appeared not to be the expected *Juncus acutiflorus* (Sharp-flowered Rush) or *J. articulatus* (Jointed Rush) (by far the commonest jointed rushes in Cornwall) in very wet open fen vegetation, south of Tussler's Bridge (south of Erisey Barton) on the Lizard Peninsula (v.c.1) at SW710173 and SW710174. Sue tentatively identified it as Blunt-flowered Rush *Juncus subnodulosus* (Blunt-flowered Rush) (the longitudinal and

cross-partitions in the leaf were evident) and was rightly cautious in naming it, as it had not been seen in Cornwall since before 1909. Material was checked by D.A. Pearman and fellow botanists who named it as *Juncus subnodulosus*, and it was confirmed as this species by Dr T. Cope. This is the first confirmed record for Cornwall, as there are no herbarium specimens from earlier records. The site was visited by I.J. Bennallick, C.N. French and D.A. Pearman on 22 October 2009, and extent of population recorded, which covered many square metres. This population has some large upright plants to about one metre, distinctive robust dark green leaves, growing singly amongst the fen vegetation, and large diffuse 'cat's-cradle' fruiting heads with inflorescences with blunt tepals and rounded fruits. Many of the plants were lying flat along the ground where winds had pushed the leaves down. *Phragmites australis* (Common Reed) is invading part of the fen but the *J. subnodulosus* appears to be dominant in an open area, with only *J. articulatus*, *J. inflexus* (Hard Rush) frequent and *J. effusus* (Soft-rush) occasional, and we couldn't see any convincing *J. acutiflorus*. All the other plant associates appear to put it close to M22 *Juncus subnodulosus*-*Cirsium palustre* (Marsh Thistle) fen-meadow mire community in the National Vegetation Classification (Rodwell, 1991) but the vegetation with further sampling could be unique to this site.

Juncus subnodulosus was first recorded for Cornwall by Watson in 1852 (Davey, 1909) and Davey in Davey (1909) also listed records for Padstow (SW87 or SW97), from Tellam, 'about' Falmouth (SW73 or SW83), from Bastian, at Maenporth (SW72 or SW73), and Budock Bottoms (SW73) from Cocks, all before 1909, and all from v.c.1. However there were no records since then and L.J. Margetts and R.W. David in Margetts & David (1981) considered that "in the absence of specimens, we can only cast doubt on these records". No records were recorded in the supplement (Margetts & Spurgin, 1991) and in French, Murphy & Atkinson (1999) it was thought that "the records for this species remain uncon-

firmed and it should probably be rejected as a member of the Cornish Flora”. Though there are no specimens from the earlier records, it is feasible that the species was present in Cornwall before 1909 and those records are good. Changes in habitat may have been the reason why this species had not been recorded between 1909 and 1980, though it is intriguing to think where it is likely to occur in any of those earlier localities. Further searches are planned in those localities, as well as in similar habitats on the Lizard. Considering that the flora and plant communities of the Lizard Peninsula were recorded in detail for the University of Bristol Lizard Project (UBLP) from the 1950s to the early 1980s, and subsequent intensive recording to the present, it is quite amazing how this species has eluded detection. Many inland parts of the Lizard Peninsula have not had as much recording attention as the coastal areas, due to lack of access and fewer of the well-known rare species for the keen botanist to search for. It is pleasing that Sue Hocking, a fledgling field botanist in the early 1980s actively recording on the Lizard for the UBLP, is the person to find this new addition to the Lizard flora in 2009.

J. subnodulosus is similarly rare in South Devon. Roger Smith (BSBI recorder for South Devon, v.c.3) remarks that “I only know *Juncus subnodulosus* from east Devon where it is one of the dominants in a calcareous cliff-edge flush. *Epipactis palustris* (Marsh Helleborine) is notable with it. The only recent record I have from West Devon is of a ‘small patch on disused railway line by (abandoned) Lydford Station’, (N.F. Stewart, 1995). There are older records, but only one localised – at Venton Moor, High Hampton, SS503036, 1952, O. Greig”.

On 15th August 2010 the Botanical Cornwall Group arranged a field meeting to search for another ‘Holy Grail’ species for Cornwall – Beech Fern *Phegopteris connectilis* – on Brown Willy (SX17 in v.c.2), Cornwall’s highest hill. The last sighting of *P. connectilis* in Cornwall was about 1930 by Major E.W.M. Magor who found it on Brown Willy (though

first seen here by Cornish Moneywort Club before 1909, (Davey, 1909) and Rough Tor (SX18 in v.c.2). In about 1930 he also recorded Oak Fern *Gymnocarpium dryopteris* on Brown Willy. Brown Willy is a long ridge of granite in the northern part of Bodmin Moor, with several exposed weathered granite rock outcrops (known as tors) and loose granite boulders (known as clitter). Rising to 420 m (1,378 ft) it is not a place to visit in rain or mists, as was experienced by the group on at least two other earlier searches, but a small group of seven who met up on 15th August enjoyed sunshine and warm breezes. Thinking that the fern would most likely be in a damp crevice on the northern side of the hill, the upper north-western side was searched first, with the tors and clitter checked methodically. No *P. connectilis* plants were found but the habitat looked suitable. On a visit to Brown Willy in 2006 by I.J. Bennallick, the hill was grazed rather heavily by sheep and cattle with much of the grassy parts in between the rocky areas short-grazed. It was thought at the time that the intensity of grazing may have been detrimental to any chance that the *P. connectilis* could exist, as sheep had been observed to have pulled out plants of Fir Clubmoss *Huperzia selago* (another rare Cornish plant) from between clitter on the neighbouring hill Rough Tor, so with nibbling sheep present it had not looked good for *P. connectilis*. In 2010 the grazing appeared to have been relaxed somewhat: Heather *Calluna vulgaris* was flowering well in places and rather than being over-grazed it was almost at a stage which could be described as under-grazed. It looked much more promising that if any *P. connectilis* was present that it could possibly be found, though we had all resigned ourselves to this being extremely unlikely!

With no *P. connectilis* found in the morning we took lunch near the top of the hill enjoying the views and resigned ourselves to a ‘nice’ but ultimately unsuccessful day. However David Pearman had reported that, only days before, Andy Byfield had found and refound four colonies of *P. connectilis* on Dartmoor, in

Devon, the next largest granite moorland to the east of Bodmin Moor. He had found it in two different types of habitat – in granite crevices on south-east facing tors, and in shaded wet hollows in valleys. With this in our minds we started exploring the tors on the upper part of the hill on the eastern side. Not far from the top David Pearman reported seeing Maidenhair Spleenwort *Asplenium trichomanes* ssp. *quadrivalens* in a horizontal crevice. In Cornwall *A. trichomanes* ssp. *quadrivalens* is a fern not normally growing in such an acid situation, at least in a crevice of a granite tor, so the occurrence of it here was worthy of a second look. It was only as we checked the other plants and small ferns in the crevice that the *P. connectilis* was discovered, at SX15907994. This was completely unexpected as we had not been prepared to find fronds so small, and it is probably this reason that the fern had eluded detection since 1930. The small colony had ten small green fronds (see Colour Section, plate 1) with three or four dead brown crisped fronds on about six small plants – or perhaps one large plant which is spread along the crevice – growing with small *Athyrium filix-femina* (Lady-fern) and *Dryopteris dilatata* (Broad Buckler-fern) along a horizontal crevice of a vertical south-east facing rock outcrop at about 412 metres, just below and southeast of the highest point of Brown Willy. The substrate in the crevice was wet to the touch. Page in Page (1997) remarks that “[*P. connectilis*] also spreads, **in more stunted form**, to moist patches on damp rocky slopes and cliff ledges in mountains to about 610m (2000ft)”. This fits the habitat where it is found on Brown Willy perfectly.

A. trichomanes ssp. *quadrivalens* had been recorded for Brown Willy in 1969 by J. W. Dyce and also in 1997 by Mary Atkinson, and it has also been recorded (including by the author) for Rough Tor (SX145808) since 1992, but no *P. connectilis* was reported for those dates. If *A. trichomanes* ssp. *quadrivalens* and *P. connectilis* grow almost together on Brown Willy then it is well worth checking other places on granite tors, including Rough Tor, where *Asplenium trichomanes* ssp.

quadrivalens grows to see if *P. connectilis* is also present. Though the *P. connectilis* plants on Brown Willy are very small it appears to be holding on in its south-westernmost British locality. However historically there is a more south-westerly record for *P. connectilis* in Cornwall. Ralfs found it “at the base of Carn Galva” (Carn Galver) in West Penwith (SW43) in v.c.1, before 1909. Carn Galver is a granite hill ridge very similar to Brown Willy, with granite tors and clitter, and like Brown Willy has both *Hymenophyllum tunbrigense* (Tunbridge Filmy-fern) and *H. wilsonii* (Wilson’s Filmy-fern). Ralfs found both of these species on Carn Galver, and those who have looked for and found the *Hymenophyllum* spp. on Carn Galver in the past will know that Ralfs must have been searching rather thoroughly through the ankle-breaking clitter. On seeing the situation where the *P. connectilis* grows on Brown Willy, Ralfs’s record for Carn Galver appears correct, despite earlier doubts by local botanists. Carn Galver also has similar creviced granite tors as Brown Willy, and there are also recent records for *A. trichomanes* ssp. *quadrivalens* there. Perhaps Carn Galver may add another location for a ‘Holy Grail’ Cornish species?

There are other species which remain ‘Holy Grail’ plants for Cornwall including national rarities such as *Euphorbia peplis* (Purple Spurge) (last seen in 1949), *Achillea maritima* (*Otanthus maritimus*) (Cottonweed) (last seen in 1933), *Corrigiola litoralis* (Strapwort) (last seen in 1915) and those that are widespread elsewhere in the British Isles such as *Drosera anglica* (Great Sundew) (last seen in 1975), *Sium latifolium* (Greater Water-parsnip) (last seen in 1920) and *Limosella aquatica* (Mudwort) (last seen in 1921). There is no guarantee that we will rediscover these species but we will have fun trying!

Acknowledgments

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Bob Hodgson, Andy Byfield and John Hopkins for invaluable information for the species and locations above.

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Ranunculus ×hiltonii still present on Copthorne Common, E. Sussex

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Ranunculus ×hiltonii is a very rare hybrid between *Ranunculus omiophyllus* (Round-leaved Crowfoot) and *Ranunculus peltatus* (Pond Water-crowfoot) which has been recorded from only three locations in the UK – E. Sussex, S. Hants and E. Cornwall. It is apparently a UK endemic (Stace, 2010). The first record was on Copthorne Common, E. Sussex in 1896 by T. Hilton and a specimen collected by C.E. Salmon from a stream on the Common in May 1900 was placed in the herbarium of H. & J. Groves and now resides in MANCH (The Herbarium Manchester Museum). It was recorded again on Copthorne Common in 1926 but could not be found in a search by Prof. C.D. Cook in 1956 (Webster, 1986), and is described as extinct in the *Sussex Plant Atlas* (Hall, 1980).

While recording on Copthorne Common in 2002, the author came across a patch of an unusual looking aquatic *Ranunculus* growing in the bed of a shallow stream. The plants were notable in that most of the leaves were of the intermediate variety with the laminar parts distal (see photo inside back cover). A sample

was taken and identification attempted using keys in the first edition of Stace’s *New flora of the British Isles* and the *Plant crib 1998* (Rich & Jermy, 1998). It was clear from this that the plant did not fit well with any species but might well be a hybrid, and on comparison of the characteristics with the likely parents it seemed that it was *R. ×hiltonii* (see photo inside back cover). Subsequent comparison with images of the type specimens in MANCH showed that the appearance was very similar, although the type specimen had some capillary leaves and the stems appear to be rather longer. The collected specimen was grown on in a shallow trough of water and changed slightly in that, in addition to the many intermediate leaves and few laminar leaves present initially, a few capillary leaves and some intermediate leaves with the laminar part proximal appeared. The characteristics of the hybrid as found, the grown-on plants and the two parents are summarised in the following table, from which it can be seen that the characteristics of the hybrid are in most cases intermediate between the parents.

†Alan sadly died not long after checking the proof of this note and we send our condolences to his family.

	<i>R. peltatus</i>	<i>R. omiophyllus</i>	Copthorne hybrid original	Copthorne hybrid grown on
Petals contiguous	Yes	No	No	No
Petal length (mm)	>=11	<=6 (7.5)	7-9	8
Sepals reflexed	No	Yes	Yes	Yes
Capillary lvs present	Yes	No	No	Yes
Intermediate lvs present	Very rare	No	Yes	Yes
Laminar lvs present	Yes	Yes	Yes	Yes
Laminar part of intermediate lvs	Distal	N/A	Distal	Distal & proximal
Receptacle	Hairy	Glabrous	Hairy	Sparsely hairy
Peduncles (mm)	>50		25-30	40
Achenes	Pubescent	Glabrous	Glabrous	Glabrous

Observation of the plants since 2002 has shown that the form of the leaves depends on the amount of water in the stream. In years with warmer, drier summers, when the flow is low, most leaves are of the intermediate form, with few laminar leaves. In wetter years, when the water is deeper, more laminar leaves are present (see photo inside back cover). No capillary leaves have so far been seen in plants growing in the stream. Patches of non-flowering plants often have a higher proportion of intermediate leaves than flowering patches.

Copthorne Common is a small patch of heathland close to the Surrey/Sussex border, now used as a golf course, with a flora which includes species such as *Genista anglica* (Petty Whin), *Salix repens* (Creeping Willow) and *Viola palustris* (Marsh Violet), which are scarce or local in Sussex. It was also one of the last places in Sussex where *Viola lactea* (Pale Dog-violet) was known, but this has not been seen for many years. The Common is crossed by a number of shallow sunken streams. A search of these streams showed that the hybrid occurs in good numbers along a single 200m length of shallow stream running NE from the original location but not in any of the other streams in the area. Small quantities of both parents are present in small numbers elsewhere on the Common, within about 300m of the hybrid. The hybrid plants grow in the shallow water and on muddy

edges just above the water. Its most frequent associates are *Potamogeton polygonifolius* (Bog Pondweed) plus, in some places, *Ranunculus flammula* (Lesser Spearwort) and *Juncus bufonius* (Toad Rush). The length of stream where it grows is different from other streams in the area in that it has a channel with almost vertical sides and is about as deep as it is wide and, as a result, is rather shady, whereas the other streams are more open, with sloping banks and channels that are significantly wider than they are deep. Since 2002 large numbers of plants have been present in every year, but in the last 2-3 years the numbers appear to be declining somewhat, although the habitat is apparently unchanged.

Acknowledgements:

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Early success on two Tower Mustard (*Turritis (Arabis) glabra*) projects

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Bromsberrow Heath, Gloucestershire

Back in 2009, while doing work for Ecoline, an Ecology Consultancy, I dropped in on the roadside embankment site at Bromsberrow Heath to see how the Tower Mustard was doing. Sadly I could not locate any plants at the time due to the embankment containing dense vegetation and no open ground for young plants to appear on. Owing to the situation, I contacted Mark Kitchen to find out who to ask for permission to create open ground for the plant on the embankment. After obtaining permission and letting Mark and Clare Kitchen know what I was planning to do, I went ahead and forked the whole embankment using a garden fork over two days on two separate weekends in early December. All vegetation that was removed was shaken and bashed against the fork in case Tower Mustard seeds were lodged in the roots of the grasses. The *Mahonia* that was also encroaching onto the embankment was also taken out where needed. During digging over the embankment I did come across two small Tower Mustard rosettes at the top of the embankment by the hedgerow and one large rosette halfway down the embankment. This was encouraging. A number of locals passing by were interested in why I was digging over the embankment. Some of them had heard there was a special plant in their area. In fact I was asked to speak to Alan Simnett about an article on the Tower Mustard at Bromsberrow for the local *Bromsberrow News and Views*. This was published in March 2010 and can be seen on the internet. Of course it does not contain the plant's exact whereabouts. On the 27th June 2010, I went back to see if any Tower Mustard rosettes had come up where the long open disturbed plot was created. Sadly the verge had been cut, but thanks to locals John Stephens and co. from the nearby village of Bromsberrow Heath, two Tower Mustard plants had been fenced off and had escaped the

mowers (see Colour Section, plate 2). Both plants were setting seed. I cleared any cut dead plant material off the plot that was caused by the mowing by hand of dead grass and bracken to reveal in total 144 Tower Mustard rosettes. However there could be even more rosettes as two clumps of seedlings and young plants were so closely packed together that it was difficult to count all the plants individually. The highways agency was contacted and will be again contacted so that in future the plants do not get mown off. But, as we all know from experience with roadside verge mowing, we will have to wait and see. Luckily this year the mowing of the verge was not a major disaster but it did help out by knocking back the tall bracken. My planned target for the number of flowering Tower Mustard plants for the site at Bromsberrow Heath is 1000 plants within four years.

Gerrard's Cross, Buckinghamshire

Regarding this locality, I have been told by various botanists and naturalists the number of Tower Mustard plants varies between 40 and 100 at this site. I have visited the locality over a number of years and realised that certain parts of the site contain rank vegetation where it would make it impossible for Tower Mustard to germinate, let alone flower. So, after three years trying to find and tracking down the landowner, I got permission to create open disturbed plots for the plant at the site. Of course, I contacted Roy Maycock to let him know what I was going to do. So, in Winter 2008/09 and calling up good friend Dave Shute, a long open plot about 11 metres in length was created, again using garden forks. The soil was a lot harder to dig over compared to the Bromsberrow Heath locality due to the site being part of a former trackway. At least 4 more open plots were created by myself in Winter 2009/10, again using a garden fork. All vegetation was shaken and bashed against the fork to release any trapped Tower Mustard

seed that might be in the grass roots. A visit to the site on the 12th June 2010 revealed the long plot created by myself and Dave Shute completely solid with Tower Mustard, with fruiting heads (see Colour Section, plate 2). Using a tally counter I lost count at 1511 seed heads alone in the long plot. Some of the plants had been nipped back by rabbits or had died back due to a recent dry spell at the time, but a number of these plants had re-shot, producing five side shoots, all producing seedheads. Five for the price of one so to

speak. The four open plots created by myself have already a large amount of young Tower Mustard rosettes that should be flowering in 2011 (see Colour Section, plate 2). In one of these plots was two fruiting heads of Prickly Poppy (*Papaver argemone*) and it will be interesting to see if anything else of interest comes up in the plots as well as the Tower Mustard. Plans are also afoot to create even more open plots in Winter 2010/11. So I wonder if I could reach 3000 flowering plants in the next few years!

***Sonchus* variation**

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Sonchus – this year quite a few plants of an unusual *Sonchus* turned up on waste areas (v.cc.59 & 63), which, according to Sell & Murrell (2006), would be *S. asper* ssp. *asper* var. *integrifolius* (Prickly Sowthistle). (See photos Colour Section, plate 4). I have been told that a few people have seen it before and with some more records this year. There is, from what I gather, an entire-leaved form of *S. oleraceus* (var. *integrifolia*) (Smooth Sowthistle), and it may have been recorded occasionally. The achenes will be diagnostic but it is not reported in Sell & Murrell (2006). I would be very interested to hear of any entire-leaved *S. oleraceus*, with a photo, a typical leaf and some mature achenes (or the oldest head available, which may open in water). The entire-leaved form of *S. oleraceus*, if it occurs, may have been in some instances recorded in error for the *S. asper* variant.

However, while some of the vars. in Sell & Murrell (2006) are quite limiting and seem to vary a lot, this ‘*integrifolius*’ is quite strikingly different from *S. asper* morphologically.

Therein it states this and also says there are few records for it here but that it is widespread on the continent. It may turn up elsewhere and it would be interesting to see just where it has turned up. While there seems to be a slight difference in the achenes (and therefore may only be a var. of *S. asper*), so far the achenes seem consistent but variable in *S. asper* s.l., though it has some other minor differences (but striking in its general appearance). If anyone sees this plant I would be grateful for a leaf and one or two heads. Perhaps a chromosome count would be useful but even if it is the same as *S. asper* (2n=18) it may still be different genetically, though the count would go a long way to knowing if it is possibly different and whether or not it may be a species (*S. integrifolius*). Perhaps someone knows if it has already been recognised!

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Red Arum

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Gabrielle Jarvis found and photographed the red Arum shown in the photograph (see Colour Section, plate 2) in the Isle of Purbeck on 18th

May 2010. It looks like an unusual form of *A. maculatum*, but do any readers have any experience of this please?

Should use of the term ‘extirpation’ in a biodiversity context follow in the footsteps of the Norwegian Blue?

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Martin Rand’s (2010) arguments in his rapid response to my *BSBI News* article challenging careless use of the term ‘extinction’ (Bateman, 2010) are representative of several other correspondents who addressed their comments directly to me. Specifically, there was uniform agreement with my concerns at the conceptual and practical damage wrought by applying without qualification the term ‘extinction’ to any event less profound than the loss of the last reproductively viable individual of the species in question. However, several correspondents argued that using as an alternative to the phrase ‘local extinction’ the term ‘extirpation’ required unacceptable linguistic gymnastics, considering that a term literally rooted in the Latin for ‘root out’ implies activity – even deliberation – and so lacks the ability of ‘extinct’ to also encompass passive loss of a species. My correspondents concluded that to introduce the term ‘extirpation’ in a biodiversity context, thereby permitting a narrower definition of ‘extinction’ as the irrevocable loss of a species to the Earth, would in practice lead to similar ambiguities and inaccuracies.

In reaching this conclusion, my previous point that ‘extirpation’ was already being used in discussions of extinction – in other words, it has already been introduced into mainstream science – was largely ignored. Establishing a wholly new scientific term in the hope of eventually achieving global acceptance is a far greater challenge than promoting a pre-existing term. Also down-played in most of the responses to my article was the fact that most true present-day extinctions are the result of the deliberate activities of mankind, even if the extinctions were an unintended by-product of those deliberate activities – these days, few species passively succumb to ‘acts of God’. We should also consider the comparative appropriateness of any suggested alternatives. Significantly, my correspondents collectively offered only three: continued use of phrases

that qualify ‘extinction’, such as ‘local/regional extinction’, or their replacement with either ‘vanished’ or ‘disappeared’; indeed, Rand (2010) helpfully addressed all three options.

Any fellow aficionados of Monty Python’s dead parrot sketch will be acutely familiar with the plethora of synonyms available for ‘death’, but extraordinarily, almost all of these options lose much of their applicability when they are challenged to replace the subtleties inherent in the concept of ‘local extinction’. Both ‘vanished’ (which suggests to me an inappropriate suddenness) and ‘disappeared’ have the advantage of implying the possibility of an eventual return, such as that shown recently by the Ghost Orchid in England (Bateman, 2010). However, both terms sound, at least to my ears, too colloquial and context-dependent; ‘extirpation’ and ‘extinction’ are more clearly technical in usage, despite their own undeniable ambiguities.

Rand (p. 31) states that “while agreeing wholeheartedly that species should not be baldly proclaimed as ‘Extinct’ or heading for extinction when what is meant is local extinction, I see nothing wrong with using the word ‘Extinct’, with appropriate qualification where the context is not clear.” But this was exactly my point: in order for the context to *be* clear in a world where ‘local extinction’ is an acceptable term, the word ‘extinct’ must *always* be qualified, such that its true meaning must now be expressed as ‘globally extinct’. Extinct is no longer an absolute term describing a unique event – the irrevocable loss of a species – but instead becomes relative; thus, I perceive ‘locally extinct’ as being analogous to such inelegant phrases as ‘fairly unique’!

We are also then challenged to define the essential qualifiers such as ‘local’, ‘regional’ or ‘national’. What expanse of land is needed to differentiate between local and regional? Is the loss of a species from Russia equivalent to the loss of a species from Andorra? Would the

loss of the last UK population of *Diapensia* from its Inverness-shire mountainside constitute a regional extinction, as I would describe it, or a national extinction, as a Scottish Nationalist would presumably describe it? Political rather than physiographic units inevitably provide a poor framework for any kind of scientific analysis.

I have greater sympathy with Rand’s (2010) apparent advocacy of the decision made by the authors of the French Red List (Olivier *et al.*, 1995) to include an assessment of ‘heritage status’ – a criterion that considers the comparative frequency of each species outside France, giving greatest emphasis to adjacent countries. Here is a practical approach that could usefully inform a pragmatic two-tier terminology of species decline – one that

could employ as its foundations the terms ‘extirpation’ in its loose sense and ‘extinction’ in its strict sense. Or perhaps a term preferable to ‘extirpation’ really does exist but must presently be categorised as ‘vanished’ or ‘disappeared’?

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Are the flowers of *Veronica serpyllifolia* ssp. *humifusa* ever blue?

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On a number of occasions in the Cairngorms area, in north-east Scotland, I have found plants of *Veronica serpyllifolia* (Thyme-leaved Speedwell) that appeared to be ssp. *humifusa*. Procumbent rooting stems, more rounded leaves, short few-flowered glandular-hairy racemes of large flowers, all pointed to the montane subspecies. However, none of these plants had all blue flowers, and the many floras and other references I have access to seemed most insistent on this point.

The majority of descriptions of ssp. *humifusa* refer to the flowers as blue or bright blue. In the “blue camp” are Hooker (3rd edition, 1937), Perring and Sell (1968), Clapham, Tutin & Moore (1987) and Rose (1981, 2006). In the “bright blue camp” are Tutin *et al.* (1972), Wigginton & Graham (1981), Blamey & Grey-Wilson (1989, 2003), Stace (1991, 1997, 2010), Sell & Murrell (2009) and Streeter (2009). The *Excursion flora* (3rd ed.) (Clapham *et al.*, 1981) hedges its bets and describes the flowers as bluer (than ssp. *serpyllifolia*). Mary McCallum Webster (1978), who undoubtedly knew this subspecies in the field, describes them as pale blue.

References to a mountain form of ssp. *serpyllifolia*, e.g. in Stace, made me suspect that the plants I saw were not the true ssp. *humifusa*, and I did not record them as such. But, I had forgotten to look in *Plant Crib!* Here is described the very plants I had been seeing. I quote, “The flowers are larger (than ssp. *serpyllifolia*) and usually whitish-blue (the description of flowers as blue in some Floras is misleading). The blue corolla lobe with its dark lines encloses the rest of the corolla in the immature flower and gives the impression that the open flowers will be the same colour. When the corolla expands however the remaining lobes are white or pale blue with slaty-blue lines giving a generalised paler appearance to the flowers” (Corner, 1998).

I would add to Corner’s observations, that the unopened flower buds are a dark blue. Not the dark inky blue of *Veronica alpina* (Alpine Speedwell), but reminiscent of that species. The open flowers reveal that the upper corolla lobe has a blue background colour with darker lines, the side lobes with only the merest hint of a blue background, but with dark lines,

while the small lower lobe is pure white. (See photos). The terse description of the flowers as blue or bright blue in so many floras, referred to above, is not just misleading, but is clearly inaccurate, at least as far as British plants are concerned. Or has anyone seen ssp. *humifusa* with blue flowers? There are suggestions (Corner, pers. comm.) that in European populations of ssp. *humifusa*, flower colour is highly plastic. However, on current knowledge, the form of ssp. *humifusa* in the British Isles does not have entirely blue flowers.

Recorded in 60 hectads in GB in the most recent *Atlas* date class, 1987 – 99 (Preston *et al.*, 2002), ssp. *humifusa* has only been recorded in 22 hectads in the decade 2000 – 09 (<http://www.bsbimaps.org.uk/atlas/main.php>) (accessed 16/6/2010). It is certainly a scarce subspecies, but one which others, if they have been consulting their floras with care, may incorrectly have overlooked.

The accompanying photographs (see inside back cover) show the typical flower colour, and proportionately very large flowers of ssp. *humifusa*. The photographs were taken at Well of Lecht (v.c.94) (NJ235153), at 460m AOD, on 11th June 2010, when there was a mix of flowering and fruiting plants.

Acknowledgements:

Thanks to Rod Corner for comments on an earlier draft of this note.

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Botanical books on the internet

FAITH ANSTEY, *The Old Smithy, Dalguise, Dunkeld, PH8 0JX*

Keith Spurgin and David Pearman's piece on botanical books that can be downloaded from the internet (*BSBI News* 114: 28) was news of a wonderful resource. They ask if anyone knows of others and, when looking for something quite different, I discovered a small site in a similar vein.

At <http://chestofbooks.com/flora-plants/index.html> there is a list of botanical books that can be read online. They are a mixed bunch, but do contain some historical gems.

More on botanical books on the internet

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Regarding the statement that that there is no Turner or Ray on the internet: (*BSBI News* **114**: 29) – this is not so! There is a facsimile edition of Ray's 1660 Cambridge '*Catalogus*' which can be downloaded as a PDF and it is very easy to read on screen. A friend wrote: "It's remarkably easy to find and download:

I've just done it! Google and search for 'Ray Catalogus 1660'. Click on the entry about 4th on the list headed:

'**Catalogus** plantarum ... Google Books result' And then click on 'PDF' at the top extreme right.

Peloric variety of *Kickxia spuria*

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A field meeting of the Hertfordshire Flora Group on 17th July 2010, partly to examine arable weed flora on calcareous gravels near Harpenden, Hertfordshire (v.c.20), produced a single plant of the peloric variety of *Kickxia spuria* (Round-leaved Fluellen), associated with frequent normal specimens of the same species, as well as its relative *K. elatine* (Sharp-leaved Fluellen) and other species alongside a wheat field on thin gravelly soils over chalk adjacent to Marshall's Heath (TL165152) (see Colour Section, plate 1).

Peloric flowers are quite often found in its close relative *Linaria vulgaris* (Common Toadflax), as well as occasionally in *Antirrhinum* species, but the literature is sparse indeed relating to *K. spuria*. The only reference we have come across is its occurrence in Radnor in the 1980s (Woods, 1989).

Peloria is the reversion through genetic influence to an 'archetypal' actinomorphic (radially symmetrical) form of a flower that is normally zygomorphic (bilaterally symmetrical). The genetic mutation that causes this has undergone some examination (Rudall & Bateman, 2003), but the heritability of the condition is uncertain. The recent article in *BSBI News* by John Presland (Presland, 2009) details the form that peloria takes in *Linaria vulgaris*, where the flowers develop five large 'spurs', matching the lobes of the tubular corolla. In the case of the *Kickxia* flowers, this also produced five short, white spurs, arranged

in a ring around the base of a much longer corolla tube. The corolla also shows three of its five lobes bearing the purple colouration normally limited to the standard of the zygomorphic flower, suggesting that the standard of the normal flower is a fusion of three corolla lobes from the archetypal form, the whole of the rest of the zygomorphic flower having derived from the corolla tube and the other two lobes.

The plant that was found did not show fertilised seed-capsules on the day, and a subsequent visit by one of the Flora Group failed to re-find it.

Acknowledgements:

We would like to thank Prof. Richard Bateman for comment on the occurrence of this form in Britain, and for suggesting the record should be written up. We would also like to thank William Bishop of the Herts Flora Group for having spotted it in the first place!

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Using Google Earth to accurately and precisely locate plant populations in county rare plant registers

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For a number of years the Countryside Council for Wales has worked closely with BSBI Recorders in Wales to encourage the production of county rare plant registers. Most recently this has been taken forward enthusiastically and productively by Andy Jones, CCW's higher plant specialist, so that we now have registers published for seven out of the 13 Welsh vice-counties, with another five at various stages of progress.

The registers are extremely useful tools for plant conservation, summarising as they do the known locations for the plants of conservation importance in a vice-county. Their usefulness can be further enhanced by importing the data they contain into a computer-based mapping system (a GIS – Geographical Information System, such as MapInfo), where they can be combined with other data (statutory site boundaries, O.S. base maps, aerial photos etc.). This facilitates understanding of the data by visual inspection and also allows analysis via spatial queries.

One of the limitations of the rare plant registers, however, has been the lack of precision of many of the grid-references within them. Until the advent of cheap and reliable handheld GPS units, the only way for most people to obtain an Ordnance Survey grid-reference was to estimate it from a map. This often resulted in rather imprecise grid-references, usually at best to "6-figures" i.e. to a 100m square resolution, with a potential error of up to about 140m (across the diagonal of a square). This level of precision is fine for many purposes (to examine distribution patterns and climatic or ecological correlations for example) but for more direct conservation and monitoring purposes it is not ideal.

Consider, for example, the situation where a development proposal is submitted for planning permission – perhaps a road-widening. Such a proposal might be submitted to CCW (or a local records centre) to check for

the presence of protected or otherwise notable species. Available records would then be consulted (usually these days in a GIS) to check whether any rare, threatened or protected species were in the path of the development. Imprecise grid-references could mean that some important species might appear to be clear of the development when in fact they are not. Precise grid-references can also be important for determining whether a species is within a statutory site boundary or not, and for re-locating populations for monitoring purposes.

When displayed in a GIS some instances of 'mis-placed' records are quite obvious. For example, an aquatic species may be displayed in a field rather than in a pond or river; or a grassland species shown as being in a woodland. In other cases they might not be so obvious. However, the person who made the original record, which in many cases will be the vice-county recorder, may well be able to spot such misplacements quite easily. Therefore, we looked at ways in which we might capitalise on that knowledge.

Originally we looked at the possibility of providing copies of MapInfo and appropriate training to BSBI Recorders in Wales, in order to allow them, on the basis of their personal knowledge, to precisely and accurately reposition any misplaced points corresponding to plant populations. This, however, proved to be too expensive, with MapInfo licences costing around £1000 each.

I therefore investigated the potential for using Google Earth to do the same job. Google Earth is a computer application that displays satellite and aerial photos stitched seamlessly together and displayed on a virtual globe. It is simple to download and install (<http://earth.google.co.uk/>), and is free for individual users. The resolution of the photographs provided is remarkably high for most parts of Britain, including the whole of

Wales. This makes it possible to easily discriminate broad habitat types, and even sub-types: for example, coniferous woodland can be distinguished from broad-leaf woodland, marshy grassland from improved grassland, and so on. A 3-dimensional view is also available to display topography (albeit rather crudely).

I have written a computer application that will convert the data in the registers (provided in a spreadsheet in a simple cross-tabulated format) to KML, which is the ‘language’ of Google Earth. KML files can be easily emailed to the recorder who supplied the register and who can then open them to view their register in Google Earth. Where points are insufficiently precisely (or accurately) placed the recorders can adjust them and, when finished, the resulting KML file can be

simply emailed back to me. I have developed a further software tool which will convert the KML back to a simple cross-tabulated spreadsheet, which can then be copied back to the recorder, if required. This spreadsheet can also be simply imported into MapInfo and disseminated to CCW conservation staff in that format.

A potential limitation of Google Earth from the British recorder’s point of view is that it works on latitude/longitude. However, an O.S. grid layer is freely-available from a third-party (<http://www.nearby.org.uk>) which will display 100km, 10km and 1km squares depending on the zoom level. You can also derive a grid-reference for a location centred on screen.

For more information, please write or email (addresses above).

Grab a Grid Reference

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Grab a Grid Reference

(<http://www.bnhs.co.uk/focuson/grabagridref/html/index.htm>) is a fantastically useful web site, which shows aerial photography and Ordnance Survey maps in two adjacent frames on a single web page. This is the best website I have found for accurately obtaining or checking grid references in Great Britain. The quality of the available aerial photography coverage has improved over recent years, and most areas of Great Britain now have good quality images. Depending on the size of your computer monitor, pressing F11 (full screen view), makes the site easier to use.

You can search for a grid reference, postcode or place name. As you drag or zoom the air photo, the OS map zooms and moves to match. Or, adjust the OS map and then click on “Match Left Map to Right Map”, to get aerial photography of the same area. Clicking on “Get The Marker” displays (by default) a 1km and a 100m square on both the air photo

and the OS map, with the OS grid reference of each given at the right of the window. There are options to display tetrad and hectad squares, and the tetrad is given in DINTY format. The squares, in different colours according to resolution, can be dragged around, and the grid reference is automatically updated.

The OS map can be set at a different scale to the air photo, allowing one to zoom in on the photo to get an exact location, while having the OS map zoomed out, to give a better impression of where you are. If you prefer, a single map version, just showing the OS map or aerial photography but with the same functions, is linked from the web page.

It should be possible to save a preferred location, so that the web page automatically opens at this point. On my PC this doesn’t work, but it may on those of other users; the default is Bedfordshire.

Ciba-Geigy: beyond *Weed Tables*

JOHN HARVEY, *The Brick House, Charlton Drive, Cheltenham, Gloucestershire, GL53 8ES*

Like Alan Hale and Antony Galton, I am one of the grateful, if apparently rare, owners of what appears to be a complete set of the Ciba-Geigy *Weed Tables*. In my case these were obtained sometime during the 1970s, either at one of the regular sales of remaindered and damaged books organised by a Cambridge bookseller that were the cheap source of many now valued items, or possibly direct from Ciba-Geigy (see below). Distance in time means that I am uncertain which. The motivation for acquisition in my case was not only the artistic and diagnostic merit of the *Tables*, but also their potential use in teaching a course on Weed Biology in a Department of Applied Biology.

The set of 38 *Tables*, contained in a very strong A4 cardboard box, is said to cover 300 species in 127 genera, but I have not checked this. Also in the box are two documents listing and indexing the species covered, and a complex *Circular key to identifying the plant families with weeds of world-wide importance*, which I have never tested. In one of the associated documents it is claimed that the *Tables* include “nearly all the weed species found in Central Europe” (their emphasis in English text but not in the other six languages used in the documents).

Your two previous contributors have extolled the attractions of the *Tables*, but have made no reference to the associated photographs and documentation that make up the Ciba-Geigy “publication”, *Weed Communities of Europe*. This item consists of an A3 cardboard folder, containing: 24 A3, full colour, high quality photographs; an *Appendix Sociologica*; an A3 booklet detailing the species found in the 24 different *Weed Communities* photographed; and a *Glossarium*.

The photographs are large-scale verticals of weeds growing in one of eight different crops, five cereals (allowing for both spring and winter Barley) and three dicotyledons, with cereals outnumbering other crops 17 to 4.

Four of the photographs are of the same weed community taken at different stages of plant development. The individual photographs illustrates from 23 to 42 species (from text), with from one to three individuals of each species being present. A total of 116 weed species are present in at least one photograph (again from text), mainly in the seedling stages. The identity of each individual plant is printed on a clear plastic overlay, with the Latin binomial overlaying each plant. The *Appendix Sociologica* lists the date at which each photograph was taken, together with the altitude and soil type of the site involved.

The *Appendix Sociologica* and the *Weed Communities* folder are printed in German, French, English, Italian, Spanish, Portuguese and Russian (in that order of appearance). These documents are introduced as being an attempt to characterise the weed communities of cultivated arable land according to the phyto-sociological principles introduced by Braun-Blanquet and Tuxen. The resulting classification comprises one *class*, divided into two *orders*, each with three *alliances*. The *alliances* are in turn divided into three, twelve, two, seven, four and two *levels*. The *class*, *orders*, *alliances* and *levels* are characterised by attributes, generally only one to two for each grouping, such as: nature of cultivation (including timing); nutrient levels; soil type; moisture levels; altitude; climate. The species characteristically associated with each grouping are given. I have not fully explored the apparent discrepancy between the 30 communities in the lowest *level* category identified in the *Appendix Sociologica* and the 24 communities for which details are given in the *Weed Communities* folder. The 24 communities in the folder seem to relate to the 24 photographs, so presumably the additional six *levels* were identified during the programme but not photographed. This interpretation is supported by a comparison between the photographs and the information given in the listing of the phyto-sociological

classification and of the habitats in which the communities are characteristically found. This listing includes two communities associated with spring sown Flax and three associated with mainly uncultivated land. None of the photographs show such habitats.

The authors of these two parts of the publication are E. Hafliger, from Basle, and J. Brun-Hool, from Lucerne, whilst the artwork of the *Tables* is ascribed to “graduates of the scientific drawing class of Karl Schmid at the Zurich School of Applied Arts”. In their acknowledgements for specialist advice, the authors refer to individuals from Zurich, Basle, the Netherlands and Germany. The Ciba-Geigy project clearly originated in Switzerland and there appears to have been little or no contribution from the UK.

None of the documentation appears to carry a publication date, but a covering letter in my copy of the *Weed Tables* puts this as the late 1960s and early 1970s. In the open letter of May 1969, Ciba-Geigy UK announced the

issue of the second part of the *Tables* covering species of *Equisetum*, *Polygonum* and *Rumex*, the first part having dealt with *Veronica* and *Linaria*. Other genera presumably came later. It was Ciba-Geigy’s intention, subject to cost constraints, to make the *Weed Tables* “available free of charge to those engaged in agricultural advisory, research and education services”. I may have been fortunate to fall in the last group.

An interesting aspect of the *Weed Communities* component of the project is that it is a specific UK endorsement of the Continental European phyto-sociological approach to botany that was virtually unknown in the British Isles at the time of publication. In so far as the emphasis on Central European flora will have allowed, this may have been the first documentation in the English language that would have enabled certain UK plant communities to be placed in named classes, pre-dating the now ubiquitous National Vegetation Classification approach.

Roadside halophytes, including *Parapholis incurva* & *P. strigosa*, on trunk roads in Herts. (v.c.20) and Cambs. (v.c.29)

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After publication of the *Flora of Hertfordshire* (James, 2009), Dr A.C. Leslie drew my attention to a few interesting halophyte species that he had come across on the Hertfordshire/Cambridgeshire border at Royston. These included *Catapodium marinum* (Sea Fern-grass), new to v.c.20. As a result of this find, I joined Alan to re-examine some stretches of the A505 bypass at Royston on 30th June 2010 in both v.c.20 and v.c.29, but all within current administrative Hertfordshire. This stretch of the A505 is a dual-carriageway bypass constructed in the 1970s across the Chalk Marl lying at the foot of the East Anglian Heights. Despite the fact that it was mostly constructed across former arable fields, the vegetation of the road verges in this area is surprisingly diverse, and had been the subject of quite intensive examination in the late 1990s, as a part of fieldwork for the *Flora*. At this time,

moderate quantities of *Cochlearia danica* (Danish Scurvy-grass) and some *Puccinellia distans* (Reflexed Salt-marsh Grass) were virtually the only halophytes noted. Since these surveys were carried out, however, a range of species have evidently established and sometimes become abundant, such as *Spergularia marina* (Lesser Sea-spurrey) and *Plantago coronopus* (Buck’s-horn Plantain) in addition to the explosive spread of the *Puccinellia* and *Cochlearia*, and the appearance of a number of others.

Despite the drought summer, which had shrivelled many plants early, we were still able to record a wide range of halophytes along the verges of the A505 bypass north-west of Royston (TL3441 and 3340), including *Sagina maritima* (Sea Pearlwort) (also new to Hertfordshire), *Cerastium diffusum* (Sea Mouse-ear), and the *Catapodium*. North-

east of the town, along the same road, we also added *Atriplex littoralis* (Grass-leaved Orache), as well as more widespread halophytes already known. The most interesting finds, however, at the road verge north-west of the town (TL3441) were a few plants of both species of *Parapholis* – *P. strigosa* (Hard-grass) and *P. incurva* (Curved Hard-grass) found by Alan growing in association with the *Sagina* and other species, within centimetres of the road surface.

Reference to Stace (2010) and data on both species available on the National Biodiversity Network Gateway (<http://www.searchnbn.net/>) (accessed 13/8/2010) indicates that *P. strigosa* has been recorded, rarely, from road verges in Yorkshire, and perhaps elsewhere. It is on record for Cambs. (v.c.29), where it has been found in the tidal stretches of the Nene near Wisbech (comm.: A.C.L.) in a native habitat. I understand, however, that *P. incurva* is new to v.c.29 altogether. Both are unrecorded, of course, for Hertfordshire.

In order to ascertain just how much these species may have spread along the A505, I carried out some further close examination of the dual carriageway at Slip End, Herts. (v.c.20) (TL2837) on 2nd July 2010. This proved rewarding. As with the previous stretches of the road, I had carried out careful survey of this stretch during the mid-1990s, and had recorded similar species to the Royston sections at the time. Now, however, the south side of the road in particular has a low, almost entirely halophyte plant community extending up to one metre or more from

the road surface, as a result of drainage from the road down the slope of a hill. This turned out to be dominated by vast amounts of *Plantago coronopus*, but also with *Cochlearia danica*, *Sagina maritima*, *Puccinellia distans*, *Atriplex littoralis*, *Spergularia marina* and *Catapodium marinum*. It also supported large quantities of *Parapholis incurva*, although I could not find any *P. strigosa* at this locality. I also examined the A507 dual carriageway section adjoining Radwell Services, near the junction with the A1(M) (v.c.20) (TL2336), also on calcareous soils, and found both *Sagina maritima* and *Parapholis strigosa* here (but not *P. incurva*), as well as other halophyte species, as before.

The quantity of *P. incurva* at the Slip End site indicates that the colony has been there some time (although it was not there in the mid-1990s). The literature (Stace, 2010), and existing available records indicate that it may not yet have been recorded as a halophyte on road verges elsewhere. Despite the fact that it is generally regarded as quite a local plant, it was evidently well at home in the halophyte road verge habitat, and may well be elsewhere unnoticed, although attempts to find it along other road verges in v.c.20 have so far failed.

References:

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Correction to *BSBI News* 99

Following an enquiry about an article published in *BSBI News* 99 (*Fallopia dumetorum* in Herefordshire), the author Jean Wynne-Jones on re-reading it realised that there were two errors that should be corrected.

Both occur on page 21 about two thirds of the way down where '*F. dumetorum* var. *subulatum*' should read '*F. convolvulus* var. *subalatum*'.

SMALL PROJECT GRANT REPORTS

Exploring local adaptation in Scottish populations of *Arabidopsis petraea*

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Understanding how populations of plants are adapted to different environments within their range has wide significance, with potential to contribute towards species conservation and management, and knowledge of plant evolution.

A BSBI grant for research was awarded to support part of my PhD, exploring local adaptation in Scottish populations of Northern Rock-cress (*Arabidopsis petraea*, also known as *Arabidopsis lyrata* subsp. *petraea* and *Cardaminopsis petraea*†). *A. petraea* has a scattered distribution across Scotland and Europe, confined to low competition habitats. e.g. river shingle, mountain crags and base rich flushes.

Importantly, for my PhD, it also occurs both on and off serpentine soil. Serpentine soils have a scattered distribution, are deficient in several nutrient minerals, have high heavy metal content, and a poor water holding capacity, making this a difficult medium for plant growth. By looking for serpentine-specific adaptations in the serpentine populations, it will be possible to understand some of the mechanisms by which local adaptation may have occurred in this species, and whether there may be a “serpentine-specific” ecotype.

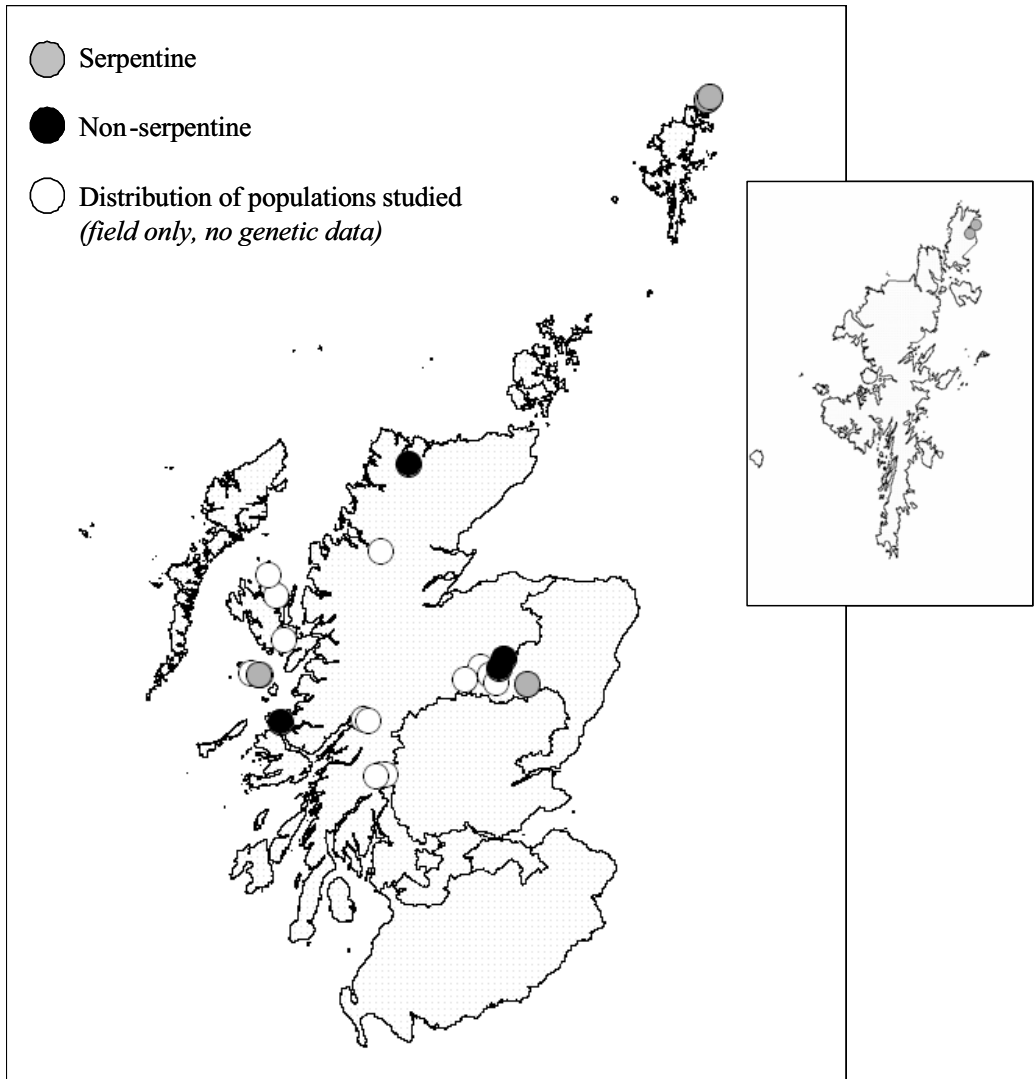
The BSBI helped fund the genetic component of the work, to investigate whether the serpentine populations may represent a separate genetic form within Scotland. Variation in ten microsatellites

(neutral genetic markers) was assessed in eight different populations across Scotland, including four serpentine, and four non-serpentine populations. The eight populations represent both the geographic range of the Scottish distribution of this species, as well as including representatives from all known Scottish serpentine populations. (see map next page).

Now the samples have been genotyped, the data analyses are under way. One possibility is that populations will be related to the environment in which they occur (e.g. serpentine vs non-serpentine genetic forms). The other is that populations will be more related by their proximity to each other rather than by soil type. i.e. the two East Cairngorm populations, Coyles of Muick and Ben Avon, may be more similar in their neutral genetic profile, than to any of the other populations on similar soil types. This will be explored by assessing the extent of genetic similarity between the populations.

The genetic results will also be related to data from both field and common garden experiments. These show adaptation to serpentine soil, as well as the possibility of site specific adaptations. Combined, these data will allow me to establish whether there is parallel evolution in these populations, e.g. each serpentine population adapting independently to the stresses of the serpentine existence.

† Ideally I would refer to the plant as *Arabidopsis lyrata* ssp. *petraea* (L.) O’Kane and Al-Shehbaz, as this is the name used in my PhD and much of the scientific literature, but, to avoid confusion, I’m happy to use the BSBI approved name as adopted by Clive Stace in the 3rd edition of his *New flora of the British Isles*.



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Fig 1. Distribution of all sites surveyed during field work (Open and filled circles). Filled circles represent populations used in genetic analysis (grey = serpentine, black = non serpentine). From West to East: Barkeval (Rum); Ben Hiant (West Coast); Ben Hope (North Highlands); Ben Avon, River Avon, and Coyles of Muick (all East Cairngorms); Clibberswick and Keen of Hamar (both Shetland, see inset map).

ALIENS

The status of *Poa imbecilla* in Britain

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Poa imbecilla Spreng. is a common and widespread weedy perennial grass endemic to New Zealand, and has occurred as a weed, sometimes becoming established, in gardens and nurseries in widely scattered localities in Britain. It may be increasing and is probably overlooked, apparently introduced with cultivated plant imports (e.g. tree-ferns etc.) from New Zealand, which are becoming increasingly popular in gardens. It is rather similar to the common native *Poa nemoralis* L. (Wood Meadow-grass), but much more slender and

delicate, and is readily distinguished by the characters given in the table, using descriptive details from Edgar & Connor (2000) and Cope & Gray (2009) respectively. *Poa imbecilla*, as used here, includes the two varieties var. *imbecilla* Cheeseman and var. *breviglumis* (Hook f.) Cheeseman, which seems to be almost identical, the latter having slightly larger spikelets. The key given by Ryves *et al.* (1995) works well, but does not mention the definitive difference in anther size.

	<i>Poa imbecilla</i>	<i>Poa nemoralis</i>
Habit	Slender rhizomes; very delicate	No rhizomes
Leaf width (mm)	0.5-1.5 (setaceous, flat or folded)	1.0 - 2.5 (- 3.0) (flat or folded)
Height (cm)	c.5 - 40 (- 50)	20 - 80 (- 100)
Florets/spikelet	(2 -) 3 - 4 (- 5)	(1-) 2 - 5
Lower glume (mm)	0.3 - 1.5	2.0 - 3.5 (- 4.0)
Upper glume (mm)	0.8 - 1.8	2.5 - 4.5
Lemma & palea (mm)	1.2 - 2.2	2.5 - 4.5
Anthers (mm)	0.2 - 0.4	1.0 - 2.0 (often aborted)

Discussion

The purpose of this note is to draw attention to the possible occurrence of *Poa imbecilla*, especially in weedy nurseries, greenhouses and gardens; and it would be interesting to hear of more records. It seems that this may be an increasing species, but it is not clear if it often survives for long, and if it is fertile and seeds readily, often forming small patches spread by slender rhizomes. It has been known on the RBG Edinburgh rockeries for 30 or more years, and probably in the E. Cornwall garden for a similar period. Surprisingly, there is no British specimen in the Kew Herbarium (**K**).

Plant records:

- D.R. McKean (1984) 'A pernicious weed in RBG Edinburgh rock garden for many years'. Single specimen in **E**.
- A.C. Leslie (1994) Guildford, Surrey. Comm.: E.J. Clement.
- T. Scott (1995) Weed in garden nursery, Thorpe-le-Soken, Essex.
- T.B. Ryves (1996) Cult. from Essex material in garden, Kingston-on-Thames, Surrey, but did not survive.
- T.B. Ryves (1999) Weed in Hoecroft Nursery, Dereham, Norfolk, seeding into flower pots.
- D.A. Pearman (2010) E. Cornwall, in old established garden, growing in a large patch, associated with tree ferns. Probably there for 40 years.

Acknowledgements:

My thanks to David Pearman for sending me the grass from E. Cornwall, thereby arousing our interest, and to Henry Noltie for investigating the specimen in E.

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Arabis procurrens in Surrey (v.c.17)

GEORGE HOUNSOME, 14 St John's Rise, Woking, Surrey, GU21 1PW
(george.hounsome@btinternet.com)

On the 5th December 2009, before the big freeze, I was wandering under pines in the NW corner of Brookwood Cemetery on the outskirts of Woking, looking with a puzzled expression at fungi when I came across some patches of an angiosperm in flower that I didn't recognize, at SU946568. The patches were stoloniferous rosettes of obovate, minutely-toothed, shiny, mid-green leaves 2-3cm long, glabrous above but with medifixed hairs on the margins and underneath. The flowering stems (in December!) were c20cm tall, with 4-5 similar leaves in the basal half. The inflorescence contained 6-8 white crucifer-type flowers c.1cm diameter (see Colour Section, plate 4). There were no fruits. *Arabis* sprang to mind but it matched none of the species described in Stace. *The new Royal Horticultural Society dictionary of gardening*, however, lists about 30 taxa and it fitted the description of *Arabis procurrens* Waldst. & Kit. (Prostrate *Arabis*). A pressed example was sent to Eric Clement who kindly confirmed it, adding that it would not set fruit, probably because of self-incompatibility (a feature of most crucifers), and that it was apparently the second British record, the first being from a churchyard at Sunning-well in May 2002, listed in *The flora of Berkshire*. The species is native to the Carpathians and the Balkan Peninsula.

The plant had clearly been there for some years and although not in a gardened area would have originated from the military section of the cemetery, where all manner of small perennials are planted along the base of the tombstones, and indeed an examination of these produced *A. procurrens* c100m away. Growing in the same patch of woodland were *Sisyrinchium striatum* (Pale Yellow-eyed Grass) and *Silene* [= *Lychnis*] *coronaria* (Rose Campion), both of which frequently self-sow from seed, but the barrenness of *A. procurrens* suggests that the stolons root readily. The plant is used for ground cover but being so vigorous it soon takes up more space than the gods of gardening permit and is thrown out in consequence. I would like to thank Eric Clement for confirming the identification and for checking this short note.

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Names in *Malva*

STEWART ROBERT HINSLEY

In *BSBI News* **109**: 56 (2008), Eric J. Clement writes about the nomenclature of *Malva* (ex *Lavatera*) species.

In the intervening years I have discovered that the name *Malva arborea* A. St.-Hil. is an error in *Index Kewensis*, and that St.-Hilaire never published that name. Consequently *Malva arborea* (L.) Webb & Berthol. is a valid and legitimate name for *Lavatera arborea* L. This has subsequently been published by Steven R. Hill in 'Notes on California Malvaceae including nomenclatural changes and additions to the flora', *Madroño* **56(2)**: 104-111 (2009).

Malva pseudolavatera Webb & Berthol. was published as a *nom. nov.* for *Lavatera cretica* L., and is clearly available for that species. Although at least 10 earlier published names have been stated to be synonyms of *Lavatera cretica*, several can be eliminated on nomenclatural grounds, and none of the others has been clearly established as referring to *Lavatera cretica*. Consequently I have adopted, *pro tem.*, *Malva pseudolavatera* for this species.

Both these names are also adopted by C.A. Stace in the 3rd edition of his *New flora of the British Isles*.

Phalaris paradoxa (Awned Canary-grass) has no awns

QUENTIN GROOM, *Pelsserssquare 1, 3080 Tervuren, Belgium*

Arable fields are often a barren monoculture, with no more interest to a botanist than a bowl of soup. So, it came as a surprise to find something unusual in just such a field. During a holiday on the Isle of Wight I came across this weed in several fields of oilseed rape and wheat.

It was not easy to identify, particularly due to its misleading British name of Awned Canary-grass (*Phalaris paradoxa*). It is misleading because it has no awns. In contrast, the American name is Hood Canary-grass, which describes its field character perfectly. Its most distinctive feature is that the inflorescence is sheathed by the uppermost leaf, giving the spike a hooded appearance (see Colour Section, plate 2). Otherwise, it could be mistaken at a distance for a *Phleum* or *Alopecurus*.

The flowers can also be baffling. With so many spikelets it is difficult to know where one starts and the other ends. It turns out that each fertile spikelet is at the end of a branched stem together with six or seven sterile spikelets. I believe that the whole branch falls off at maturity, making quite spiky propagules.

Phalaris paradoxa is a serious international weed of agriculture. Originating in the Mediterranean region, it has now naturalised in many places including Australia and North

America. One reason for its success is perhaps herbicide resistance. Strains exist that are resistant to ACCase inhibitors (grass specific herbicides) and triazine herbicides. Also, herbicide resistance has been reported from such widespread places as Mexico, Italy, Israel and Australia.

Phalaris paradoxa has been recorded from 15 tetrads in the Isle of Wight between 2000 and 2010. Before 2000, it had only been known from one casual record in 1917. Nationally, it was found in 116 tetrads between 2000 and 2009, but I suspect this is actually just the tip of the iceberg. It inhabits such miserable places for botany that it is surely under-recorded and its misleading name doesn't help. This species is so well established in the country, that it is even mentioned on Bayers Crop Science website (www.bayercropscience.co.uk). So it has not gone unnoticed by agriculturists. Indeed, amongst the plethora of alien plants in Britain, this one has the potential to have a negative impact on agriculture. If you are looking for possible examples of aliens that are benefiting from global warming and the globalisation of agriculture then *Phalaris paradoxa* is one of the best contenders I've seen.

Naturalisations of exotics in the Scillies

JACK OLIVER, *High View, Lockeridge, Marlborough, Wiltshire, SN8 4ED*

The vascular plant lists for the Isles of Scilly, compiled more than a quarter of a century ago, had more than 750 taxa. These lists included a small number of subspecies, hybrids and variants. Approximately 25 species were introductions from the mainland, and 155 from other parts of the world; the origins as follows:

Europe	37
Europe plus Mediterranean/N. Africa	27
Eurasia (south-west Asia)	20
Atlantic Isl (Madeira, Canaries, Azores)	10
Australasia (New Zealand: 10)	13
Japan	3
North America (all Americas: 2)	15
South America	12
South Africa	27
Tropics (widespread)	1
Garden creations (e.g. Montbretia)	3

These total more than 155 because some came from more than one of the listed origins. Excluding previous extinctions and old uncertain records, rare casuals, transients and throw-outs (with usually a single doubtful record), it became apparent that persistent introductions accounted for about a quarter of the Scillies flora. Woody plants mainly from New Zealand (both North and South Islands) used as windbreaks or hedging were, and still are a conspicuous part of the scenery. Some of these, such as Karo (*Pittosporum crassifolium*) could be seen, even in the 1980s, to have seeded and grown successfully on remote, uninhabited rocky islands (bird-sown). New Zealand Flax (*Phormium tenax*) was also spreading, these plants reaching over 4m.

By 2010 the Scillies flora has become even more dazzling and extraordinary. Four of many examples missing from the early Scillies compilation (Lousley & Harvey, 1983)

include the strange and striking Giant Herb-Robert (*Geranium maderense*) from Madeira “well naturalised and increasing”. I am puzzled by the slow but relentless spread of the established Pineapple-like bromeliad *Rhodostachys (Fascicularia bicolor)* from Chile. Cabbage-palms (*Cordyline australis*), again from New Zealand, are becoming more conspicuous. In many places numerous young plants of Giant Viper’s-bugloss (*Echium pininana*) surround the parent “Rocket Plant”. This woody-trunked plant attracts hundreds of bees, can reach 5m, and seeds profusely in its last year.

Many of the new (and older) arrivals which have become established or naturalised are mentioned, discussed or pictured in the beautifully-illustrated and well-indexed book on the Scillies (Parslow, 2007). In this book, Rosemary Parslow states that half the vascular plants in the Scillies are aliens. For some of these, Stace (ed. 2) (1997) uses the formula +/- naturalised.

Winter frosts can damage some of the South African perennials, and knotted brown masses of dead Hottentot-fig (*Carpobrotus*) plant remnants are commonly seen some years. Mostly, they recover. The Scillies have at least 15 perennial South African Aizoaceae taxa (12+ species), often mixed in with the “Glorious Gazanias” (Treasureflowers, Asteraceae). In HughTown, the different Aizoaceae succulents and the Gazanias all regrow rapidly from fragments and seedings in wall and rock crevices, and from the wall/pavement angles. Most of the Ice- and Dewplants (*Aptenia*, *Ruschia*, *Lampranthus*, *Oscularia*, *Disphyma* and *Drosanthemum* genera) have shiny, reflective, brilliantly-coloured petals (as in buttercups or mesembryanthemums). Stace (1997) and Sell & Murrell (2006) both give only one Treasureflower species, *Gazania rigens*, but Sell & Murrell split it into three natural variants: var. *rigens*, var. *uniflora* and var. *leucolaena*. The leaves are very variable,

flowers yellow or orange. Perry (1977) mentions 11 different *Gazania* colours, and Brickell (1998) describes four cultivated hybrid series. In the Scillies, there are clearly more than the 18 natural Aizoaceae and *Gazania* taxa aforementioned on wall tops. A few of these cultivars may already be +/- naturalised, but other Treasureflowers and Dewplants have progressed further onto the granite boulders, or into the natural vegetation on rocky or even sandy shores (see Colour Section Plate 3).

Elizabeth I started the fortifications around the peninsula from the west of the largest island of St Mary's, as a defence against the Spanish (later strengthened against the French, and used in the Civil War). At intervals, there are gun emplacements, all constructed of granite blocks. Photo 1 is taken outside one such ancient battery, dominated by a dense cascade of the silvery pink Pale Dewplant *Drosanthemum floribundum* over granite boulders. On photo 2, the two main taxa are *Gazania rigens* var. *leucolaena* with the white-tomentose leaves, and the Purple Dewplant *Disphyma crassifolium* (known locally as 'Jelly-beans'). On the right, there is a seeded Aeonium *A. cuneatum* rosette. The tussock on the far upper left is a *Rhodostachys* clump. Over the *Drosanthemum*, even on windy days, there were 25 bumblebees per sq. m., and in photo 2 there were 15-20 bees per sq. m. Photos 3 and 4 illustrate the progression of *G. rigens* var. *leucolaena* and *Disphyma crassifolium* onto the rocky shore. In photo 3, beyond the Red Fescue *Festuca rubra* sward, these two South African species reach a range of lichens in the splash zone, including the orange *Xanthoria ectanoides*, the black *Verrucaria maura*, the brown *Anaptychia runcinata*, the grey-green *Ramalina siliquosa* and *R. cuspidata*, and the pale *Ochrolechia porella*. Photo 4 illustrates the mosaic between these same two South African species and the NVC plant community MCl. *G. rigens* var. *leucolaena* is centre and lower-left, with some Thrift *Armeria maritima* between. The pink upper centre is the Purple Dewplant, with a green patch of

Rock Samphire *Crithmum maritimum* to the left-centre. Rock Sea-spurrey *Spergularia rupicola* was between some of the boulders, but along with some other natives was not discernible on the photo. The foreground centre and left grass is Red Fescue. Bumblebees were again abundant. On some of the islands, small patches of Treasureflowers appear to have just started to colonise the SD7 (semi-fixed dune) communities amongst Marram *Ammophila arenaria*, but not extensively. *G. rigens* (all three varieties) can all achieve a toehold, and I have seen one such patch with patterned lilac-coloured flowers, *G. rigens* presumably hybridised with another *Gazania* species.

Large concentrations of Lesser New Zealand Flax *Phormium cookianum* had to be controlled on at least one of the islands, but I am not aware of any mass extirpations of alien vascular plants on behalf of the original flora or fauna. Too much bracken and bramble may be a greater threat to some of the rarities. The islanders like their New Zealand and Atlantic Island plants, their brilliantly coloured South African succulents and other wall species, their beautiful big blue lilies (South African *Agapanthus*) naturalised on dunes and elsewhere, their outlandish exotics, several of which are giant versions of our mainland species, and their Treasureflowers! Unlike all the mainland floras, with their determinedly native emphasis *The flowering plants and ferns in the Isles of Scilly* has a Chilean sorrel illustrated on its front cover. *The Isles of Scilly* cover well captures the Scilly colours. It includes two native plants (one a lichen), a Californian Pine, and two colour-variants of the South African Hottentot-fig.

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NOTICES

The future of biology

The Society of Biology launched on the 1st October 2009, providing a much needed single voice for the life sciences. By uniting individual life scientists, learned societies and a range of businesses, higher education institutions and other not-for-profit bodies, they are able to speak with legitimacy on behalf of over 80,000 biologists from all walks of life. They aim to be inclusive and to work across the breadth of areas that biology covers, but they cannot do this alone - active involvement from their Members and Fellows is critical.

Their philosophy is one of joint working, sharing and partnership and they would like to invite you to become a member of the Society to help meet the challenges ahead. In return for your commitment they can offer you an attractive member benefits package including:

- A free subscription to their leading journal *Biologist* to keep you up to date with current developments in the bioscience community.
- Professional recognition through post nominal letters.
- A CPD programme designed to develop your professional skills and knowledge.
- The opportunity to become a Chartered Biologist, a qualification which recognises the work you do to keep your skills up to date.
- Networking opportunities though local and national events and online in the Members' Area of their website.
- Discounts on publications from Cambridge University Press, Oxford University Press and others.
- Third party discounts including Science Museum membership, Kew, Gourmet Society, Virgin Wines.

The post-nominal letters (AMSB, MSB and FSB), signify to all that you are a professional biologist, well qualified and subject to a rigorous code of conduct. Holders of these letters are committed to the advancement of the biological sciences and maintain high standards of competence and ethical behaviour.

Membership gives you access to a wide and diverse network of biologists. You can contact other members by searching their online directory in the members' area of the website or by attending one of their local or national events.

The Society is frequently consulted on biological issues by government departments, funding bodies, industry and other national and international organisations. Drawing on the breadth of their membership, they are able to produce a balanced response, reflecting the views of the biological profession as a whole.

The Society has grades of membership suitable for all levels of skills and qualifications, including interested amateurs. See their website for full details of membership grades: <http://www.societyofbiology.org/membership/individual-membership/membership-grades>
The Society of Biology has partnered with the BSBI to offer all BSBI members a special rate on Society membership. For BSBI members applying to join, the Society of Biology will offer a discount of 25% for the first year's membership subscription (offer ends 31st December 2010).

To join, please email:

jonkudlick@societyofbiology.org, stating that you are a member of BSBI and you will be sent the application form to complete.

Advance notice: BSBI excursion to Guernsey

Wednesday 11th May – Tuesday 17th May 2011

Leaders: CHARLES DAVID & RACHEL RABEY

May is the best time of year to visit Guernsey. The orchid fields are expected to be at their peak, with hundreds of *Anacamptis laxiflora* (Loose-flowered Orchid). Besides visiting habitats in Guernsey we plan to visit the Island of Herm. There will also be optional visits to Sark or Alderney. La Société Guernesaise have been asked to help during the week, so there will be a chance to meet local botanists. The meeting will be hotel based and accommodation has been booked provisionally with both single and double rooms.

Guernsey can be reached from most airports in the U.K. There is also a car ferry service from Poole or Weymouth.

Please register your interest by contacting Rachel Rabey (by Snail Mail) at: Coin Colin Cottage, St Martin, Guernsey GY4 6AQ, when further information will be sent to you. There is no need to send a s.a.e. Our stamps are different!

Early booking is essential, as numbers will be limited.

Botanical field meeting in the Canary Islands

TERESA FARINO, *Apartado de Correos 59, 39570 Potes, Cantabria, Spain*
(Tel.: 00 34 942 735154) (teresa@iberianwildlife.com)

Following the success of the past seven trips that I have led for BSBI members, I would like to hear from anyone who would be interested in a botanical excursion to the Canary Islands in the winter of 2011/2012.

The intention would be to visit at least two islands – Tenerife and either Lanzarote or Fuerteventura – in a ten-day trip, but we may

also be able to include one of the less well-known western islands too. Proposed dates at the moment are November 2011 or January/February 2012, and it would be great to hear members' opinions as to what they would like this trip to include. Please contact me with your views as soon as possible if you are interested in joining us.

New plant conservation campaign 'Plants for the Planet' needs your help!

Imagine a world without colour – imagine a world without plants! Plants colour our window boxes, gardens and natural landscapes. They provide us with inspiration and pleasure. Much more than this they provide our food, medicines, timber and a whole host of natural resources. They provide the oxygen in the air that we breathe and absorb carbon dioxide from the atmosphere, helping to regulate the global climate. Yet at least one third of all plants are threatened with extinction. A plan exists to stop this: the Global Strategy for Plant Conservation (GSPC). The GSPC is being considered by governments at the CBD CoP10 in Nagoya in October – we (BGCI) are collecting signatures

to take to Nagoya supporting the GSPC and speaking up for plants! It takes just a minute to sign your name and help us ensure that plant conservation is given the attention it so deserves. Visit www.plantsfortheplanet.com for further information.

BGCI (Botanic Gardens Conservation International) is an international charity, founded in 1987, that exists to ensure the world-wide conservation of threatened plants, the continued existence of which are intrinsically linked to global issues including poverty, human well-being and climate change. Our vision is a world in which plant diversity is valued, secure and supporting all life. See www.bgci.org for more information.

REQUESTS & OFFERS

Critically Endangered archaeophytes in England – sorting the wheat from the chaff?

KEVIN WALKER, BSBI, 97 Dragon Parade, Harrogate, North Yorkshire HG1 5DG
(kevinwalker@bsbi.org.uk Tel. 01423 544902)

SIMON LEACH, Natural England, Riverside Chambers, Castle Street, Taunton, Somerset,
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The GB *Red List* (Cheffings & Farrell, 2005; plus recent amendments summarised in *BSBI News* 104: 19-21 and 113: 43-44) classifies threatened British native and archaeophyte vascular plant species as ‘Critically Endangered’, ‘Endangered’ and ‘Vulnerable’, according to an assessment of each plant’s risk of extinction in the wild against internationally agreed IUCN criteria. Whilst the current distributions of most of our threatened taxa are well known, there are some for which we have a paucity of reliable up-to-date information, including several Critically Endangered UK BAP taxa also listed as species of ‘principal importance’ in England under Section 41 of the Natural Environment and Rural Communities Act (2006).

In this regard, of particular concern is a small group of Critically Endangered archaeophytes that have declined dramatically in the last century and are now only recorded, if at all, as presumed-casuals (or following deliberate sowing). With such species, we suspect that long-established populations may still survive on sites where suitable habitats persist (e.g. low intensity arable), and some casual records – especially from within former stronghold areas – could represent fleeting appearances from a long-buried persistent seed-bank.

The problem is knowing what’s important and what’s not. A good example is *Galium tricornutum* (Corn Cleavers), which has long been known from untreated arable plots at Rothamsted, and in the 1980s was recorded from an arable conservation area at Wytham. Both of these sites are clearly of the utmost importance. But what has become of the Wytham population? And are there other,

currently ignored, occurrences meriting attention from a conservation standpoint? On the BSBI Maps Scheme website the map for *G. tricornutum* shows records for 16 hectads in the 1987-99 date class, and one hectad (apparently an error) in the 2000-09 date class. Some of these records may refer to populations that we really ought to be making a high priority for conservation action – but knowing which these are remains a major challenge.

BSBI is working closely with Natural England to identify priorities for plant conservation in England. One element of this work is to locate key sites for a number of Critically Endangered Section 41 species, to check that they are being protected and/or suitably managed, and, if not, to take action to ensure that they are properly safeguarded in the future.

The five species for which we are presently seeking more information are listed in the table below. All are archaeophytes and, with the exception of *Eryngium campestre* (Field Eryngo), are historically associated with areas of low-intensity arable or mixed arable/livestock farming. All are now at extremely high risk of extinction; indeed, *Bupleurum rotundifolium* (Thorow-wax), *Chenopodium urbicum* (Upright Goosefoot) and *Lolium temulentum* (Darnel) are often cited as extinct in England, despite a continuing trickle of casual records (e.g. as bird-seed or rubbish-tip aliens).

There is now an urgent need for some clarity on the current distribution and status of these species, and we are keen to hear from anyone aware of:

- Long-established (possibly ‘archaeophytic’) populations – or repeated short-lived occurrences – in arable areas

(*B. rotundifolium*, *G. tricornerutum*, *L. temulentum*), grassland (*E. campestre*) or around farmyard manure-heaps or other nutrient-enriched disturbed or cultivated ground (*C. urbicum*).

- Recent (often presumed-casual) occurrences within the former range of one of these species, where it may have re-emerged from a buried seed-bank, e.g. plants appearing as a result of ground disturbance during road-widening schemes.
- Sites where one of these species is known (or suspected) to have been deliberately (or accidentally) introduced, and where it seems to be persisting under favourable management.

With regard to the last bullet-point, even definite introductions may be important for

species lacking either long-established sites or recently re-established populations which may have sprung up from long-buried seed. For example, we are aware of at least one site where introduced *B. rotundifolium* is being deliberately ‘cultivated’ with other arable weeds as part of an ancient-style cropping regime. Is it possible that *C. urbicum* is being preserved in much the same way, say on the dung-heaps of an ‘Iron Age’ camp?

We would be grateful for any records of extant – or recently extant – populations of any of the five species listed in the table below. Please send details to Kevin Walker at the address above, preferably before mid-October when the group working up conservation priorities for these species is next due to meet.

Critically Endangered species	Comment
<i>Bupleurum rotundifolium</i>	Possibly extinct as an arable species since the 1960s but some ‘arable’ sites may survive where suitable conditions have been reinstated and the plant re-introduced. Most recent ‘natural’ occurrences are reported to have arisen from bird-seed or following exposure of buried seed-banks
<i>Chenopodium urbicum</i>	Probably only now occurring as a rare casual?
<i>Eryngium campestre</i>	Long-established at a few sites in the SW but only as a casual elsewhere?
<i>Galium tricornerutum</i>	Appears to have only been recorded reliably at three sites in recent decades although its current status at two of these is unknown – and what about all the other records on the BSBI Maps Scheme website?
<i>Lolium temulentum</i>	A former arable weed but probably now only a rare bird-seed casual?

Reference:
CHEFFINGS, C.M. & FARRELL, L. (eds.). (2005). ‘The vascular plant red data list for

Great Britain’. *Species Status 7*: 1-116. Joint Nature Conservation Committee, Peterborough.

A reminder

MIKE WILCOX, 32 Shawbridge Street, Clitheroe, Lancashire, BB7 1LZ
(michaelpw22@hotmail.com)

Juncus compressus/gerardii wanted, etc. – see *April News* 114: 45.

Help!

SEÁN L.M. KARLEY & ANN M. KARLEY, 30 Harrowden Road, Wellingborough,
Northamptonshire, NN8 5BH (seankarley@tiscali.co.uk; tel.: 01933 – 225397)

We have been running our ‘Help!’ table at the Annual Exhibition Meeting for almost thirty years now. We have enjoyed it greatly, and we like to think that others have enjoyed it as well. And maybe it has even helped a little, here and there.

But we are getting older, and there comes a time when we must all draw a line in the sand and say “Thus far, but no farther.” For us this line is at Birmingham in November. Sadly this will be the last time that we mount this exhibit. We are still hoping that someone will come along and say “Maybe I could give it a go?”

Maybe you?

The requirements are few. You *do not need* to be an expert at anything (why do you think that we have done it for so long?). It is enough to love plants, to lay stuff out on the day and just keep an eye on things, maybe supply a few bits of paper, etc., or receive and return a few plants by post. It would particularly suit a younger person who would enjoy doing something easy for the benefit of the Society, and handling a variety of plant material which they might otherwise never see.

If you think it might be worth having a go, please talk to us.

Otherwise, ‘Help!’ will stop.

Online version of the *New atlas of the British & Irish flora* – volunteer and photos needed

KEVIN WALKER, BSBI, c/o 97 Dragon Parade, Harrogate, North Yorkshire, HG1 5DG
(kevinwalker@bsbi.org.uk Tel. 01423 544902)

DAVID ROY, Centre for Ecology & Hydrology, Maclean Building, Benson Lane, Crowmarsh
Gifford, Wallingford, Oxfordshire, OX10 8BB

BSBI is working with the Centre for Ecology & Hydrology to produce an online version of the *New atlas of the British & Irish flora* to be available via the BSBI website. The aim of this site is twofold: first, to present the *New atlas* text and distribution data for all taxa mapped in *New atlas*, including BSBI’s tetrad and hectad maps, and second, to provide additional information on the habitats and ecology of each species. The latter will include ‘trait information’ derived from ecological datasets such as PLANTATT, as well as species accounts that have already been published (e.g. *Red aata book*, *Scarce plants*, *Aquatic plants*) or that are available on other websites (e.g. BSBI species accounts).

Our objective is to provide an open-resource that will be of use to botanists, researchers, conservationists and the general public alike.

The site will be interactive with a moderated facility to edit accounts and submit comments and photos online. CEH are designing and maintain the web page with support from JNCC, and BSBI are supplying much of the material that will go onto it such as accounts, photos and ecological information. A prototype page has been developed over the summer and should be launched by the end of this year.

We are looking for an enthusiastic volunteer to help develop this site further. Initially this will involve ‘posting’ information (e.g. species accounts, photos) onto the webpage as well as coordinating the collation of images to go alongside the species accounts. These are relatively straightforward tasks that could be undertaken on a home PC with internet access.

We are also looking for good quality digital images of British and Irish plants or their habitats. These will either sit alongside the Atlas text or be placed in an image gallery for each species. At the moment we have images for around 20% of the British flora (mostly rare taxa) so there is still plenty of scope to

contribute, especially for more common species. Images can be uploaded directly to the website from a home PC.

If you are interested in volunteering or submitting images then please get in touch with Kevin Walker at the email address above.

Flowering plants of the Galapagos

P.A. BUDD, 488 Bitterne Road East, Bitterne, Southampton, Hants., SO18 5EP

I wish to give away a copy of the 1999 edition of *Flowering plants of the Galapagos* by Conley K. McMullen. The copy is in good condition. Somebody who has been to the Galapagos passed the copy on to me but I don't envisage ever being likely to be able to afford to visit the Galapagos.

If anyone is interested in the book all I require is a forwarding address and a small payment to cover postage. The book will then be passed on a 'first-come-first-served' basis.

My contact details are: Tel.: 02380 444172;
e-mail: phillipbudd@btinternet.com

Old BSBI publications on offer

MIKE ATKINSON, 7 Old Bridge Rise, Ilkley, West Yorkshire, LS29 9HH (Tel.: 01943 609891)

I have a lot of old *Watsonia* and *BSBI News*. Is there any interest in them? I hate to throw potentially useful matter in the bin and am including a list below. They would be free to callers. Packing and couriering them would be laborious and costly. They are here in Ilkley.

Proceedings of BSBI

1956: June, 1958: July, 1959: January, 1960: Sept., 1961: Dec., 1962: Sept., 1963: Feb., Aug., 1964: Feb., Oct., 1965: June, Dec., 1966 Sept. Indexes to vols. 4 and 5.

Watsonia

1961: July, 1963: Nov., 1964: May, 1965: May, Oct., 1966: Sept, 1967: June, 1968: June. Vol.7, pts 1-3; Vols. 8-24 complete. Indexes to vols. 5, 7-24.

BSBI Abstracts

Part 29 (Aug 2001)

BSBI News

nos. 31, 58-100. Indexes to nos. 49-100.

Botanical Cornwall 14

This first issue for four years covers has articles on Important Plant areas, *Illecebrum* in Cornwall, a description of a new dandelion and a substantial overview of recording in Cornwall over the last five years. There are nearly 45 pages of plant records up to last autumn.

In order to produce this without any further delay the photographs, and some of the distribution maps that have been a feature of past

issues, have been omitted, but will re-appear next time!

In view of this BC14 is available for the lower sum of £5, plus £2 p& p, from:

Environmental Records Centre for Cornwall and the Isles of Scilly, Cornwall Wildlife Trust, Five Acres, Allet, Truro, Cornwall, TR4 9DJ.

Alternatively it will be available as a free pdf download from their website, www.ercis.co.uk or the BSBI website, www.bsbi.org.uk

FIELD MEETING REPORTS: 2010

Reports of field meetings are collated by Dr Alan Showler, and copy for these should be sent to him direct, not to the editors of *BSBI News*. His address is: 12 Wedgwood Drive, Hughsden

Valley, High Wycombe, Bucks., HP14 4PA (tel.: 01494 562082). Copy for day meetings should generally be up to 500 words, and for weekend meetings, up to 1000 words.

East Lizard, W. Cornwall (v.c.1), 29th – 31st May

DAVID PEARMAN & ANDY BYFIELD

The combination of the latest spring in Cornwall for many years, plus the virtual drought since early April, meant that we had grave doubts that we would see the rare clovers in general and *Juncus capitatus* (Dwarf Rush) in particular, and these gloomy prognostications were by and large fulfilled. Nevertheless a core group of around 12, together with expert assistance from Rachel Holder from the National Trust, went round all the coastal sites for the *Juncus* and for two of the rare clovers, *Trifolium bocconeii* (Twin-headed Clover) and *T. strictum* (Upright Clover), together with the majority of the sites for the third, *T. incarnatum* ssp. *molinerii* (Long-headed Clover).

We met on the Saturday on the track to Kynance Cove, and went down to a slope to the north of Caerthillian to familiarise ourselves with the rare species. Four plants only of *Juncus capitatus* were seen, together with good *Trifolium bocconeii* and all the other widespread ‘specialties’, including *Allium schoenoprasum* (Chives), *Herniaria ciliolata* (Fringed Rupturewort) and *Minuartia verna* (Spring Sandwort). Another slope nearby had two diminutive plants of *Trifolium strictum* and masses of *Orobancha alba* (Thyme Broomrape). Then down to the sea, and plants of the third clover, *Trifolium incarnatum* ssp. *molinerii*, were seen, with many more on the slope to the north. The famous slope of the Caerthillian’s southern valley was briefly scanned, with most of the rarities there in small quantity only. After lunch the party split, with one group going down the Kynance

valley, looking for the *Juncus* and older records of the clovers, with no successes, though the outcrop further on, by Kynance Farm had the expected *Trifolium bocconeii* and *T. strictum*. The other group explored the coast south and north of Cadgwith, finding *Trifolium incarnatum* ssp. *molinerii* at all its old sites, the success of the weekend, but no *Juncus capitatus* or *Trifolium bocconeii*, for which there were a number of old records on the stretch north to Poltesco. But we did see the massive clumps of *Asparagus prostratus* (Wild Asparagus) just north of Cadgwith, the biggest clumps we had seen, and *Polycarpon tetraphyllum* (Four-leaved Allseed) doing well in an old quarry, where it has been known since the 1870s.

Sunday’s exploration of the Black Head area was to be the main aim of the meeting, with many records, both old and recent of both *Juncus capitatus* and *Trifolium bocconeii* over a mile of cliff ledges. Sadly all was much more dried up than elsewhere, and in the whole day the long-suffering but very patient group had only one success: four plants of *J. capitatus*, all under one centimetre tall! But there was one highlight, a completely new site for *Asparagus*, about three miles NE of the nearest site at Cadgwith across the bay. As a treat at the end of the day we went to look at *Melittis melissophyllum* (Bastard Balm) and *Carex punctata* (Dotted Sedge), both in pristine condition on the track to Lowland Point, and finally we found *Crassula tillaea* (Mossy Stonecrop), which is spreading fast in Cornwall, in the car park at Coverack.

We changed plans on the Monday, having explored all the eastern cliffs, and went to Predannack, to look for the remaining sites for the three clovers, together with a few sites for *Juncus capitatus* that had been checked in 2009. But again, the clovers were found only in the long-known sites, and there in tiny numbers, and only a total of two *Juncus* plants altogether! But lest this sounds just a litany of disappointment, the weather on all the three days was totally acceptable and the settings, poised above surging blue and green seas, totally magnificent; and all the other Lizard plants were perfectly visible and much enjoyed.

Finally, as a reward, Andy B. took us to Ruan Pool, where work financed by Plantlife (and the Cornwall Wildlife Trust) had dredged and rutted old trackways and pools and produced super stands of plants, including

Apium inundatum (Lesser Marshwort), *Baldellia ranunculoides* (Lesser Water-plantain), *Cicendia filiformis* (Yellow Centaury) and *Pilularia globulifera* (Pillwort).

So, a very pleasant trip, but the confirmation or otherwise of the continued existence of the coastal populations will have to wait for a more clement season. To give a scale of the task, 13 of the 19 populations of *Trifolium bocconii* known in the 1970s remain to be re-found, seven of the 14 for *T. strictum*, and six of the 17 for *T. incarnatum* ssp. *molinerii*, together with as many as 17 sites and subsites for *Juncus capitatus*. Many of the sites have had encroaching gorse and heath, but management is definitely much improved, and most of the ledges, the principal habitat for this suite of species, are clear, so there is no real reason yet to despair of re-finding some at least!

Hill of Garvoek, Kincardineshire (v.c.91), 5th June

David Welch

We met at a viewpoint car-park where the Laurencekirk to St Cyrus road crests the Garvoek ridge. It was bright and clear, with fine views west across the Howe of the Mearns to the Grampian Mountains. There were sixteen of us, and we grouped into fewer cars for the narrow roads and restricted parking ahead. Almost all were members of the Scottish Wildlife Trust, with which body the meeting was joint; many were regulars on the botanical outings I have long led for the SWT.

We drove first to West Bradieston Farm. Its owner had helpfully suggested access routes to the Craig of Garvoek SSSI when I made my reconnaissance. This 117 ha site has largely escaped modern intensive agriculture, though tracts of ridge-and-furrow tell of former ploughing. Cattle now graze in moderate numbers, keeping the mesotrophic grassland and mire communities in favourable botanical condition.

Once through the in-bye parks, we soon saw fine displays of *Dactylorhiza fuchsii* (Common Spotted-orchid) and *Pinguicula*

vulgaris (Common Butterwort) in cattle-trampled mire. Then came scattered rosettes of *Platanthera bifolia* (Lesser Butterfly-orchid), though we had to wait a while to find a fully-open inflorescence. The sedge experts also were made to ponder by early stages of development, but we recognised *Carex dioica*, *C. disticha* and *C. hostiana* (Dioecious, Brown and Tawny Sedges) besides several commoner marsh species.

Back in 1842 the minister of Garvoek had mentioned “beautiful patches” of *Trollius europaeus* (Globoseflower) in his parish description for the New Statistical Account. We found several such, most in a small valley at the NW edge of the SSSI. At the head of this valley there were equally beautiful stands of *Eriophorum angustifolium* (Common Cottongrass), within which we saw *Drosera rotundifolia* (Round-leaved Sundew).

We briefly left the SSSI to reach the Johnston Tower, a folly on the highest point of the ridge (277m). Lava outcrops here and encountered earlier yielded *Aira praecox* (Early Hair-grass), *Carex caryophyllea*

(Spring Sedge), *Erophila verna* (Common Whitlowgrass), *Helianthemum nummularium* (Common Rock-rose) and *Pilosella officinarum* (Mouse-ear Hawkweed). Descending back to our cars, we added *Gymnadenia conopsea* (Fragrant Orchid) and *Menyanthes trifoliata* (Bogbean) on the hill, and *Alopecurus pratensis* (Meadow Foxtail) and *Equisetum sylvaticum* (Wood Horsetail) along the minor road.

We then drove down to St Cyrus, stopping at the SNH Visitor Centre and seeing *Echium vulgare* (Viper's Bugloss), *Malva sylvestris* (Common Mallow) and *Trifolium striatum* (Knotted Clover) in its car-park surrounds. Next was the field where possible *Fumaria reuteri* (Martin's Ramping-fumitory) had been found last summer. However this year there was not a weed in the cultivated ground, and only after hard search on my reconnaissance had I located developing plants in the unsprayed grass surrounds. Happily these were now in flower, so we took photos and one shoot to send to Rose Murphy for further

taxonomic evaluation. We also found a few plants in the next field north, extending last summer's range.

Finally we headed to the Kirkton of Garvock. In the graveyard there is a rich grassland perpetually checked by fortnightly mowing. We spotted *Alchemilla glabra* (Lady's-mantle), *Cardamine pratensis* (Cuckooflower), *Centaurea nigra* (Common Knapweed), *Conopodium majus* (Pignut), *Primula vulgaris* (Primrose) and *Ranunculus bulbosus* (Bulbous Buttercup), this last rare in inland Kincardineshire. In the den to the north we saw *Chrysosplenium oppositifolium* (Opposite-leaved Golden-saxifrage), *Geranium robertianum* (Herb Robert), *Peucedanum ostruthium* (Masterwort), and a solitary bush of *Salix pentandra* (Bay Willow); a still-keen botanist descended to pace out the *Peucedanum* colony.

After this we returned to our meeting point, and interestingly I noted that all the attendees had driven from places north and west in political Aberdeenshire.

OBITUARY NOTES

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

Since *BSBI News* 114 we regret to report eight deaths – some of them members who had given support to the Society for many years, and send sympathy to all their families:

Mr R.H. McCosh of Biggar who joined BSBI in 1958. We send sympathy to his brother, David, our v.c. recorder for Peebleshire and *Hieracium* expert; **Mr J.B. Powner** of Derby (1972); **Miss Lorna C. Dudley** of Chipping Campden (1976); **Mrs P.S. Swettenham** of Drummore, Stranraer (1976); **Mr J. Desmond Lepper** of Amesbury (1978), who was a traveller in Europe with a huge enthusiasm for terrestrial orchids; **Mr R.E. Petch** from Evesham (1979); **Dr A. Wehrmaker** from Winterbach / Rems, Germany (1986); and **Mr F.N. Wright** from Mansfield (1994).

Although not a member, we are also sad to report the death of **Mr Kenneth Ashburner**, BSBI referee for *Betula* since 1995. He would say that he was 'no botanist', but was collaborat-

ing with Dr Hugh McAllister on a revision of the genus. At Stone Farm, Chagford, Devon, he held the National Collection of *Betula* and *Alnus*, where a memorial event to celebrate Kenneth's life was held on September 11th. Sarah Stille writes: that at his arboretum at Stone Farm he had a wonderful collection of *Betula* from the whole of the Northern Hemisphere.

As we go to press we hear the very sad news that **Ann Conolly**, has died. There will be a full obituary in our next publications. Ann joined the BSBI in 1948 and had a long association with the University of Leicester. She was made an honorary member of BSBI in 2009 and a profile and photo was published in *BSBI News* 112 (Sept. 2009).

We have also just heard the sad news of the deaths of **Alan Knapp**, my joint recorder for West Sussex (v.c.13) and **Peter Fry**, our Hon. Assistant Secretary and send sympathy to their families.

PROFILES OF NEW HONORARY MEMBERS

Margaret Bradshaw

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

Margaret has been a BSBI member since 1951, which is the year she met Max Walters, who suggested to her that Teesdale was a good place to look for *Alchemilla* (Lady's-mantle) species. This has since developed into a lifetime interest. Margaret will also be known to many people for her championing of the Cow Green Reservoir in the mid-1960s, one of the first *causes célèbres* of the conservation world. She has worked tirelessly in recording, understanding and attempting to protect the special plants of the Teesdale area. She was awarded an MBE in 1977 for services to conservation.

Her first degree was taken at Leeds University in the 1940s, and then she became a biology teacher for five years at Bakewell, Derbyshire, then in County Durham, to be near that botanical 'hotspot' – Teesdale. She completed her PhD at Durham University.

In the 1950s she helped with recording for the first edition of the *Atlas*, and also mapped the rarer *Alchemilla* species in Teesdale and Weardale. The 1960s saw her as a founder member of the forerunner of the Durham and the Northumberland Wildlife Trusts, and she was also a Conservation Officer for Co. Durham. This decade also saw the celebrated Cow Green Reservoir case, and Margaret was a member of the Teesdale Defence Committee, appearing as an expert witness at both the House of Commons and the Lords Select Committee.

In the following years she organised and supervised research assistants, who produced a vegetation map of Widdybank Fell, using phytosociological techniques, studies of several rare plant species, and their population

dynamics on both Widdybank and Cronkley Fells. Many Durham students have participated in these studies, which are still on-going, making them one of the longer-term datasets available for an area in England.

Margaret moved to Devon in 1983 where she became a sheep-farmer, and also surveyed many of the rare plants in the county for English Nature. Some of these were *Sorbus* species (whitebeams), and one was subsequently named after her – *Sorbus margaretae* (Margaret's Whitebeam), as she first recognised it as a distinct species in 1984.

Returning to Teesdale in 1998, she recommenced her *Alchemilla* studies and the population dynamics monitoring, and a little later in 2002 initiated the Upper Teesdale Botany Group, which has identified changes in meadows first surveyed in 1967, in addition to making a comprehensive list of all the higher plants and a survey of the plant communities on the bank of the Tees below High Force. For several years Margaret has been running *Alchemilla* identification weekends, and in 2010 she will be sharing her enthusiasm with botanists in Scotland.

Many former students have crawled across Teesdale with her in wet and windy conditions, survived and gone on to become professional botanists and ecologists themselves, so her legacy is a living one. Her stamina and indefatigability are legendary. Although she suffered a mild heart attack a few years ago, she climbed Ben Lawers last summer and continues to enjoy horse-riding for physical and mental stimulation. Margaret is clearly aiming to continue her various activities for many years to come.

Trevor Evans

RICHARD PRYCE, *Trevethin, School Road, Pwll, Llanelli, Carm., SA15 4AL*

I feel it a privilege to have been asked to propose Trevor Evans as an Honorary Member of the BSBI. As a fellow Welsh County Recorder, I have known Trevor for over thirty years and have always been in awe of his profound knowledge of plants, not only of his native Monmouthshire, but also of much of the European flora and even further afield. This wide knowledge was a great advantage to him when he was studying the non-native plants which, in the past, often became established at Newport Docks having been off-loaded with ballast from foreign ships collecting Welsh coal for export. Much of this wide knowledge was gained during overseas holidays and I recall his attendance of European botanical excursions to Hungary and Sicily when his wide knowledge always staggered me. He was (and remains) always appreciated for his dry, often wicked humour and healthy scepticism of authority!

His expertise, of course, is not confined to the *identification* of plants but his knowledge of the whereabouts of plants has culminated in the publication of his County Flora for which he won the Presidents' Prize in 2008, an accolade jointly awarded annually by the BSBI and Wildflower Society. It is a monumental work which catalogues the distribution of all the vascular plants in Monmouthshire, the compilation of which, often in company with his sorely missed wife Thelma, has taken much of his lifetime. His high standards and the top quality of his work are well reflected in the publication. Almost uniquely for a county flora, his book also provides identification tips for each species based on his own personal knowledge, tips which are often not given emphasis in the 'standard' British floras but which are invaluable to field-workers. His botanical experience is recognized by fellow botanists, not

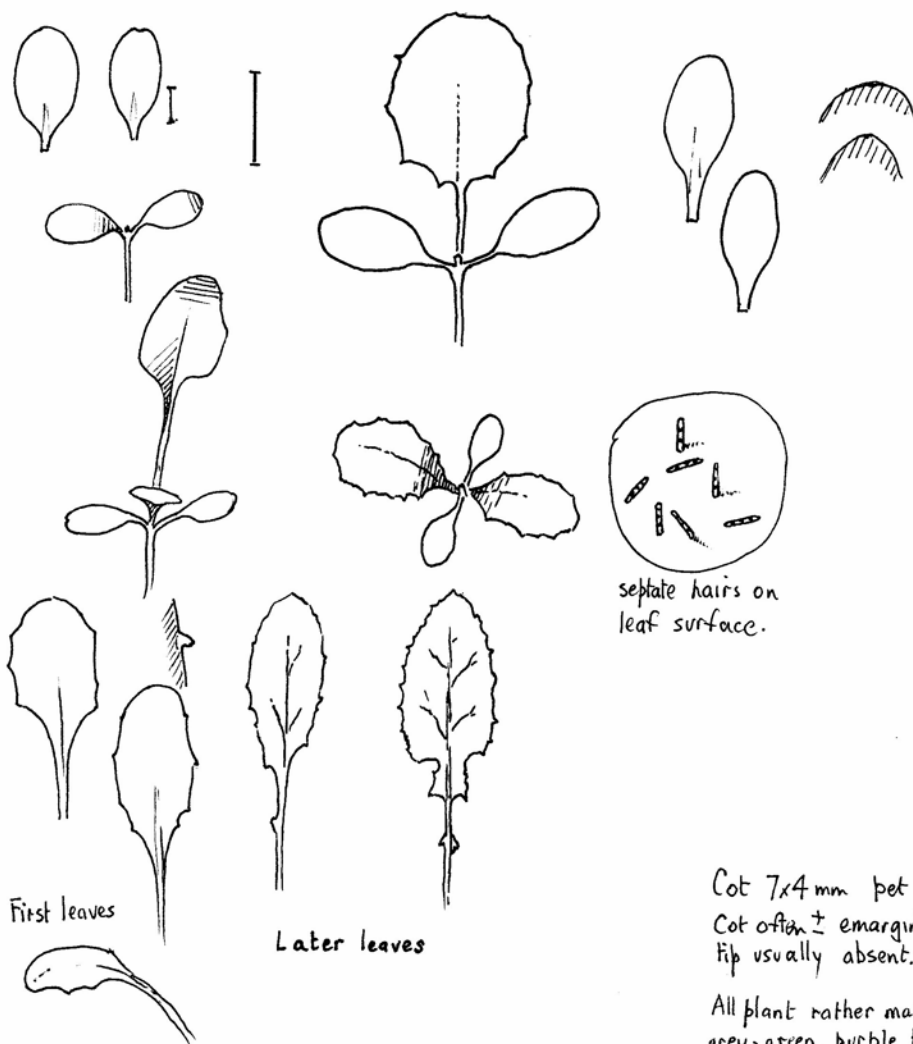
only in Monmouthshire, but also throughout Wales and his *Flora* stands as one of the most comprehensive and authoritative written by a single author, within the whole of Britain and Ireland.

He has always been an inspiration to others and during the many years of field-recording which led to the publication, he was able to rally a good number of helpers who learnt from his infectious enthusiasm, many of whom became very competent botanists in their own right. His helpers were from all age groups and his career as a teacher inspired many generations of up and coming young scientists.

Trevor has always been an enthusiastic nature conservationist and, apart from many successes, he is always regretful of the loss of sites where his beloved plants once grew but which, over the years, have been destroyed for one reason or another. For many years he has been deeply involved with the Gwent Wildlife Trust and in recognition of his services to that organisation as well as nature conservation in the county, he recently had bestowed upon him the honour of Vice President of the Trust. He is, however, not *only* a botanist. His other interests include art, indeed he is a talented painter and woodcarver, he is a local historian, attaining Presidency of the Chepstow Society, is a gardener of 'interesting' plants and has more than a passing enthusiasm for cricket!

Trevor is regarded with great affection by his friends and colleagues and is held in the highest esteem. His botanical achievements as a County Recorder are among the highest in the country and the publication of his *Flora* reflects this expertise. I commend Trevor as one of the leading botanists in Wales and a person to whom the election of Honorary Membership of the BSBI is very well deserved.

SONCHUS ASPER



septate hairs on leaf surface.

First leaves

Later leaves

Autumn/Spring

Cot 7x4 mm pet < lam
 Cot often ± emarginate; purple tip usually absent.

All plant rather matt - grey-green, purple tinging
 Stem tinted reddish.
 True leaves - scattered white hairs on surface; petiole margins hairy.

Sonchus asper (Prickly Sowthistle) seedlings del. S. Evans © 2003
 See *BSBI News* 83: 68 (Jan 2002) or 108: 73 (April 2008) for more details about these drawings

RECORDERS AND RECORDING

Panel of Referees and Specialists

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

Rose Murphy has agreed to referee *Fumaria* in addition to Dr Daker. Miss Murphy also asks if members would contact her before sending her material of *Oenothera* (but please don't use her email address in the Yearbook as it has been causing problems).

We are sorry to hear of the death of Kenneth Ashburner, who has been the Referee for *Betula* since 1995

Not all Referees' addresses include an email address. If there are any referees who would like to have one added I would be grateful to know.

Please note that my email address should be: m.sheahan@kew.org (not @rbgkew.org.uk).

Panel of Vice-county Recorders

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

V.c.13 West Sussex. We are very sorry to announce the sudden death of Alan Knapp, our joint recorder since 1997.

Alan's paper on *Ranunculus ×hiltonii* can be found on page 34 of this issue.

NOTES FROM THE OFFICERS

From the Hon General Secretary – *LYNNE FARRELL*

41 High Street, Hemingford Grey, Cambs., PE28 9BJ
 (01480 462728) (farrell104@btinternet.com)

There have been several very successful meetings since the last *BSBI News*, including the AGM at Leicester University held on the hottest day of the year, in southern England, June 5th. However, over 87 members and local visitors attended the event, and some braved the heavy early rainstorm on the Sunday morning to enjoy the field trips. The following weekend I was on Anglesey for the Welsh AGM, which was also well-attended and in fine weather. Over 100 people were present here, some of them from over the border!

Since then I have been further north, mainly in Scotland, part of the time in my own vice-county on Mull, and then near Tongue, Sutherland, and latterly on North Uist. I wish I could report that Scotland's weather was as good as elsewhere, but sadly July was mainly

a wash-out. Did this deter the BSBI botanists? Not really, we are a hardy lot.



My garden in Cambs. is burnt up, and even the sunflowers are drooping. We do not seem to have the gentle rain and sunny periods that used to be the norm – it is now all or nothing, and sometimes very ferocious. Plants will be adapting already, but are we?

Recent governmental announcements about financial cuts to many organisations and departments will have a knock-on affect on BSBI, but we do have funds for 2010 to carry on with our projects and posts, and we are working on obtaining funding for the future too.

By now you will have received the last edition of *Watsonia*, so read that thoroughly and look forward to receiving the *New Journal of Botany* later in 2011.

For the autumn/winter period, there is the Day Conference on 26th November organised by David Allen on botanical hotspots and their historical perspective, which precedes the

Annual Exhibition Meeting, on the very next day, Saturday 27th, both at the Birmingham Institute. I hope to see you there.



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The stunted fronds of *Phegopteris connectilis*, Brown Willy (v.c.2).
Photo D. Fenwick © 2010 (see p. 33)



Peloric *Kickxia spuria*, Marshall's Heath (v.c.20) with inset showing basal spurs on the corolla.
Photo L. Gravestock © 2010 (see p. 41)



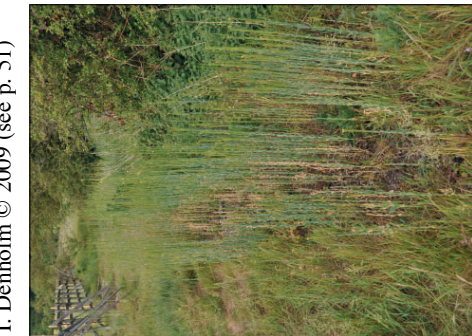
Phalaris paradoxoxa in arable at Rothamsted (v.c.20). Photo I. Denholm © 2009 (see p. 51)



Red *Arum maculatum*, Purbeck, (v.c.9). Photo G. Jarvis © 2010 (see p. 37)



Roadside embankment, Bromsberrow Heath (v.c.34) showing extent of mowing and temporary fencing protecting two fruiting heads of *Turritis glabra* (see p. 36)



The longest plot containing 1511 *Turritis glabra* plants



Cluster of *Turritis glabra* rosettes in newest of plots created Winter 2009 (v.c.24) Lower *Turritis* photos taken at Gerard's Cross (v.c.24) and all by B. Laney © 2010 (see p. 36-37)



Single flowering plant of *Turritis glabra* amongst many rosettes in newest of plots created Winter 2009



Photo 1 - South African Pale Dewplant, massed over granite

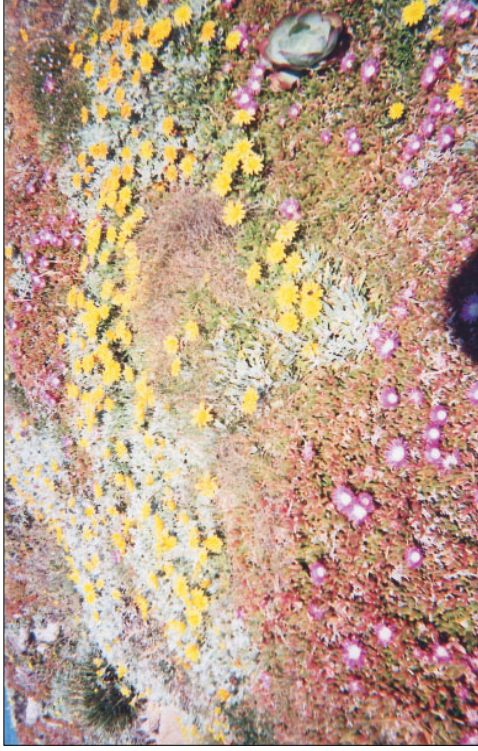


Photo 2 - Massed Treasureflowers and Purple Dewplants on rocks



Photo 3 - Treasureflowers and Dewplants reaching splash zone

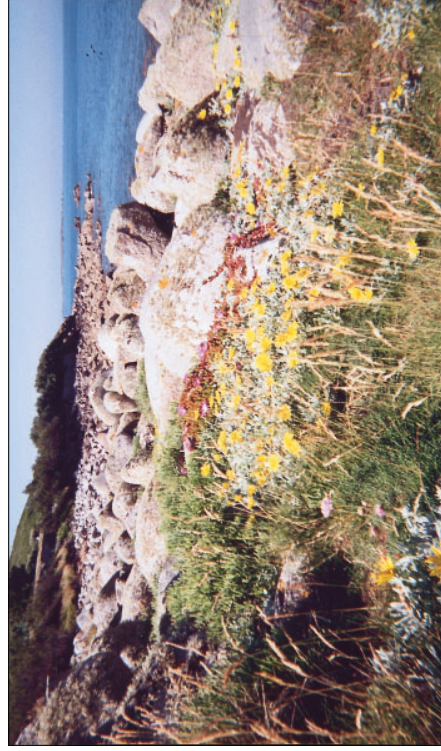


Photo 4 - Mosaic of native MC1 vegetation and South African flowers

All photos taken on Isles of Scilly (v.c.1b) by J.E. Oliver © 2010 (see p. 53)



Arabis procurrens inflorescence and rosettes,
Woking (v.c.17). Photo G. Hounsome © 2009
(see p. 50)



Sonchus '*integrifolius*' whole plant



Sonchus '*integrifolius*' leaves



Sonchus '*integrifolius*' inflorescence

All *Sonchus asper* ssp. *asper* var. *integrifolius* photos taken in the north of England by
M. Wilcox © 2010 (see p. 37)